



EMC TEST REPORT For RCM

Test Report No. : KES-E1-19T0024

Date of Issue : Jan. 15, 2019

Product name : NETWORK CAMERA

Model/Type No. : XNP-6371RH

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 : Jan. 07, 2019

Test date : Jan. 11, 2019 ~ Jan. 12, 2019

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.

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Report No.:
KES-E1-19T0024
Page (2) of (38)

REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Jan. 15, 2019	KES-E1-19T0024	Issued

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TABLE OF CONTENTS

1.0	General Product Description.....	4
1.1	Test Voltage & Frequency	8
1.2	Variant Model Differences	8
1.3	Device Modifications	8
1.4	Equipment Under Test.....	8
1.5	Support Equipments	9
1.6	External I/O Cabling	9
1.7	EUT Operating Mode(s)	10
1.8	Configuration	10
1.9	Remarks when standards applied	11
1.10	Calibration Details of Equipment Used for Measurement	11
1.11	Test Facility	11
1.12	Laboratory Accreditations and Listings	11
2.0	Test Regulations.....	12
2.1	Conducted Emissions at Mains Power Ports	14
2.2	Conducted Emissions at Telecommunication Ports.....	15
2.3	Radiated Electric Field Emissions(Below 1 GHz)	16
2.4	Radiated Electric Field Emissions(Above 1 GHz)	17
APPENDIX A – TEST DATA.....		18
Conducted Emissions at Mains Power Ports.....		18
Conducted Emissions at Telecommunication Ports		20
Radiated Electric Field Emissions(Below 1 GHz)		22
Radiated Electric Field Emissions(Above 1 GHz)		23
Test Setup Photos and Configuration		24
Conducted Voltage Emissions		24
Conducted Telecommunication Emissions		25
Radiated Electric Field Emissions(Below 1 GHz)		26
Radiated Electric Field Emissions(Above 1 GHz)		27
EUT External Photographs		28
EUT Internal Photographs		29



1.0 General Product Description

Main Specifications of EUT are:

	Model
Video	XNP-6371RH
Imaging Device	1/2" 2.17M CMOS
Total Pixels	1952(H) x 1113(V), 2.17M
Effective Pixels	1937(H) x 1097(V), 2.12M
Scanning System	Progressive
Min. Illumination	Color : 0.01Lux (1/30sec, F1.5) B/W : 0 Lux (IR LED On)
S / N Ratio	50dB
Video Out	CVBS : 1.0 Vp-p / 75Ω composite, 720x480(N), 720x576(P),
Lens	
Focal Length (Zoom Ratio)	6 ~ 222mm(Optical 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	Wide 1.5m, Tele 2m
Focus Control	Auto / Manual / One shot AF
Lens Type	DC Auto Iris
Mount Type	Board-in type
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 (1 ea), Auto Run, Schedule
Preset Accuracy	±0.2°
Azimuth	Yes (E/W/S/N/NE/NW/SE/SW)
Auto Tracking	Off / On
Operational	
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 / Schedule
Backlight Compensation	Off / BLC / HLC / WDR
Wide Dynamic Range	150dB
Contrast Enhancement	SSDR (Off / On)
Digital Noise Reduction	SSNR5 (2D+3D Noise Filter) (Off / On)
Digital Image Stabilization	Off / On (built-in Gyro)
Defog	Auto/Manual/Off
Motion Detection	Off / On(8ea, Rectangle)

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Report No.:
KES-E1-19T0024
Page (5) of (38)

Privacy Masking	Off / On (24 Zones of Rectangle zone) - Color : Grey/Green/Red/Blue/Black/White - Zoom ratio option for mask mode - Mosaic option
Gain Control	Off / Low / Middle / High
White Balance	ATW / AWC / Manual / Indoor / Outdoor (included Mercury & Sodium)
Electronic Shutter Speed	Minimum / Maximum / Anti flicker (2 ~ 1/12,000sec)
Digital Zoom	32x
Image Rotation	Flip/Mirror : On/Off
Video&Audio Analytics	Tampering, Loitering, Directional Detection, Fog Detection, Virtual Line, Enter/Exit, Appear / Disappear, Audio Detection, Face Detection, Motion Detection, Sound Classification
Serial Interface	RS-485 - Samsung-T, Pelco-D/P, Panasonic, Bosch, AD, GE, Vicon, Honeywell
Alarm I/O	Input 4ea / Output 2ea (Relay)
Alarm Triggers	Alarm Input, Motion Detection, Video & Audio Analytics, Network Disconnect
Alarm events	File upload via FTP and E-Mail Notification via E-Mail, TCP and HTTP local storage(SD/SDHC/SDXC) or NAS recording at Alarm Triggers External output Preset
Audio In	Selectable (Mic IN/Line IN) Supply voltage: 2.5VDC(4mA), Input impedance: approx. 2K Ohm
Audio out	Line out (3.5mm mono jack), Max output level: 1 Vrms
Pixel counter	support
Network	
Ethernet	RJ-45 (10/100BASE-T)
Video Compression Format	H.264 (MPEG-4 Part 10/AVC), H.265, Motion JPEG
Resolution	1920x1080, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240
Max. Framerate	H.264/H.265 : Max 60fps at all resolutions Motion JPEG : Max. 30fps at all resolutions
Smart Codec	Manual mode (Area-Based : 5ea)
WiseStream-II	support
Video Quality Adjustment	H.264 / H.265 / MJPEG : Target Bitrate Level Control
Bitrate Control Method	H.264 / H.265 : CBR or VBR Motion JPEG : VBR

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Report No.:
KES-E1-19T0024
Page (6) of (38)

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)
Streaming Method	Unicast / Multicast
Max. User Access	20 users at Unicast Mode
Edge Storage	SD/SDHC/SDXC (up to 128GB) - motion Images recorded in the SD/SDHC/SDXC memory card can be downloaded. - camera can detect automatically when the memory is connected - memory status display (ready/error/recording/formatting/lock) NAS(Network Attached Storage) Local PC for Instant Recording(plug-in viewer only)
Application Programming I	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 Softw	SmartViewer

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Report No.:
KES-E1-19T0024
Page (7) of (38)

Environmental	
Operating Temperature / Humidity	-50°C ~ +55°C(+14°F ~ +131°F) / Less than 90% RH
Storage Temperature /	-50°C ~ +60°C (-22°F ~ +140°F) / Less than 90% RH
Ingress Protection	IP66
Vandal Resistance	IK10
Electrical	
Input Voltage / Current	AC24V±10%
Power Consumption	90W(Heater On, IR On), 60W(Heater Off, IR On)
Mechanical	
Color / Material	Black(head) +Ivory(body) / Plastic+Metal
Dimension (WxH)	H407.7 x Ø236.9 mm
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 ☐ 240 Vac ☐ 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-6371RH	-	D-TECH CO.,LTD.	EUT



1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Notebook	X56K	HN11N5151FJ004 5W	Hansung Computer Co., Ltd.	-
Notebook Adaptor	A12-120P1A	F1802715520117 58	CHICONY POWER TECHNOLOGY CO.,LTD.	-
Speaker	BR1000A Cuve Black 2	-	DONGGUAN EDIFIER TECHNOLOGY Co., Ltd	-
MIC	MP1000	-	-	-
Alarm 1	SIP-1201DD D0	-	SAMSUNG TECHWIN CO., LTD.	-
Alarm 2	-	-	-	-
Controller	SPC-1010	C60E67WD60100 3	SamSung Techwin Co.,Ltd.	-
Controller Adaptor	RS-AB1000	-	Dongguan Jinhuasheng Power Technology Co.,Ltd.	-
Cellular phone	SHV-E210L	R33D713KA3F	Samsung Electronics Co.,Ltd.	-
Micro SD Card	-	-	SanDisk	8 GB

1.6 External I/O Cabling

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
	Audio Out	Speaker	Audio In	1.4	U
	Audio In	MIC	Audio Out	1.4	U
	Alarm Out	Alarm 1	Alarm In	3.0	U
	Alarm In	Alarm 2	Alarm Out	3.0	U
	3 Pin	Controller	3 Pin	5.0	U
	SLOT	Micro SD Card	SLOT	-	-
Notebook	3.5 mm	Cellular phone	3.5 mm	0.6	U

* Unshielded=U, Shielded=S

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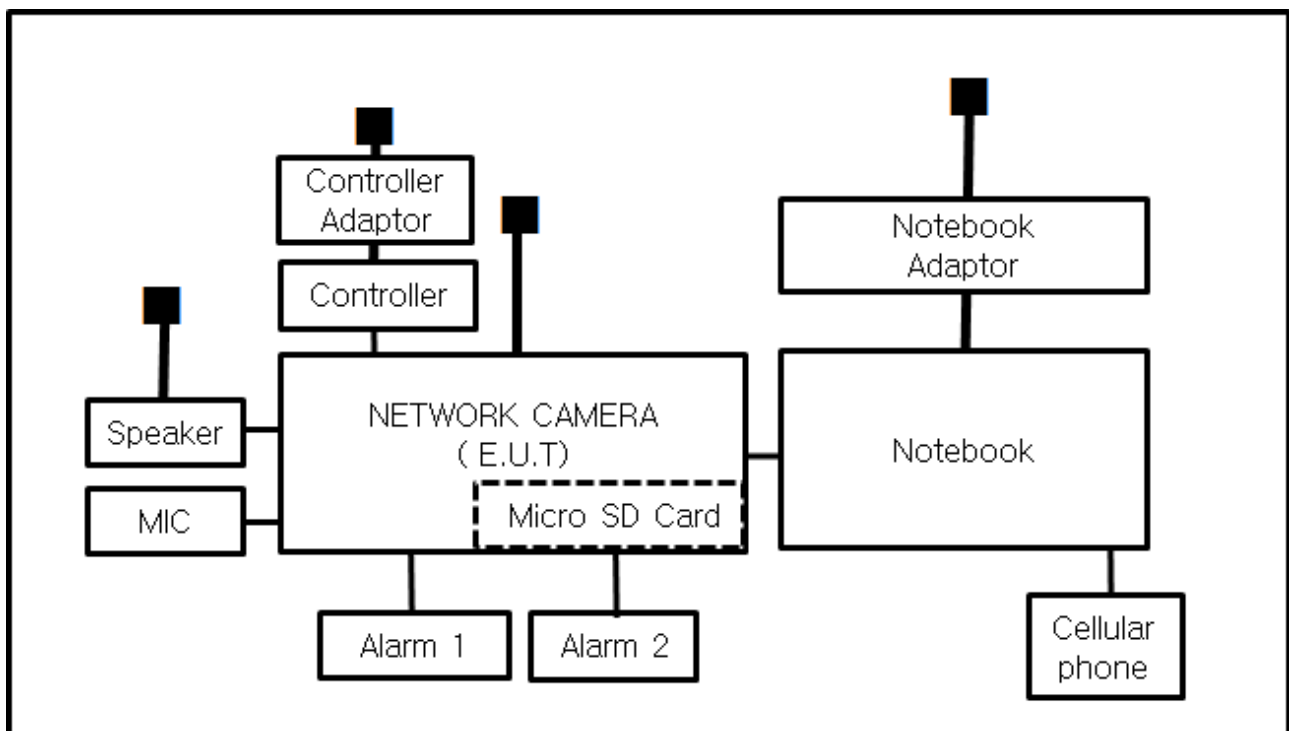
1.7 EUT Operating Mode(s)

Test mode	operating
AC 24 Vac	EUT Monitoring, Ping Test

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

1.8 Configuration

■ AC Main
 □ DC Main



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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-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 55032:2015

☐ Class A

☐ Class B

☐ EN 55024:2010

☐ EN 50130-4:2011 +A1:2014

☐ EN 61000-3-2:2014

☐ EN 61000-3-3:2013

☐ EN 61326-1:2013



-
- | | | |
|---|---|----------------------------------|
| ☐ VCCI V-3 / 2015.04 | ☐ Class A | ☐ Class B |
| ☒ AS/NZS CISPR32:2015 | ☒ Class A | ☐ Class B |
|
 | | |
| ☐ 47 CFR Part 15, Subpart B | | |
| ☐ CISPR 22:2009 +A1:2010 | ☐ Class A | ☐ Class B |
| ☐ ANSI C63.4-2009 | | |
| ☐ 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
Jan. 11, 2019

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, 04, 2020
☒	LISN	ESH2-Z5	R & S	100450	04, 25, 2019
☒	PULSE LIMITER	ESH3-Z2	R & S	101915	11, 26, 2019

Test Conditions

Temperature: 24,4 °C
Relative Humidity: 55,5 % 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

Remarks

See Appendix A for test data.



2.2 Conducted Emissions at Telecommunication Ports

Test Date
Jan. 11, 2019

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, 04, 2020
☒	LISN	ESH2-Z5	R & S	100450	04, 25, 2019
☒	PULSE LIMITER	ESH3-Z2	R & S	101915	11, 26, 2019
☒	8-WIRE ISN CAT3,5	ENY81	R & S	100174	01, 07, 2020
☐	8-WIRE ISN CAT6	ENY81-CAT6	R & S	101665	01, 07, 2020

Test Conditions

Temperature: 24,4 °C
Relative Humidity: 55,5 % 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

Remarks

See Appendix A for test data.



2.3 Radiated Electric Field Emissions(Below 1 GHz)

Test Date
Jan. 11, 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
☒	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, 26, 2019
☒	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	715	09, 20, 2020

Test Conditions
Temperature: 24,3 °C
Relative Humidity: 52,7 % R.H.

Frequency Range of Measurement
30 MHz to 1 GHz

Instrument Settings
IF Band Width: 120 kHz

Test Results
The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks
See Appendix A for test data.



2.4 Radiated Electric Field Emissions(Above 1 GHz)

Test Date
Jan. 12, 2019

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: 24,8 °C
Relative Humidity: 51,1 % R.H.

Frequency Range of Measurement
1 GHz to 6 GHz

Instrument Settings
IF Band Width: 1 MHz

Test Results
The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks
See Appendix A for test data.



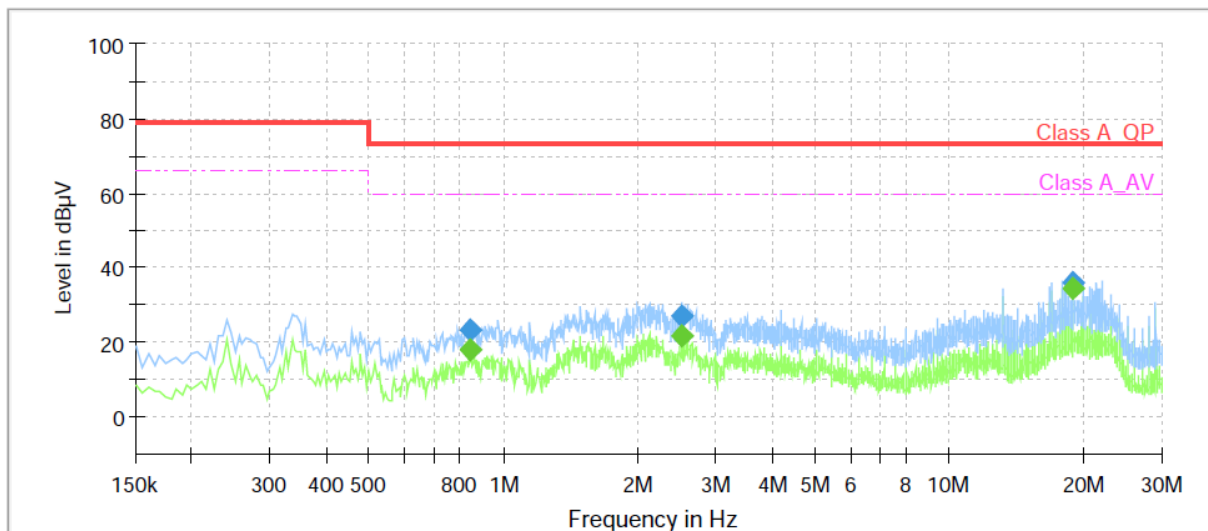
APPENDIX A – TEST DATA

Conducted Emissions at Mains Power Ports

HOT LINE

Common Information

Test Description: Conducted Emission
Model No.: XNP-6371RH
Mode: AC_H
Operator Name: KES



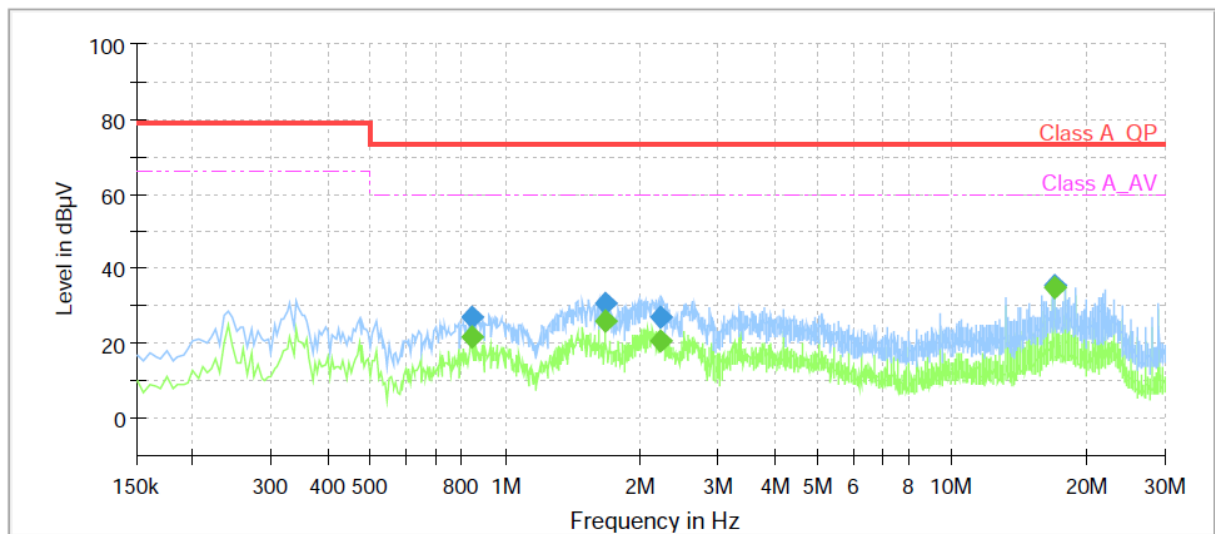
Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.840000	---	18.20	60.00	41.80	1000.0	9.000	L1	20.0
0.840000	23.31	---	73.00	49.69	1000.0	9.000	L1	20.0
2.520000	---	21.94	60.00	38.06	1000.0	9.000	L1	20.3
2.520000	27.13	---	73.00	45.87	1000.0	9.000	L1	20.3
18.945000	---	34.48	60.00	25.52	1000.0	9.000	L1	20.1
18.945000	35.77	---	73.00	37.23	1000.0	9.000	L1	20.1

NEUTRAL LINE

Common Information

Test Description:	Conducted Emission
Model No.:	XNP-6371RH
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)
0.840000	---	21.82	60.00	38.18	1000.0	9.000	N	20.0
0.840000	27.27	---	73.00	45.73	1000.0	9.000	N	20.0
1.680000	---	25.90	60.00	34.10	1000.0	9.000	N	20.3
1.680000	30.71	---	73.00	42.29	1000.0	9.000	N	20.3
2.230000	---	20.56	60.00	39.44	1000.0	9.000	N	20.3
2.230000	27.26	---	73.00	45.74	1000.0	9.000	N	20.3
16.935000	---	34.76	60.00	25.24	1000.0	9.000	N	20.1
16.935000	35.68	---	73.00	37.32	1000.0	9.000	N	20.1

◆ Calculation

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

QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

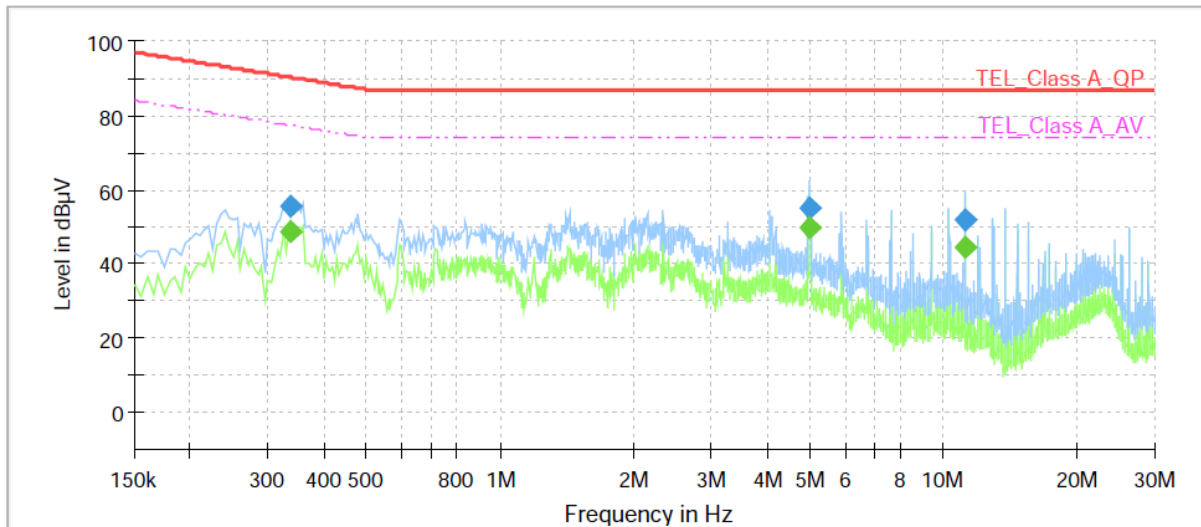
Corr. : Correction values (LISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))

Conducted Emissions at Telecommunication Ports

[10 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	XNP-6371RH
Mode	AC_10 Mbps
Operator Name:	KES



Final Result

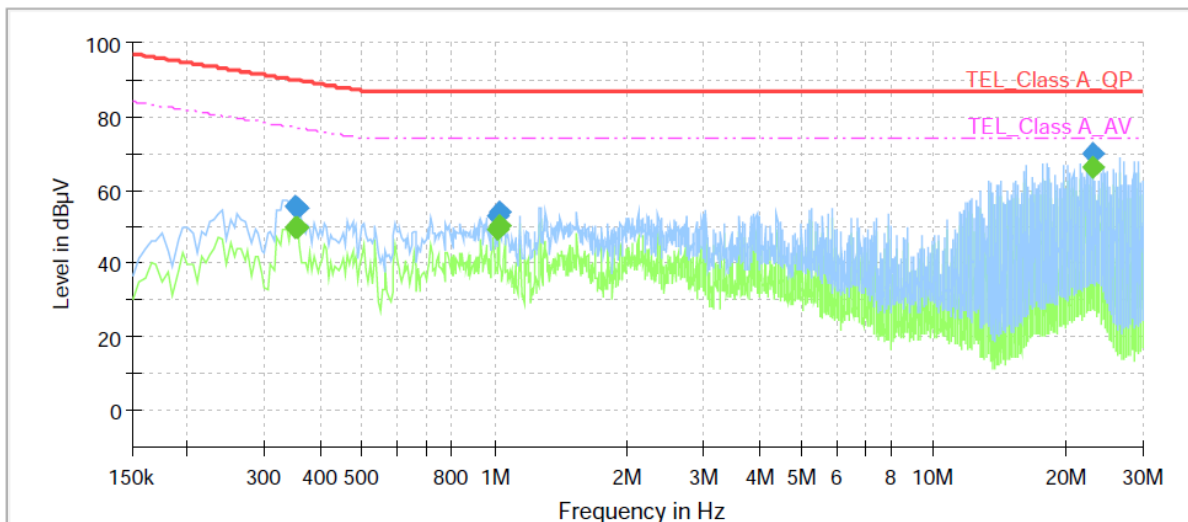
Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.335000	---	48.90	77.33	28.43	1000.0	9.000	Single Line	19.9
0.335000	55.63	---	90.33	34.70	1000.0	9.000	Single Line	19.9
5.000000	---	49.87	74.00	24.13	1000.0	9.000	Single Line	19.7
5.000000	55.16	---	87.00	31.84	1000.0	9.000	Single Line	19.7
11.195000	---	44.28	74.00	29.72	1000.0	9.000	Single Line	20.0
11.195000	51.84	---	87.00	35.16	1000.0	9.000	Single Line	20.0



[100 Mbps]

Common Information

Test Description: Telecommunication Emission
Model No.: XNP-6371RH
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)
0.350000	---	49.88	76.96	27.08	1000.0	9.000	Single Line	19.8
0.350000	55.69	---	89.96	34.27	1000.0	9.000	Single Line	19.8
0.355000	---	49.92	76.84	26.92	1000.0	9.000	Single Line	19.8
0.355000	54.88	---	89.84	34.96	1000.0	9.000	Single Line	19.8
1.020000	---	49.12	74.00	24.88	1000.0	9.000	Single Line	20.1
1.020000	52.88	---	87.00	34.12	1000.0	9.000	Single Line	20.1
1.025000	---	50.16	74.00	23.84	1000.0	9.000	Single Line	20.1
1.025000	53.88	---	87.00	33.12	1000.0	9.000	Single Line	20.1
23.130000	---	66.03	74.00	7.97	1000.0	9.000	Single Line	20.2
23.130000	69.79	---	87.00	17.21	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))

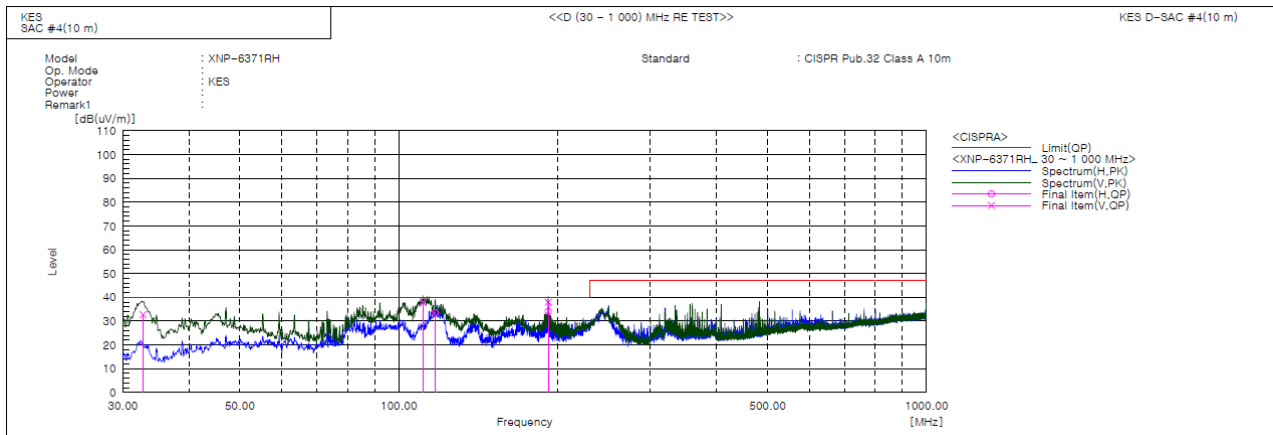


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Report No.:
KES-E1-19T0024
Page (22) of (38)

Radiated Electric Field Emissions(Below 1 GHz)



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	32.774	V	57.9	-25.2	32.7	40.0	7.3	105.0	42.0	
2	111.090	V	60.8	-22.9	37.9	40.0	2.1	148.0	159.0	
3	117.275	H	57.2	-23.7	33.5	40.0	6.5	367.0	90.0	
4	192.011	V	60.8	-22.8	38.0	40.0	2.0	123.0	159.0	
5	191.995	H	56.9	-22.8	34.1	40.0	5.9	340.0	50.0	

◆ Calculation

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

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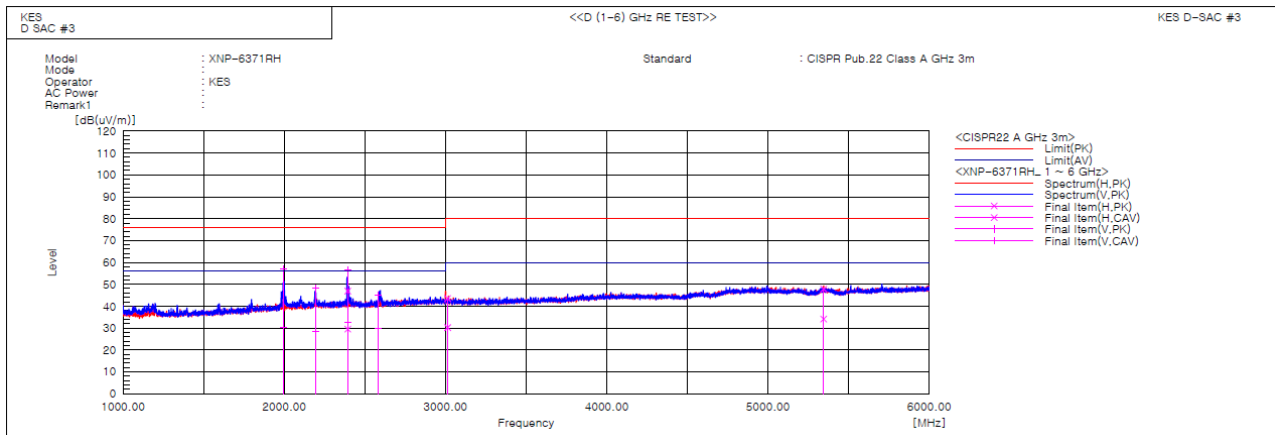


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Report No.:
KES-E1-19T0024
Page (23) of (38)

Radiated Electric Field Emissions(Above 1 GHz)



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	1993.101	V	59.2	32.6	-2.1	57.1	30.5	76.0	56.0	18.9	25.5	100.0	23.1	
2	2196.809	V	49.5	29.6	-1.1	48.4	28.5	76.0	56.0	27.6	27.5	100.0	174.0	
3	2392.819	V	57.1	32.8	-0.4	56.7	32.4	76.0	56.0	19.3	23.6	100.0	24.8	
4	2393.111	H	47.3	29.9	-0.4	46.9	29.5	76.0	56.0	29.1	26.5	100.0	19.5	
5	2583.313	V	44.8	29.5	0.3	45.1	29.8	76.0	56.0	30.9	26.2	100.0	57.4	
6	3013.177	H	42.0	28.7	1.5	43.5	30.2	80.0	60.0	36.5	29.8	100.0	292.1	
7	5344.560	H	39.9	26.1	8.0	47.9	34.1	80.0	60.0	32.1	25.9	100.0	282.0	

◆ Calculation

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

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

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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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EUT External Photographs

(Top)



(Bottom)



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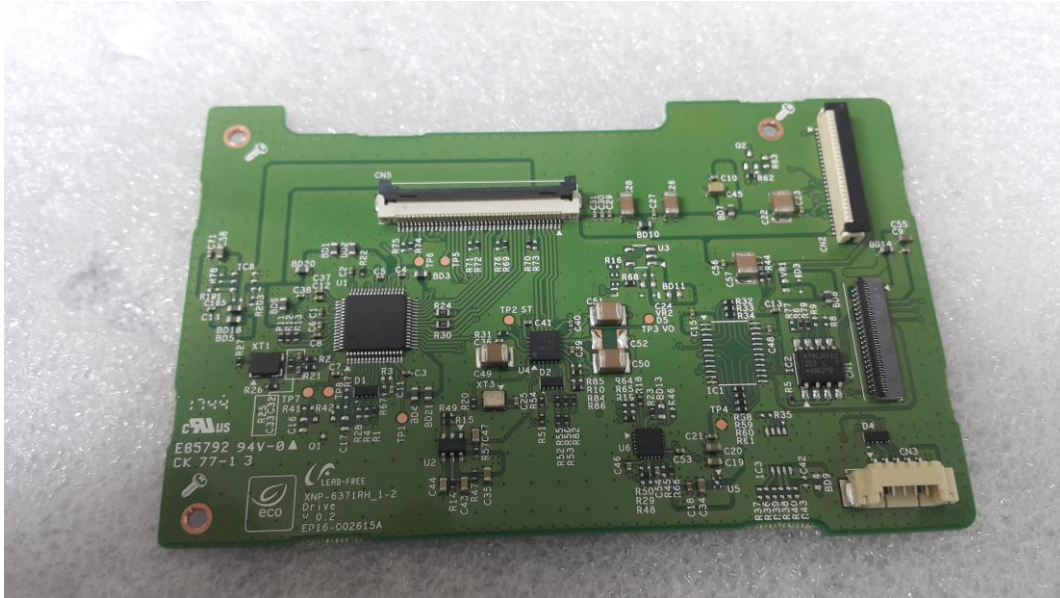
EUT Internal Photographs

(Internal View)

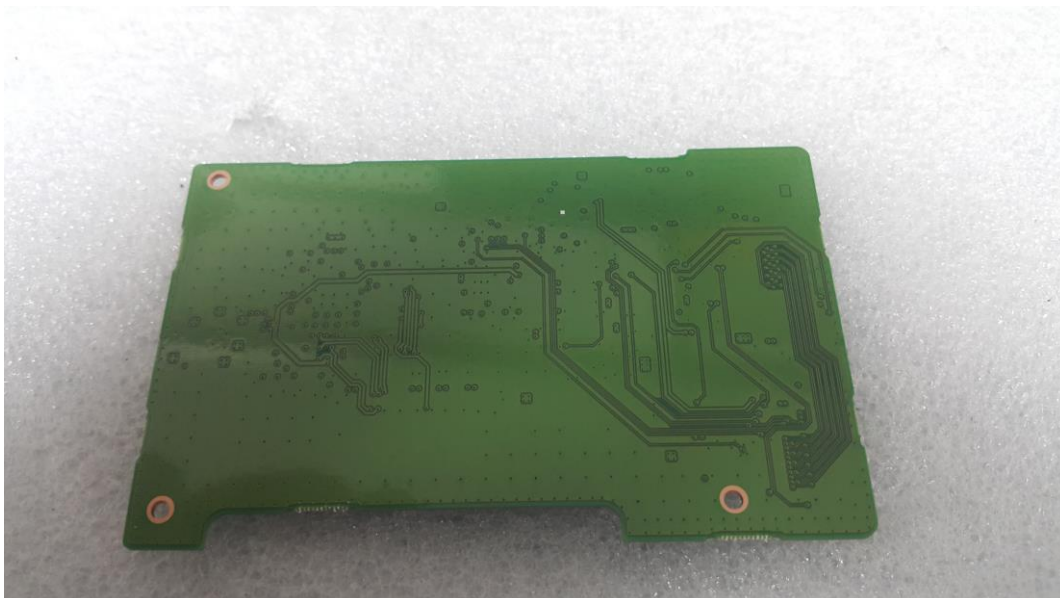


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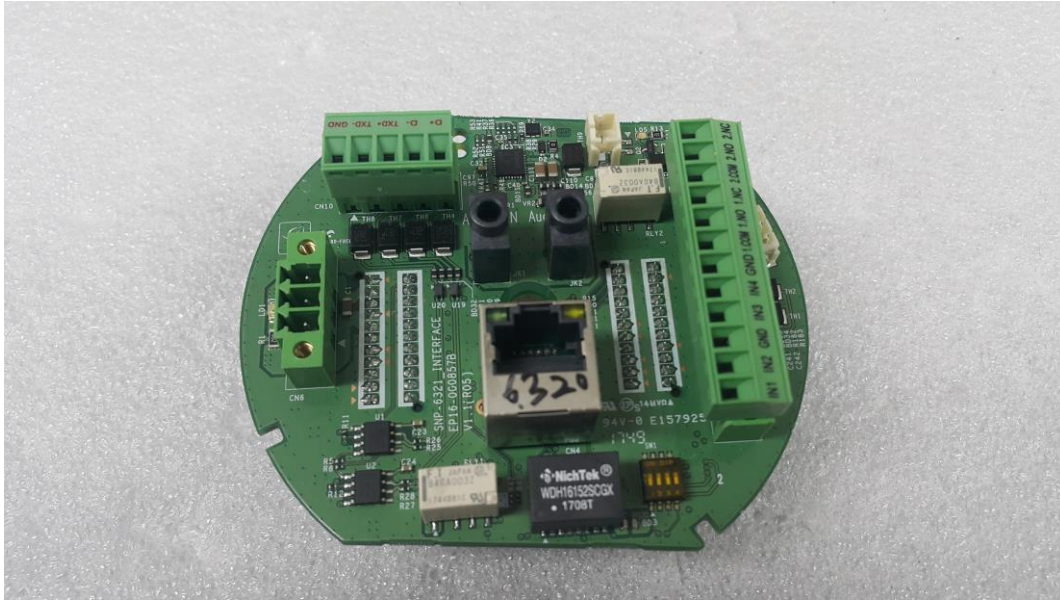
EUT Internal View – Main Board (Top)



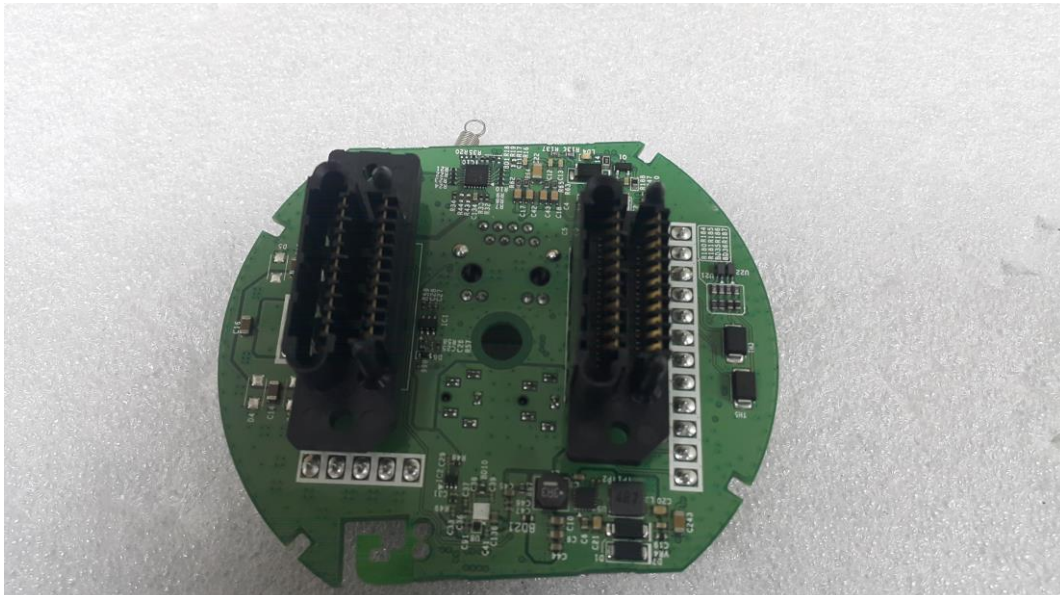
(Bottom)



EUT Internal View – IO Board (Top)



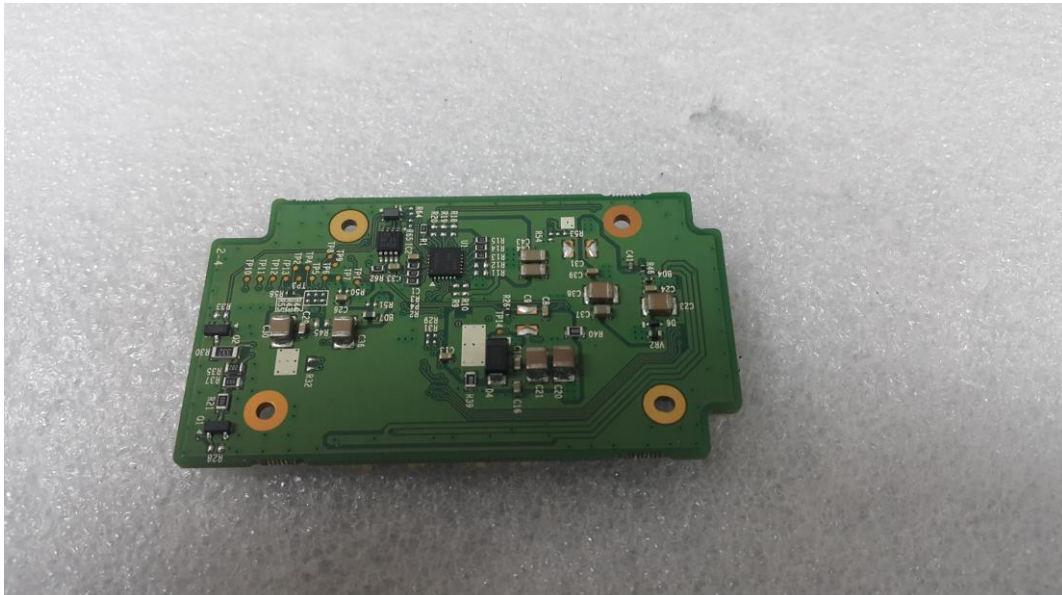
(Bottom)



EUT Internal View – IR Board (Top)



(Bottom)

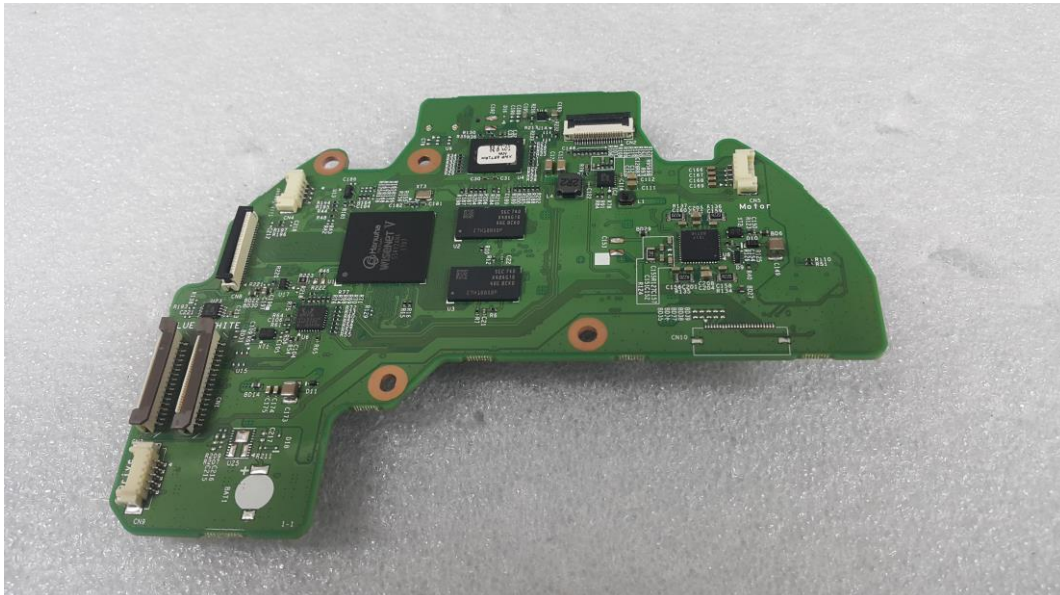


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EUT Internal View – Network Board (Top)



(Bottom)

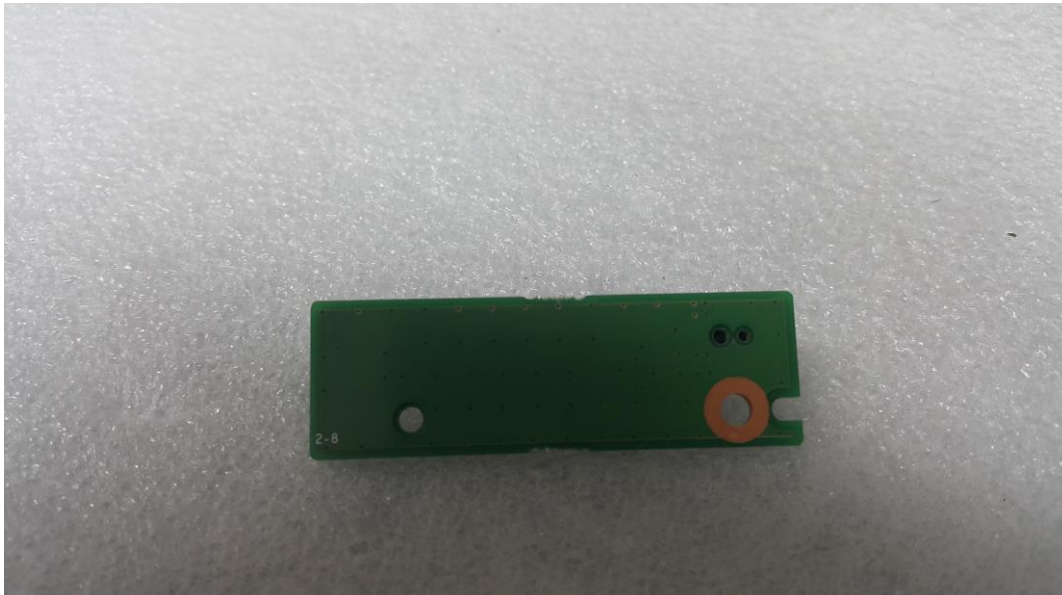


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EUT Internal View – SUB Board 1 (Top)



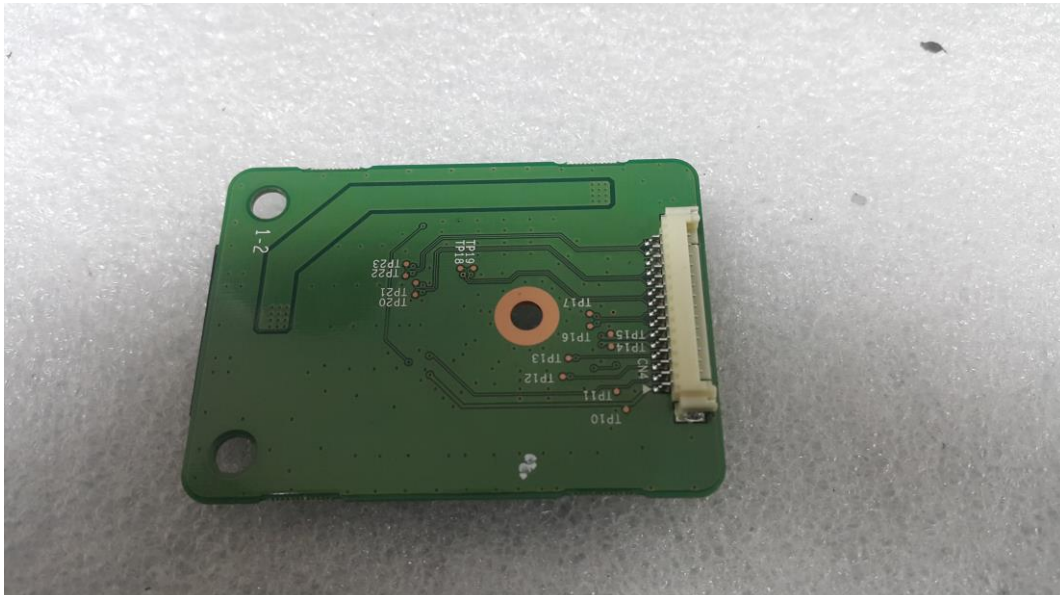
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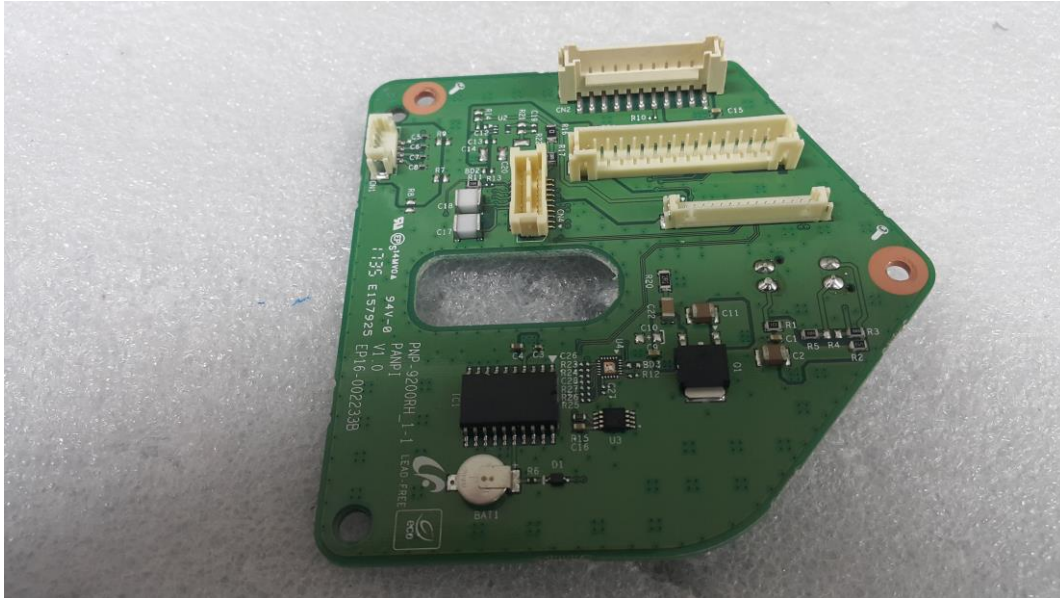
EUT Internal View – SUB Board 2 (Top)



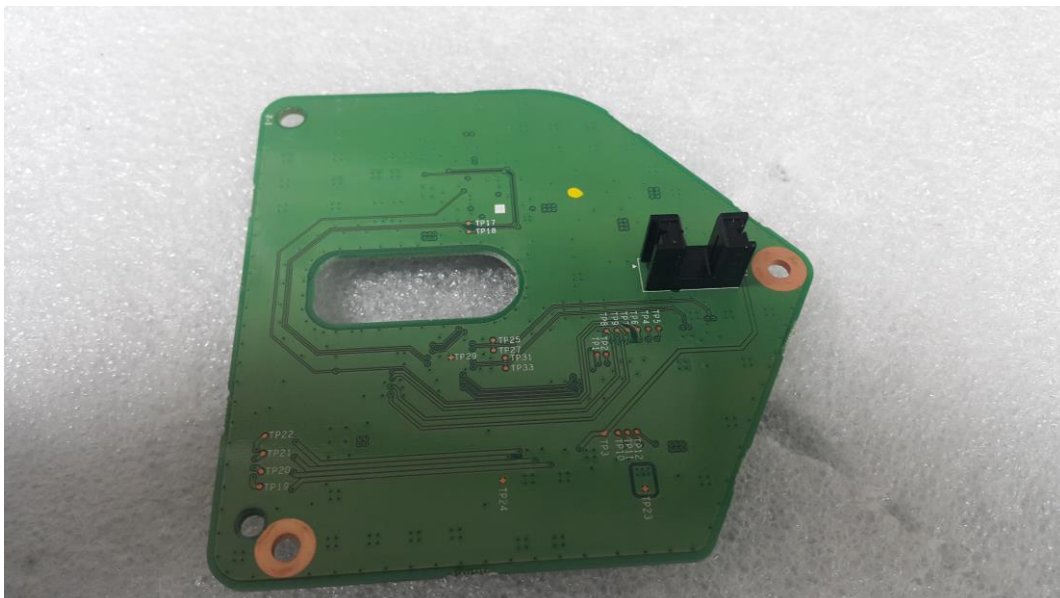
(Bottom)



EUT Internal View – SUB Board 3 (Top)

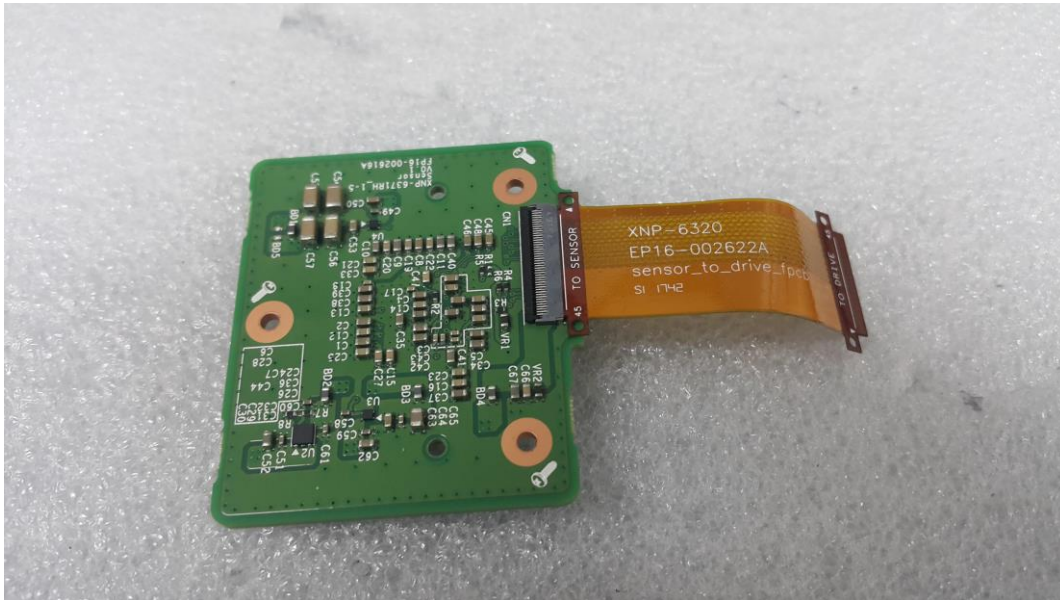


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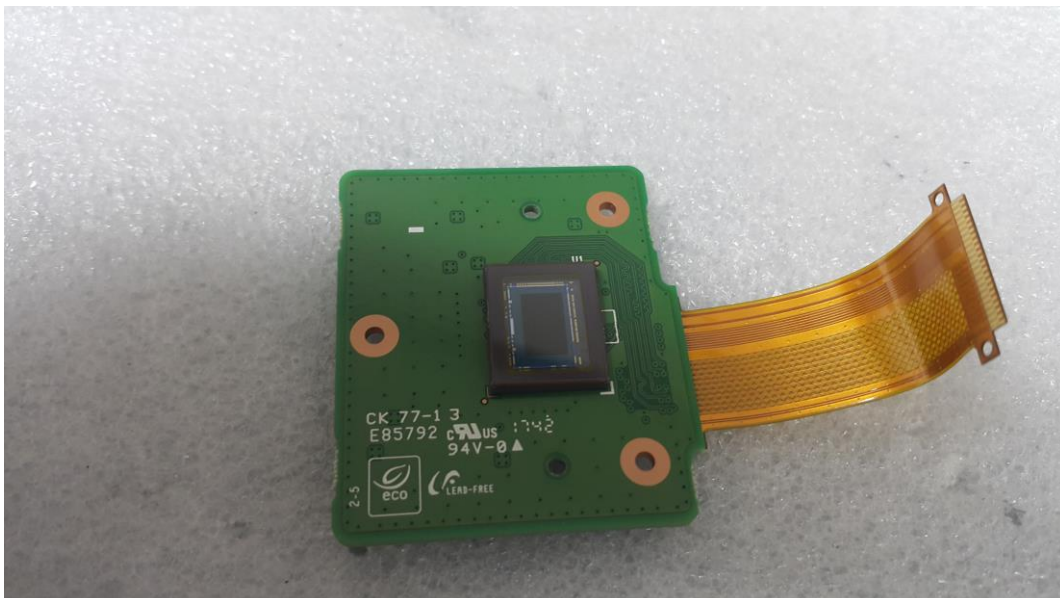


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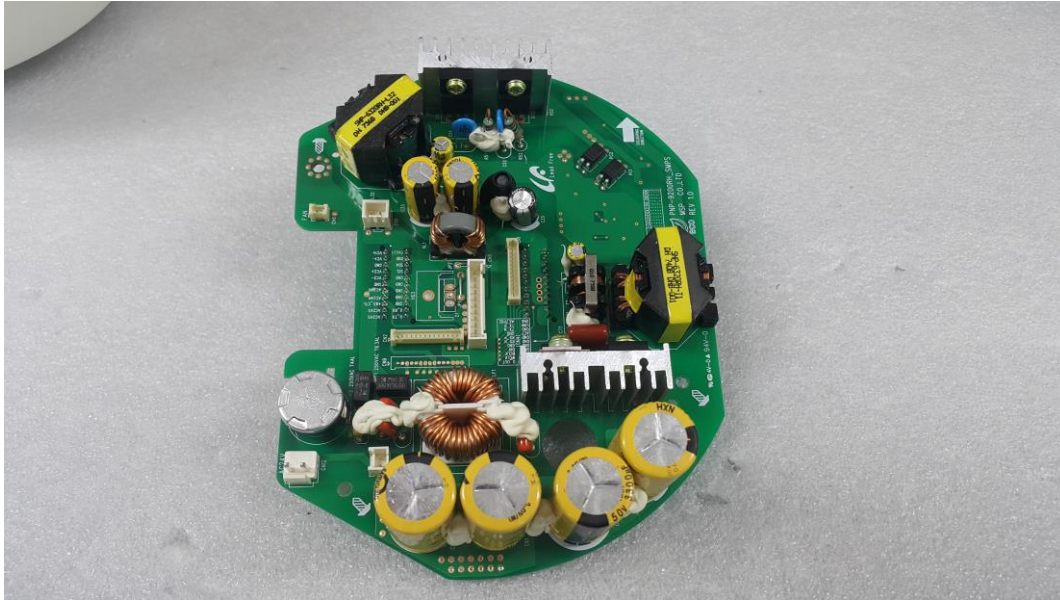
EUT Internal View – Sensor Board (Top)



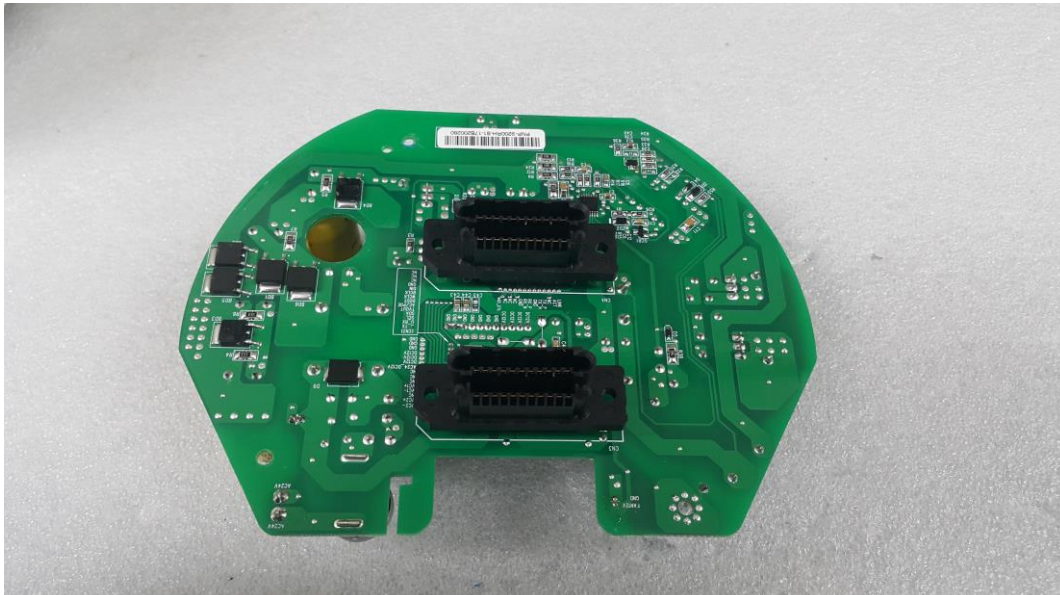
(Bottom)



EUT Internal View – Power Board (Top)



(Bottom)



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