



EMC TEST REPORT For VCCI

Test Report No. : KES-EM-22T0086-R1
Date of Issue : Feb. 24, 2023
Product name : NETWORK CAMERA
Model/Type No. : XNP-6120H
Variant Model : -
Applicant : Hanwha Vision Co., Ltd
Applicant Address : 6, Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si,
Gyeonggi-do, Republic of Korea
Manufacturer : 1. HANWHA VISION VIETNAM COMPANY LIMITED
2. D-TECH CO.,LTD.
Manufacturer Address : 1. Lot O-2, Que Vo Industrial Zone extended area,
Nam Son commune, Bac Ninh city, Bac Ninh province, Vietnam
2. 173-25, Saneop-ro, Gwonseon-gu, Suwon-si, Gyeonggi- do,
Korea (Suwon Industrial Complex)
Date of Receipt : Jan. 03, 2022
Test date : Jan. 05, 2022 ~ Jan. 06, 2022
Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Reviewed by

Min Seong, Kim
EMC Test Engineer

Dong-Hun, Jang
EMC Technical Manager

Tested by Ki Man, Kim
(Retries person)
Proxy signature : Min Seong, Kim

This test report is not related to KS Q ISO/IEC 17025 and KOLAS.

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REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Jan. 19, 2022	KES-EM-22T0086	Issued
Feb. 24, 2023	KES-EM-22T0086-R1	Change the Applicant and manufacturer at the request of the customer

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1.0 General Product Description

Main Specifications of EUT are:

VIDEO	
Imaging Device	1/2.8" 2.16M CMOS
Total Pixels	1,945(H) x 1,109(V), 2.16M
Effective Pixels	1,945(H) x 1,097(V), 2.13M
Scanning System	Progressive
Min. Illumination	Color : 0.03 Lux (F1.6, 1/30sec), B/W : 0.003 Lux (F1.6, 1/30sec)
S / N Ratio	50dB
Video Out	CVBS : 1.0 Vpp / 75Ω composite, 720 x 480(N), 720 x 576(P), for Installation USB : Micro USB Type B, 1280 x 720 for Installation
LENS	
Focal Length (Zoom Ratio)	5.2 ~ 62.4mm (Optical 12X)
Max. Aperture Ratio	F1.6 (Wide) ~ F3.0 (Tele)
Angular Field of View	H : 54.58° (Wide) ~ 5.30° (Tele) / V : 32.19° (Wide) ~ 3.00° (Tele)
Min. Object Distance	1.5m (4.92ft) (Wide), 2.1m (6.89ft) (Tele)
Focus Control	Auto / Manual / One shot AF
Lens / Mount Type	DC Auto Iris / Board-in Type
PAN/TILT/ROTATE	
Pan / Tilt Range	360° Endless / 190° (-5° ~ 185°)
Pan Speed	Preset : 350°/sec, Manual : 0.024°/sec ~ 200°/sec
Tilt Speed	Preset : 350°/sec, Manual : 0.024°/sec ~ 200°/sec
Sequence / Preset Accuracy	Preset (300 ea), Swing, Group (6 ea), Trace, Tour (1 ea), Auto Run, Schedule / ±0.2°
Azimuth	Yes (E / W / S / N / NE / NW / SE / SW)
Auto Tracking	Support
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	SSNRV (2D + 3D Noise filter) (Off / On)
Digital Image Stabilization	Off / On (Built-in Gyro)
Defog	Auto / Manual / Off
Motion Detection	Off / On (8ea, Polygonal)
Privacy Masking	Off / On (24 Zones of Rectangle zone) - Color : Grey / Green / Red / Blue / Black / White - Zoom ratio option for mask mode - Mosaic option
Gain Control	Off / Low / Middle / High
White Balance	ATW / AWC / Manual / Indoor / Outdoor (included Mercury & Sodium)
Electronic Shutter Speed	Minimum / Maximum / Anti flicker (2 ~ 1/12,000sec)
Digital Zoom	32x
Flip / Mirror	Off / On
Video & Audio Analytics	Tampering, Loitering, Directional Detection, Fog Detection, Virtual Line, Enter/Exit, (Dis) Appear, Audio Detection, Face Detection, Motion Detection Sound Classification
Serial Interface	RS-485 - Samsung-T/E, Pelco-D/P, Panasonic, Bosch, AD, GE, Vicon, Honeywell
Alarm I/O	Input 1ea / Output 1ea (Relay type)
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
Pixel Counter	Support

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NETWORK	
Ethernet	RJ-45 (10/100BASE-T)
Video Compression Format	H.265 / H.264 (MPEG-4 part 10/AVC), Motion JPEG
Resolution	1920 x 1080, 1280 x 1024, 1280 x 960, 1280 x 720, 1024 x 768, 800 x 600, 800 x 448, 720 x 576, 720 x 480, 640 x 480, 640 x 360, 320 x 240
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)
WiseStreamII	Support
Video Quality Adjustment	H.265 / H.264 / MJPEG : Target Bitrate Level Control
Bitrate Control Method	H.265 / H.264 : CBR or VBR, Motion JPEG : VBR
Streaming Capability	Multiple Streaming (Up to 10 Profiles)
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
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	Micro SD/SDHC/SDXC 2slot (up to 512 GB) - Continuous recording (1'st slot to 2'nd slot)- 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 2.0 (HTTP API), Wisenet Open Platform
Webpage Language	English, French, German, Spanish, Italian, Chinese, Russian, Japanese, Swedish, Portuguese, Turkish, Polish, Czech, Dutch, Hungary, Greek
Web Viewer	Supported OS : Windows 7, 8.1, 10, Mac OS X 10.10, 10.11, 10.12 Plug-in Free Webviewer - Supported Browser : Google Chrome, MS Edge, Mozilla Firefox (Window 64bit only), Apple Safari 10 (Mac OS X only) Plug-in Webviewer - Supported Browser : MS Explore 11, Apple Safari 10 (Mac OS X only)
Central Management Software	SmartViewer, SSM
ENVIRONMENTAL	
Operating Temperature / Humidity	-30°C ~ +55°C (-22°F ~ +131°F) / Less than 90% RH
Storage Temperature / Humidity	-30°C ~ +60°C (-22°F ~ +140°F) / Less than 90% RH
Ingress Protection	IP66
Vandal Resistance	IK10
ELECTRICAL	
Input Voltage / Current	12VDC, PoE
Power Consumption	12W
MECHANICAL	
Color / Material	Ivory / Aluminum
Dimensions (WxH)	Ø168.0 x 161.5mm (Ø6.61" x 6.36")
Weight	1.9 kg (4.19 lb)

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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.

☒ AC 100 V, 60 Hz ☒ PoE

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-6120H	-	HANWHA VISION VIETNAM COMPANY LIMITED	EUT

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1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Adaptor	2ACB022F	-	Channel Well Technology (Guangzhou) Co., Ltd.	-
PoE Adaptor	PT-PSE106GBR-AH-S	-	Dongguan PROCET Network Technology Co., Ltd	-
Notebook	HSN-Q07C	5CD8367KND	HP	-
Notebook Adaptor	HSTNN-CA40	WFTKU0ERLB4QCH	HP	-
Smartphone	LG-SU760	108KPQJ0186212	LG	-
Headset	K550	-	Britz®	-
Alarm1	-	-	-	-
Alarm2	-	-	-	-
Controller	SPC-1010	-	SamSung Techwin Co.,Ltd.	-
Controller Adaptor	AP-12005A	-	A-power.	-
Micro SD Card1	-	-	SanDisk	-
Micro SD Card2	-	-	SanDisk	-

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1.6 External I/O Cabling

■ DC Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (EUT)	2 Pin	Adaptor	2 Pin	1.2	U
	RJ-45	Notebook	RJ-45	3.0	U
	3.5 mm	Headset	3.5 mm	1.7	U
	3.5 mm		3.5 mm	1.7	U
	RS-485	Controller	RS-485	3.0	U
	SLOT	Micro SD Card1	SLOT	-	-
	SLOT	Micro SD Card2	SLOT	-	-
	2 Pin	Alarm1	2 Pin	3.0	U
	2 Pin	Alarm2	2 Pin	3.0	U
Notebook	DC Jack	Notebook Adaptor	DC Jack	1.2	U
	3.5 mm	Smartphone	3.5 mm	1.0	U
Controller	DC Jack	Controller Adaptor	DC Jack	1.6	U

* Unshielded=U, Shielded=S

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■ PoE Mode

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)	3.0	U
	3.5 mm	Headset	3.5 mm	1.7	U
	3.5 mm		3.5 mm	1.7	U
	RS-485	Controller	RS-485	3.0	U
	SLOT	Micro SD Card1	SLOT	-	-
	SLOT	Micro SD Card2	SLOT	-	-
	2 Pin	Alarm1	2 Pin	3.0	U
	2 Pin	Alarm2	2 Pin	3.0	U
Notebook	DC Jack	Notebook Adaptor	DC Jack	1.2	U
	3.5 mm	Smartphone	3.5 mm	1.0	U
	RJ-45 (LAN)	PoE Adaptor	RJ-45 (LAN)	3.0	U
Controller	DC Jack	Controller Adaptor	DC Jack	1.6	U

* Unshielded=U, Shielded=S

1.7 EUT Operating Mode(s)

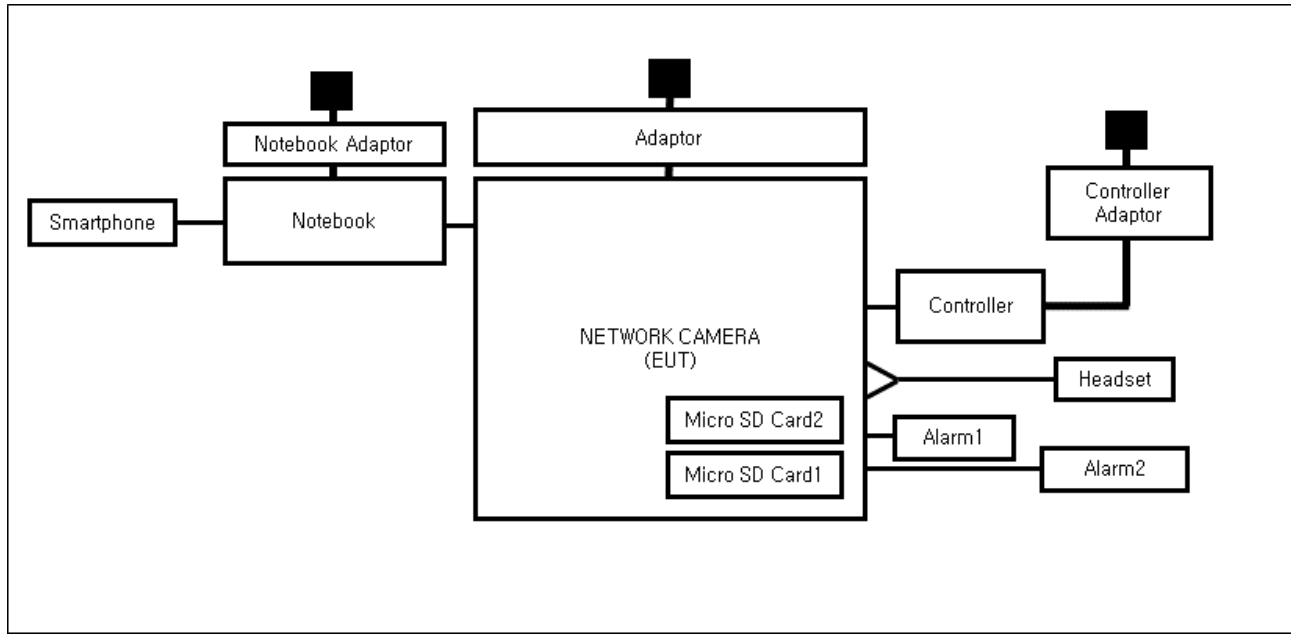
Test Mode	operating
DC Mode	- EUT Monitoring, Ping Test - After the test, the Micro SD Card was checked to see if it was recorded normally.
PoE Mode	

EUT Test operating S/W		
Name	Version	Manufacture Company
Web Viewer	-	Hanwha Vision Co., Ltd

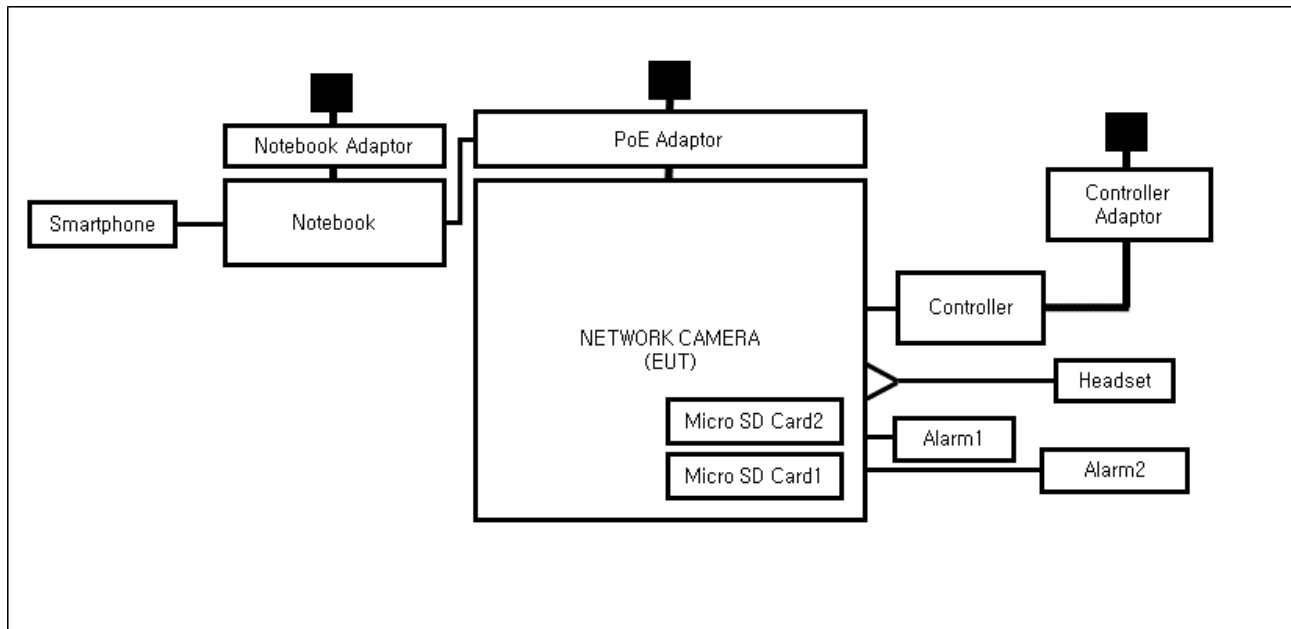
1.8 Configuration

■ AC Main
 □ DC Main

■ DC Mode



■ PoE Mode



1.9 Remarks when standards applied

USB, VIDEO port is not tested because it is an unused port.

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, Republic of. The sites are constructed in conformance with the requirements of ANSI C63.4a-2017 and CISPR 16-1-4:2019

1.12 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
KOREA	RRA	EMI (3 m & 10 m Semi-Anechoic Chamber 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 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
JAPAN	VCCI	EMI (3 m & 10 m Semi-Anechoic Chamber and conducted test site)	 C-20136, T-20137, R-20181, G-20176
Europe	TÜV SÜD	EMI (3 m & 10 m Semi-Anechoic Chamber and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 CARAT 001633 0004



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2.0 Test Regulations

The emissions tests were performed according to following regulations:

☒ **VCCI-CISPR 32:2016**

☒ Class A

☐ Class B

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2.1 Conducted Emissions Mains Power Ports

Test Date

Jan. 05, 2022

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	101783	12, 28, 2022
☒	LISN	ENV216	R & S	101787	12, 27, 2022
☒	LISN	ESH2-Z5	R & S	100450	12, 27, 2022
☒	PULSE LIMITER	ESH3-Z2	R & S	101915	12, 27, 2022

Test Conditions

Temperature: (23,1 ± 0,2) °C

Relative Humidity: (44,0 ± 0,2) % 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. 05, 2022

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	101783	12, 28, 2022
☒	LISN	ENV216	R & S	101787	12, 27, 2022
☒	LISN	ESH2-Z5	R & S	100450	12, 27, 2022
☒	PULSE LIMITER	ESH3-Z2	R & S	101915	12, 27, 2022
☒	8-WIRE ISN CAT3,5	ENY81	R & S	100174	12, 28, 2022
☐	8-WIRE ISN CAT6	ENY81-CAT6	R & S	101665	12, 28, 2022
☐	CDN	CDNS502A	TESEQ	40431	12, 27, 2022

Test Conditions

Temperature: (23,1 ± 0,1) °C

Relative Humidity: (44,0 ± 0,1) % 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.
- For Ethernet interfaces, measurements are required at the highest data rate supported by the interface.

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2.3 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Jan. 05, 2022

Test Location

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

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.0	-
☒	EMI TEST RECEIVER	ESU26	R & S	100551	04, 01, 2022
☒	AMPLIFIER	SCU 01	R & S	100603	11, 24, 2022
☒	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	715	12, 08, 2022
☒	ATTENUATOR	8491A	HP	32173	03, 10, 2022

Test Conditions

Temperature: (23,0 ± 0,2) °C

Relative Humidity: (43,1 ± 0,3) % R.H.

Frequency Range of Measurement

30 MHz to 1 GHz

Instrument Settings

IF Band Width: 120 kHz

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

See Appendix A for test data.

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2.4 Radiated Electric Field Emissions(Above 1 GHz)

Test Date

Jan. 06, 2022

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, 03, 2022
☒	PREAMPLIFIER	8449B	AGILENT	3008A01967	04, 07, 2022
☐	ATTENUATOR	8491A	HP	35496	03, 10, 2022
☒	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	03, 11, 2022

Test Conditions

Temperature: (22,1 ± 0,3) °C

Relative Humidity: (43,1 ± 0,4) % 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

RemarksSee Appendix A for test data.

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APPENDIX A – TEST DATA

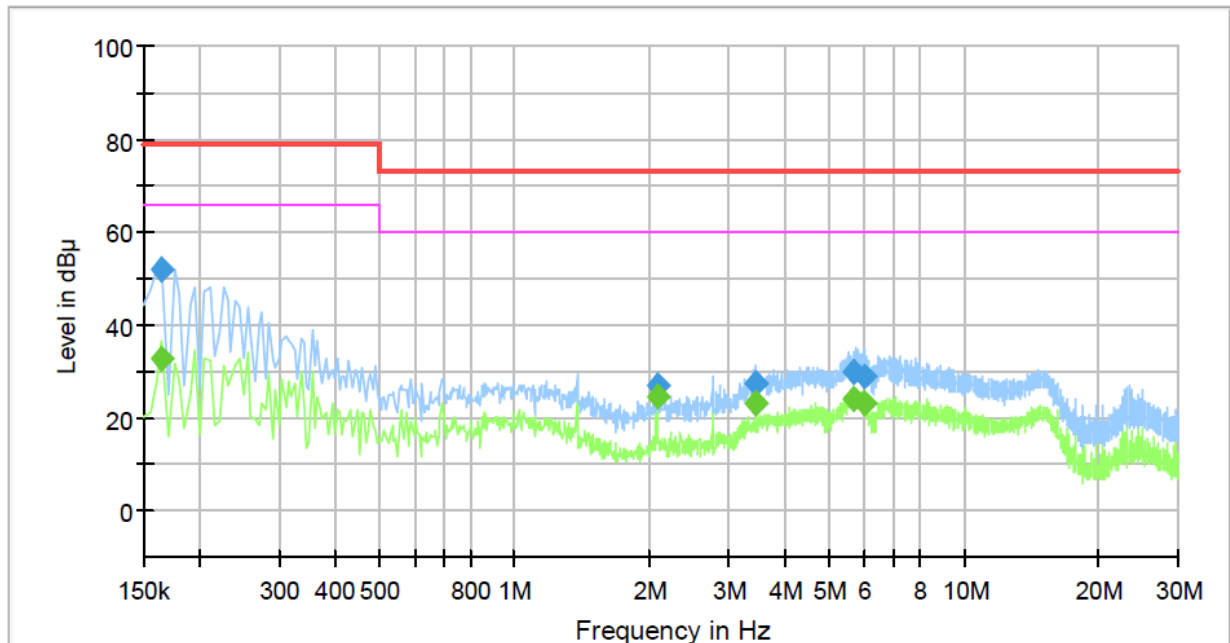
Conducted Emissions at Mains Power Ports

■ DC Mode

HOT LINE

Common Information

Test Description:	Conducted Emission
Model No.:	XNP-6120H
Phase:	L1
Mode:	DC
Operator Name:	KES



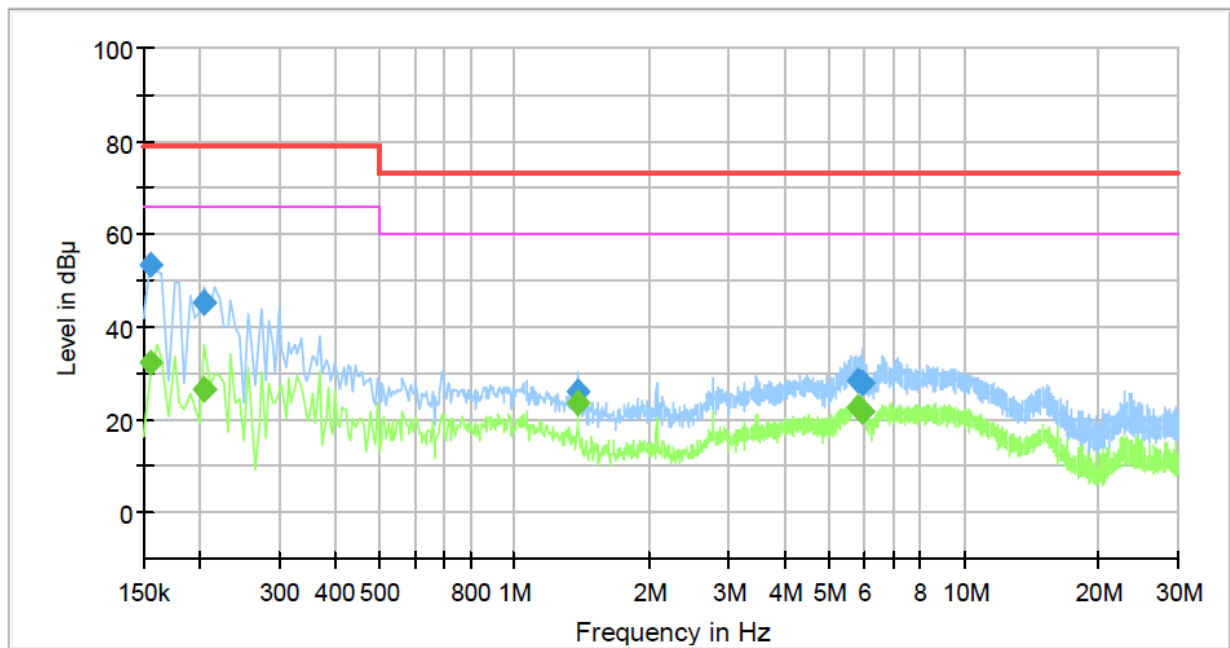
Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.165000	---	32.93	66.00	33.07	1000.0	9.000	L1	19.5
0.165000	51.84	---	79.00	27.16	1000.0	9.000	L1	19.5
2.075000	---	24.59	60.00	35.41	1000.0	9.000	L1	20.3
2.075000	26.79	---	73.00	46.21	1000.0	9.000	L1	20.3
3.455000	---	23.19	60.00	36.81	1000.0	9.000	L1	20.1
3.455000	27.52	---	73.00	45.48	1000.0	9.000	L1	20.1
5.710000	---	24.34	60.00	35.66	1000.0	9.000	L1	19.6
5.710000	29.98	---	73.00	43.02	1000.0	9.000	L1	19.6
6.020000	---	22.97	60.00	37.03	1000.0	9.000	L1	19.5
6.020000	28.71	---	73.00	44.29	1000.0	9.000	L1	19.5

NEUTRAL LINE

Common Information

Test Description:	Conducted Emission
Model No.:	XNP-6120H
Phase:	N
Mode:	DC
Operator Name:	KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.155000	---	32.27	66.00	33.73	1000.0	9.000	N	19.4
0.155000	53.20	---	79.00	25.80	1000.0	9.000	N	19.4
0.205000	---	26.58	66.00	39.42	1000.0	9.000	N	19.5
0.205000	45.38	---	79.00	33.62	1000.0	9.000	N	19.5
1.385000	---	23.59	60.00	36.41	1000.0	9.000	N	20.2
1.385000	26.17	---	73.00	46.83	1000.0	9.000	N	20.2
5.790000	---	22.61	60.00	37.39	1000.0	9.000	N	19.6
5.790000	28.49	---	73.00	44.51	1000.0	9.000	N	19.6
5.965000	---	21.49	60.00	38.51	1000.0	9.000	N	19.5
5.965000	27.90	---	73.00	45.10	1000.0	9.000	N	19.5

◆ Calculation

$$\text{QuasiPeak [dBuV]} / \text{CAverage [dBuV]} = \text{Reading Value [dBuV]} + \text{Corr. [dB]}$$

QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

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

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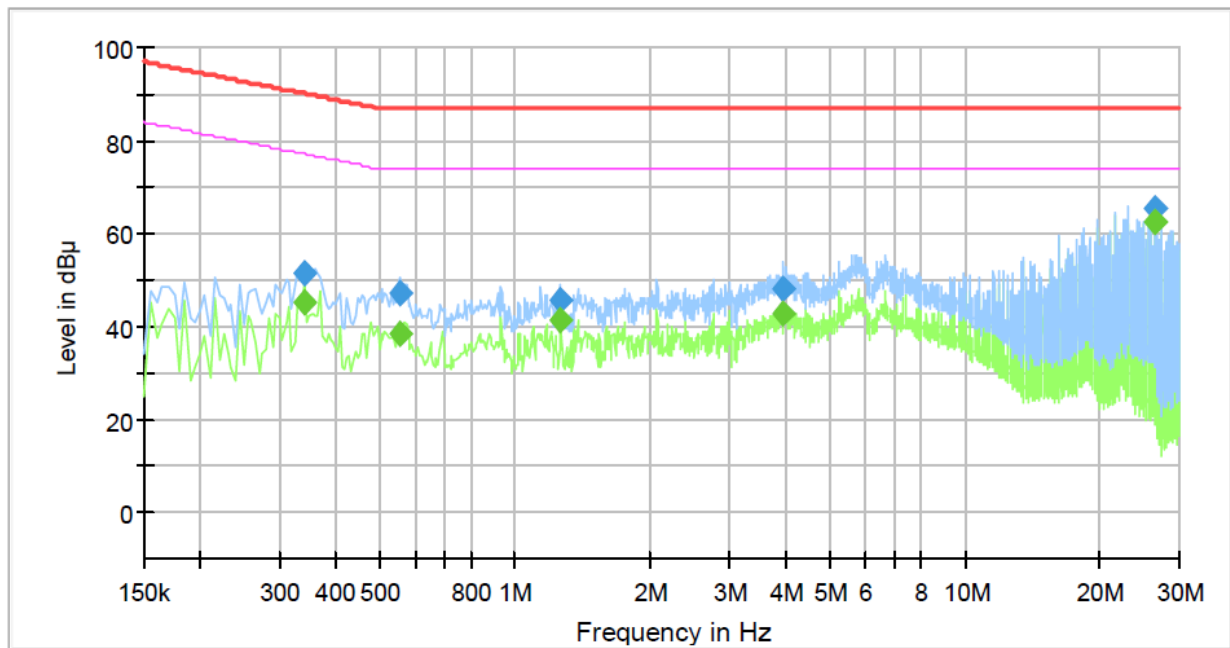
Conducted Emissions at Telecommunication Ports

■ DC Mode

[100 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	XNP-6120H
Mode :	DC
Speed :	100 Mbps
Operator Name:	KES

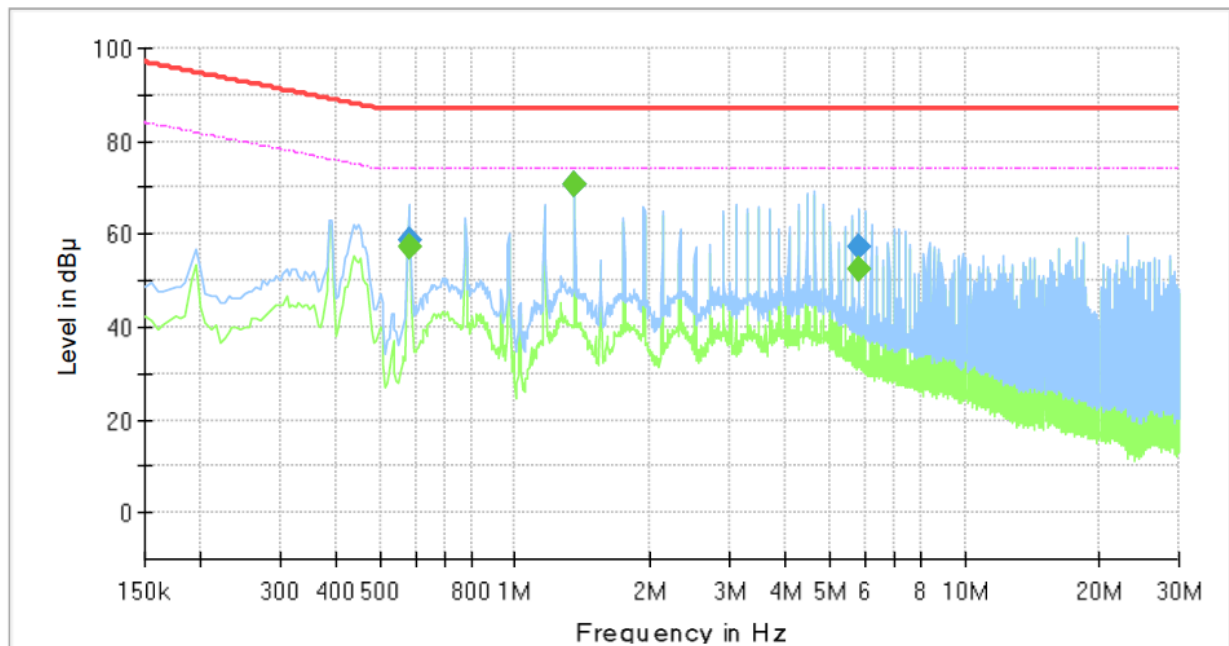


Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.340000	---	45.12	77.20	32.08	1000.0	9.000	Single Line	19.7
0.340000	51.38	---	90.20	38.82	1000.0	9.000	Single Line	19.7
0.555000	---	38.56	74.00	35.44	1000.0	9.000	Single Line	19.8
0.555000	47.00	---	87.00	40.00	1000.0	9.000	Single Line	19.8
1.265000	---	41.53	74.00	32.47	1000.0	9.000	Single Line	20.1
1.265000	45.56	---	87.00	41.44	1000.0	9.000	Single Line	20.1
3.950000	---	42.86	74.00	31.14	1000.0	9.000	Single Line	19.8
3.950000	48.33	---	87.00	38.67	1000.0	9.000	Single Line	19.8
26.610000	---	62.73	74.00	11.27	1000.0	9.000	Single Line	20.2
26.610000	65.36	---	87.00	21.64	1000.0	9.000	Single Line	20.2

PoE Mode
[100 Mbps]
Common Information

Test Description:	Telecommunication Emission
Model No.:	XNP-6120H
Mode :	PoE
Speed :	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)
0.580000	---	57.36	74.00	16.64	1000.0	9.000	Single Line	19.9
0.580000	58.47	---	87.00	28.53	1000.0	9.000	Single Line	19.9
1.355000	---	70.63	74.00	3.37	1000.0	9.000	Single Line	20.1
1.355000	70.72	---	87.00	16.28	1000.0	9.000	Single Line	20.1
5.810000	---	52.38	74.00	21.62	1000.0	9.000	Single Line	19.4
5.810000	57.07	---	87.00	29.93	1000.0	9.000	Single Line	19.4

◆ Calculation

$$\text{QuasiPeak [dBuV]} / \text{CAverage [dBuV]} = \text{Reading Value [dBuV]} + \text{Corr. [dB]}$$

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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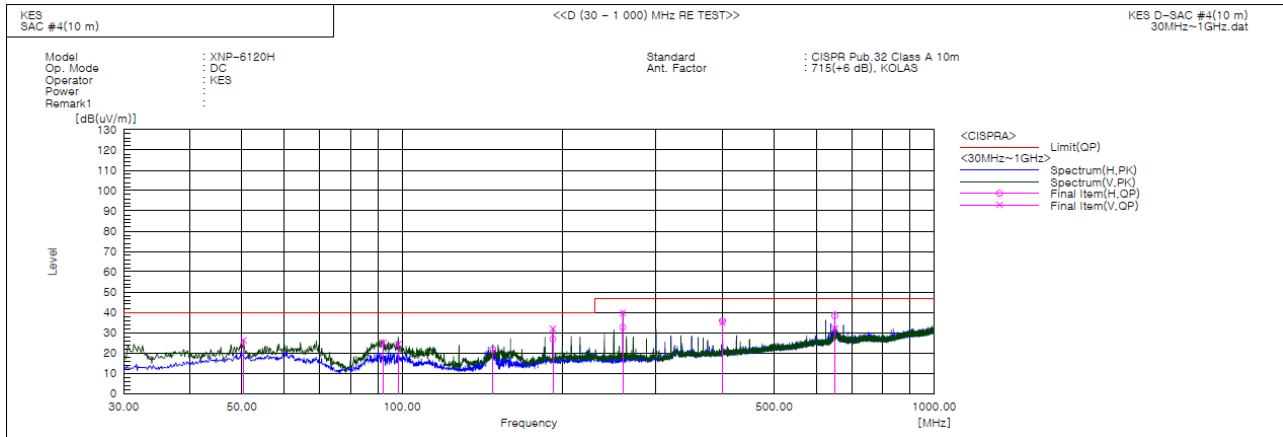
Report No.:

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Radiated Electric Field Emissions(Below 1 GHz)

■ DC Mode



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Remark
1	50.370	V	47.1	-20.9	26.2	40.0	13.8	144.0	213.0	
2	92.323	V	48.9	-23.7	25.2	40.0	14.8	132.0	79.0	
3	98.385	V	46.9	-22.6	24.3	40.0	15.7	100.0	137.0	
4	148.098	H	47.0	-25.2	21.8	40.0	18.2	332.0	333.0	
5	191.990	H	48.5	-21.7	26.8	40.0	13.2	400.0	167.0	
6	191.994	V	53.6	-21.7	31.9	40.0	8.1	102.0	317.0	
7	259.886	V	58.6	-18.9	39.7	47.0	7.3	112.0	359.0	
8	259.890	H	51.5	-18.9	32.6	47.0	14.4	312.0	190.0	
9	400.055	V	49.0	-14.0	35.0	47.0	12.0	378.0	3.0	
10	400.058	H	49.8	-14.0	35.8	47.0	11.2	205.0	272.0	
11	650.073	H	46.5	-8.1	38.4	47.0	8.6	221.0	0.0	
12	650.082	V	40.1	-8.1	32.0	47.0	15.0	148.0	258.0	

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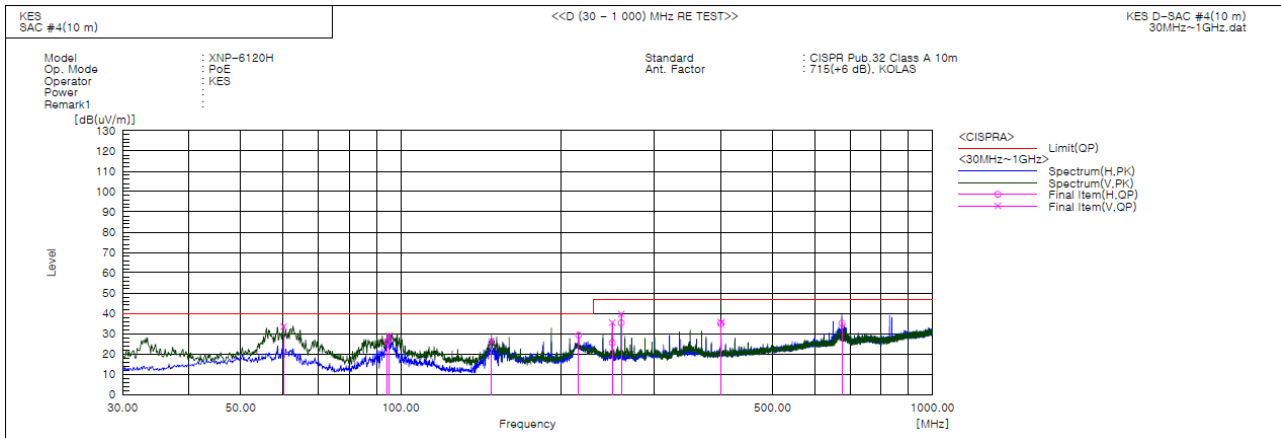
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Report No.:

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PoE Mode



Final Result

No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Remark
1	60.191	V	55.4	-21.9	33.5	40.0	6.5	114.0	94.0	
2	94.384	H	49.8	-23.5	26.3	40.0	13.7	325.0	15.0	
3	95.111	V	52.2	-23.3	28.9	40.0	11.1	121.0	80.0	
4	148.098	V	51.4	-25.2	26.2	40.0	13.8	146.0	75.0	
5	215.998	H	49.6	-20.4	29.2	40.0	10.8	367.0	352.0	
6	249.948	H	44.6	-19.1	25.5	47.0	21.5	331.0	83.0	
7	249.954	V	54.5	-19.1	35.4	47.0	11.6	121.0	183.0	
8	259.890	V	58.6	-18.9	39.7	47.0	7.3	117.0	191.0	
9	259.896	H	54.2	-18.9	35.3	47.0	11.7	400.0	196.0	
10	400.055	H	48.9	-14.0	34.9	47.0	12.1	235.0	126.0	
11	400.064	V	49.6	-14.0	35.6	47.0	11.4	164.0	285.0	
12	675.050	H	43.0	-7.8	35.2	47.0	11.8	400.0	352.0	

◆ Calculation

Corrected Amplitude [dBuV] = Amplitude[dBuV] + Correction Factor [dB]

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

Correction Factor : ANT FACTOR + Cable loss

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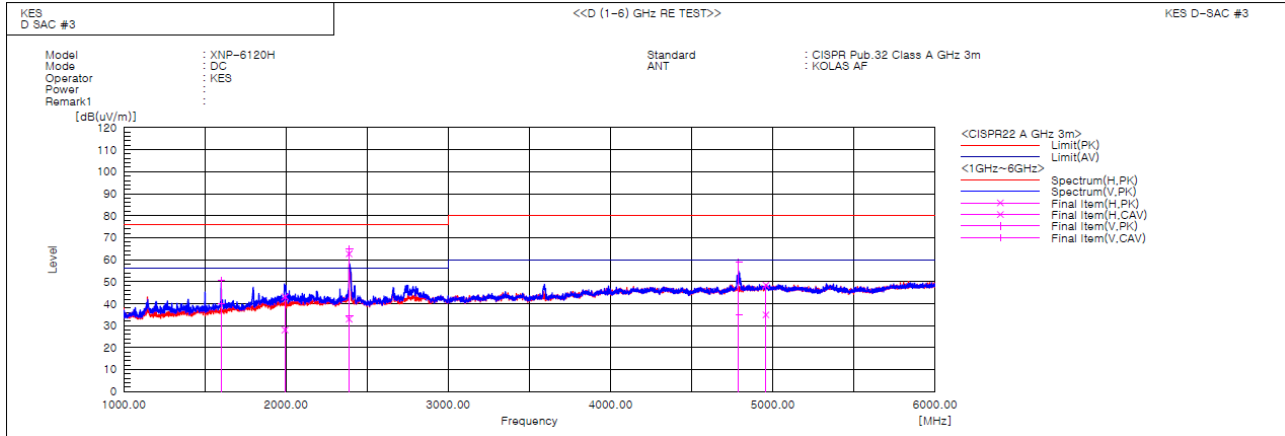
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Radiated Electric Field Emissions(Above 1 GHz)

■ DC Mode



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]	Remark
1	1600.041	V	56.0	45.3	-5.3	50.7	40.0	76.0	56.0	25.3	16.0	100.0	358.3	
2	1993.231	H	44.2	29.1	-1.1	43.1	28.0	76.0	56.0	32.9	28.0	100.0	270.7	
3	2389.050	H	62.4	32.7	0.2	62.6	32.9	76.0	56.0	13.4	23.1	100.0	348.6	
4	2391.142	V	64.7	34.3	0.2	64.9	34.5	76.0	56.0	11.1	21.5	100.0	50.4	
5	4790.112	V	51.1	27.1	7.9	59.0	35.0	80.0	60.0	21.0	25.0	100.0	185.1	
6	4958.000	H	39.6	26.1	8.8	48.4	34.9	80.0	60.0	31.6	25.1	100.0	55.2	

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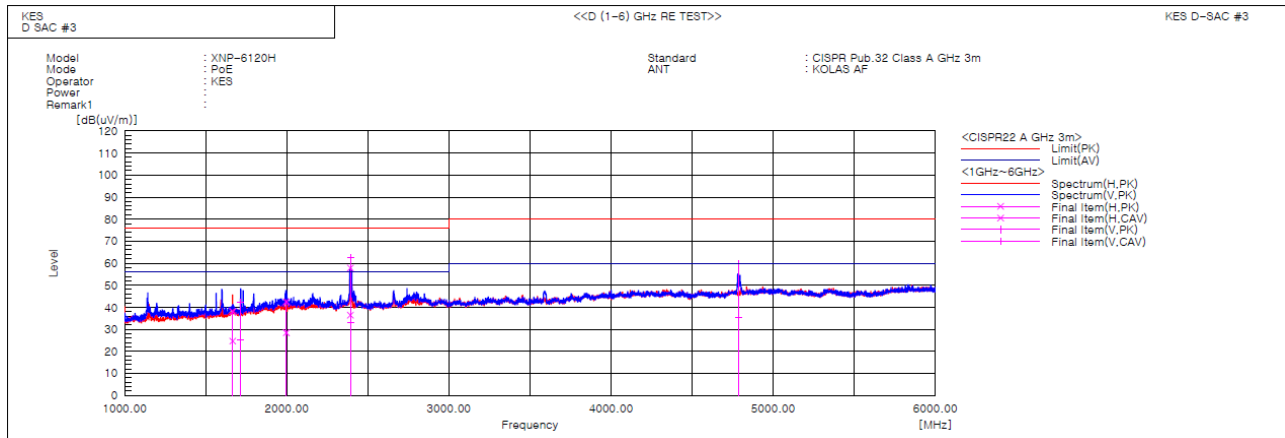
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PoE Mode



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]	Remark
1	1666.055	H	42.7	29.4	-4.7	38.0	24.7	76.0	56.0	38.0	31.3	100.0	49.5	
2	1716.000	V	46.4	29.2	-4.1	42.3	25.1	76.0	56.0	33.7	30.9	100.0	338.0	
3	1996.121	H	43.5	29.4	-1.0	42.5	28.4	76.0	56.0	33.5	27.6	100.0	65.5	
4	2392.000	H	57.7	36.2	0.2	57.9	36.4	76.0	56.0	18.1	19.6	100.0	349.9	
5	2396.087	V	62.3	33.1	0.2	62.5	33.3	76.0	56.0	13.5	22.7	100.0	164.1	
6	4787.051	V	51.8	27.5	7.9	59.7	35.4	80.0	60.0	20.3	24.6	100.0	185.1	

◆ 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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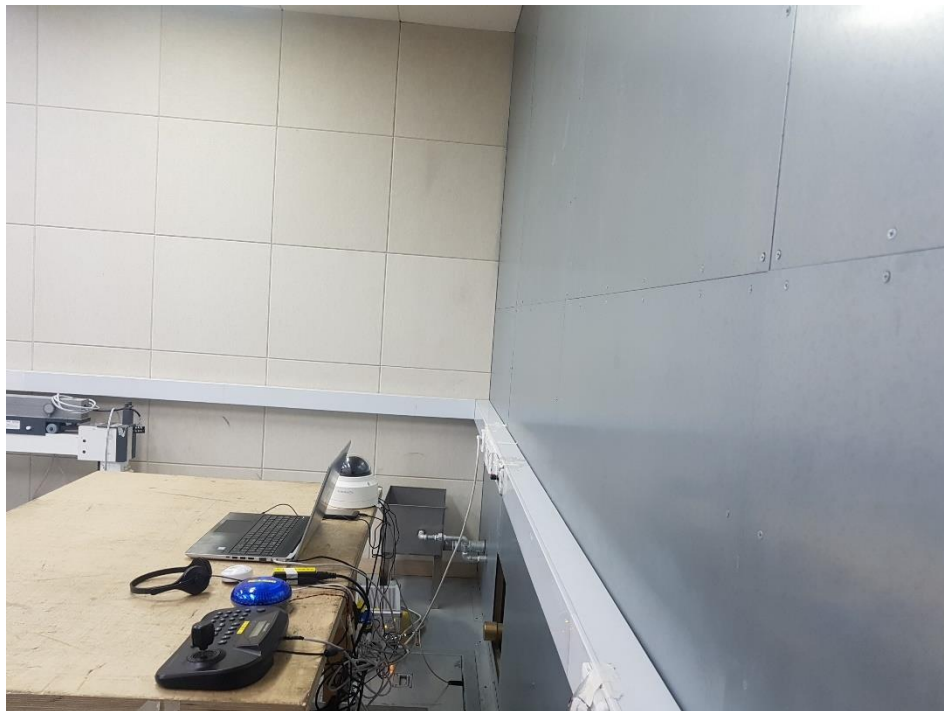
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Test Setup Photos and Configuration

Conducted Emissions at Mains Power Ports

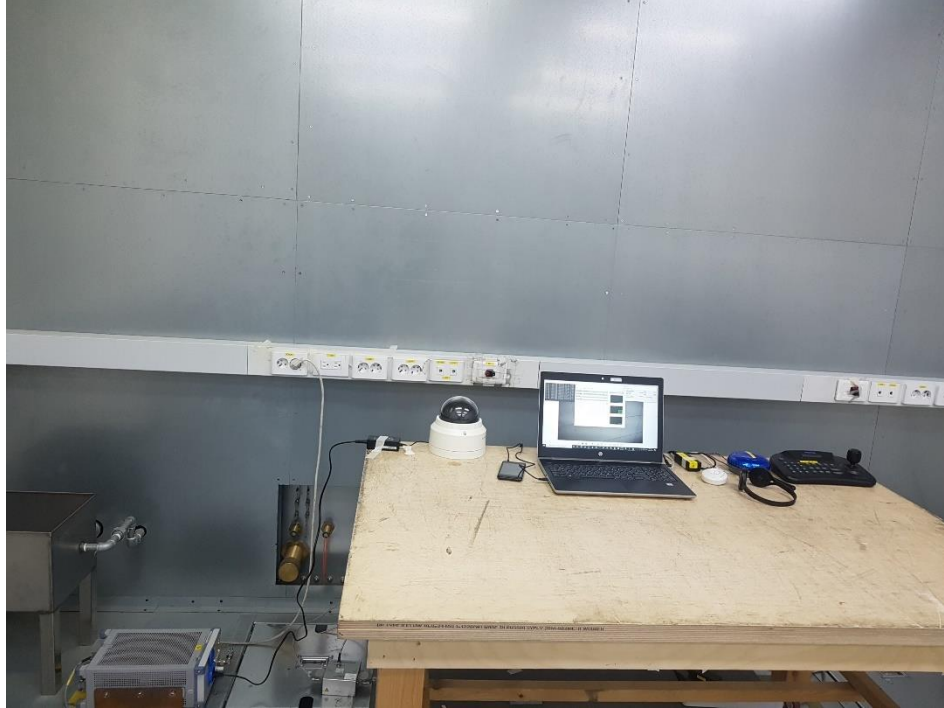
■ DC Mode



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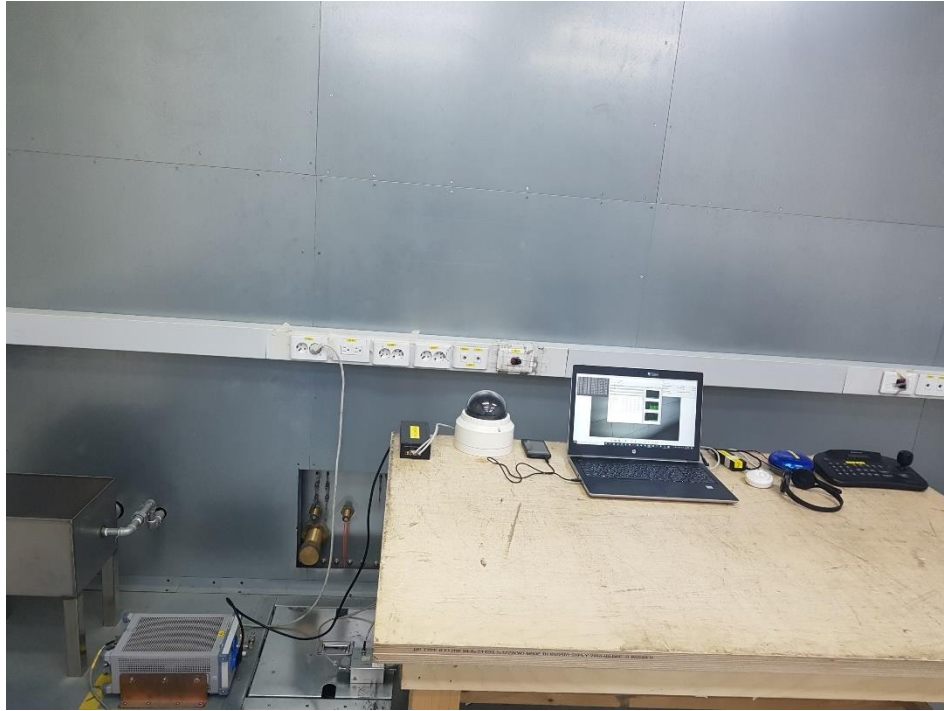
Conducted Emissions at Telecommunication Ports

■ DC Mode



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■ PoE Mode



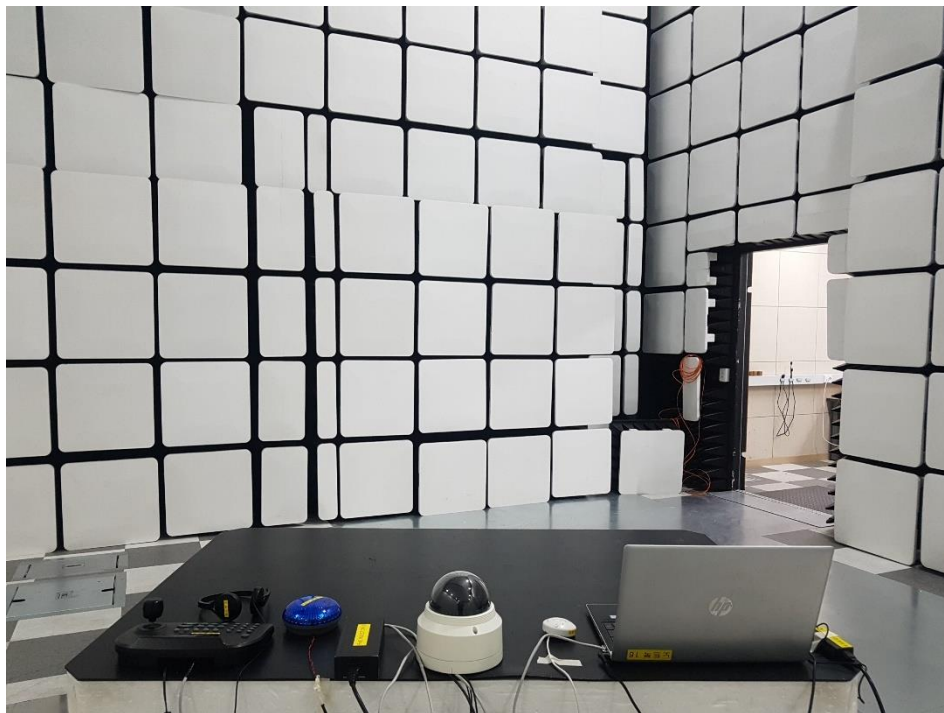
Radiated Electric Field Emissions(Below 1 GHz)

■ DC Mode



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■ PoE Mode



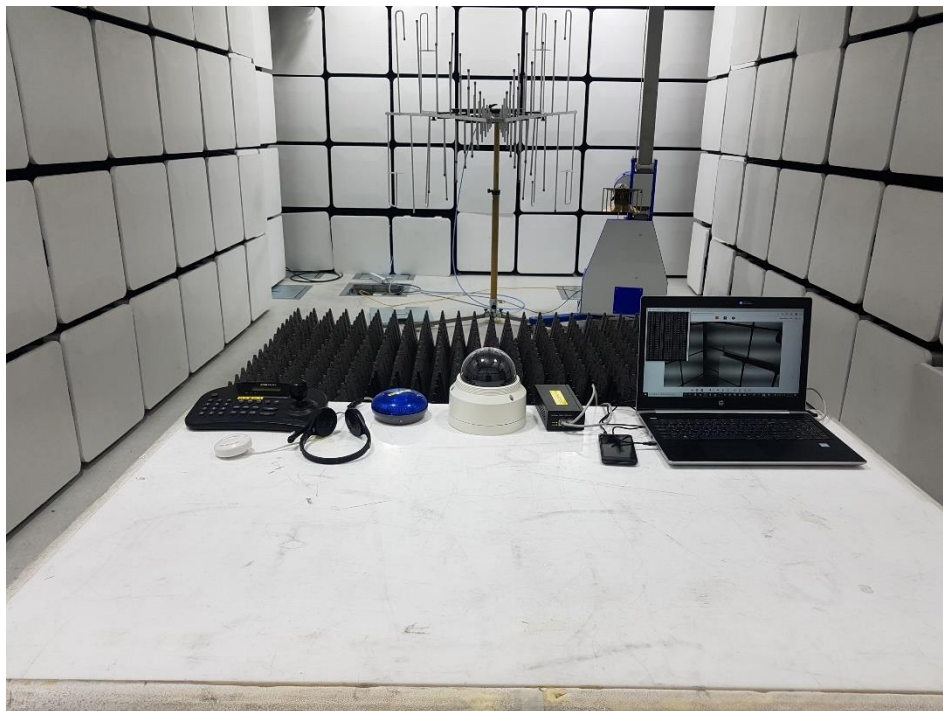
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Radiated Electric Field Emissions(Above 1 GHz)

■ DC Mode



■ PoE Mode



EUT External Photographs

(Top)



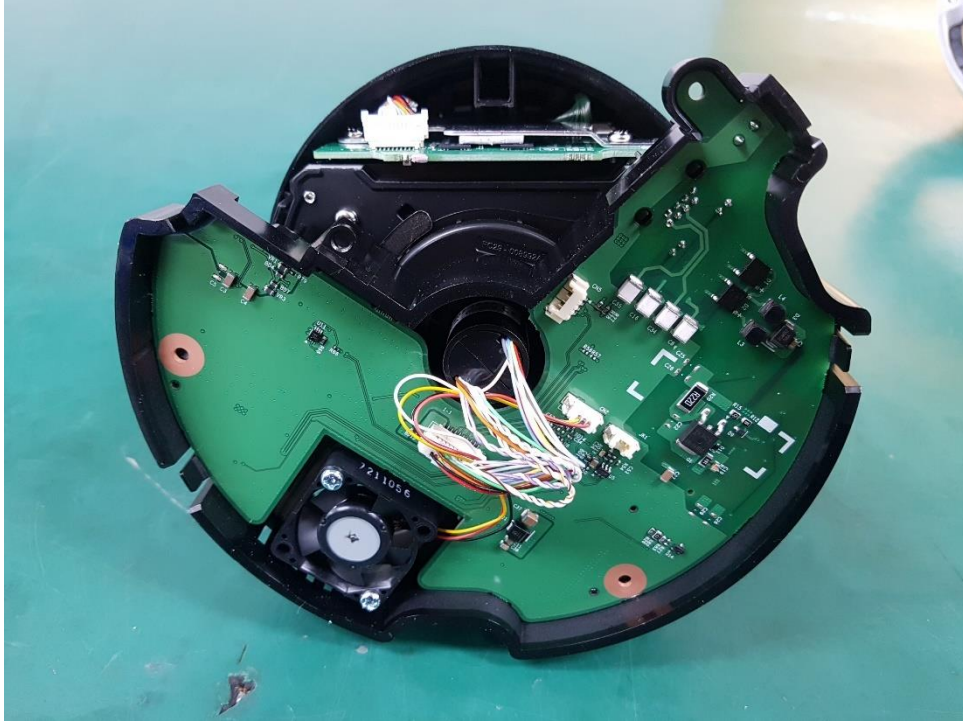
(Bottom)



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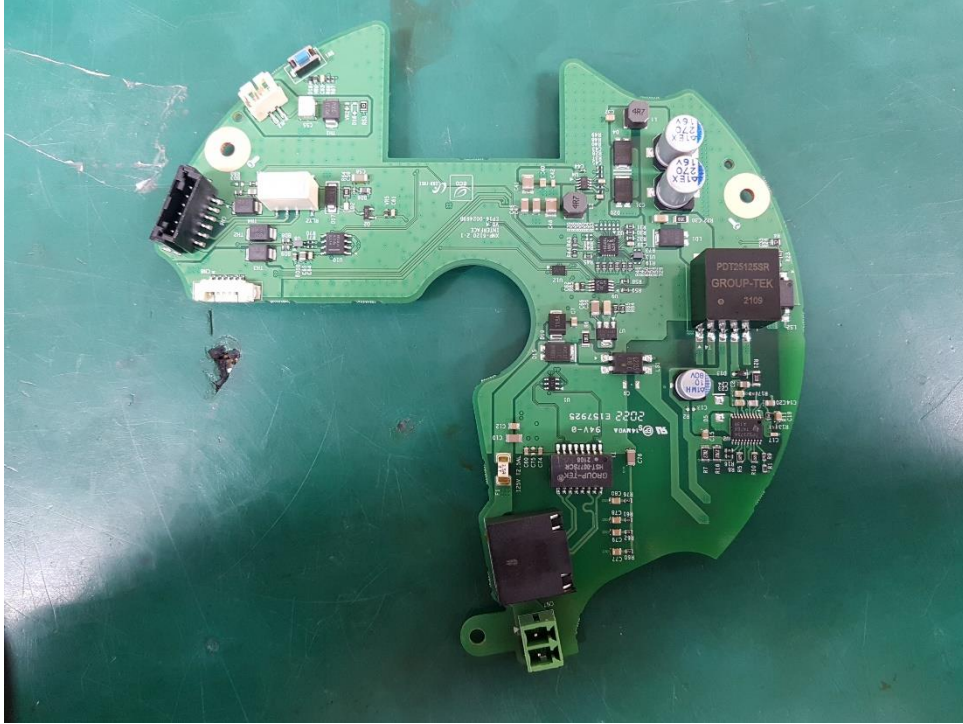
EUT Internal Photographs

(Internal View)



EUT Internal View – Board 1

(Top)



(Bottom)



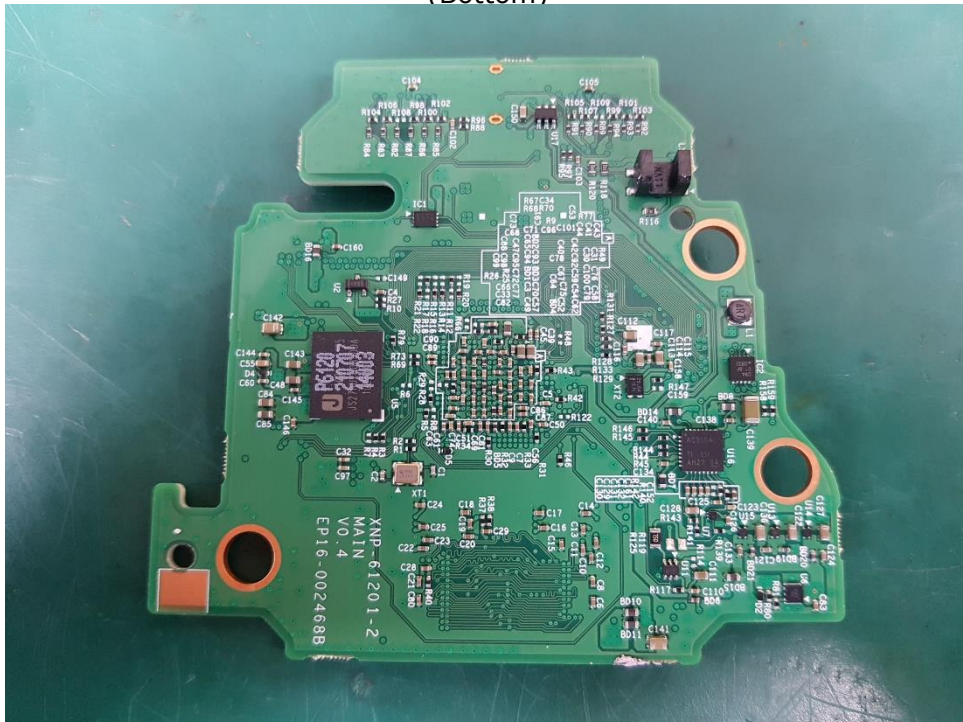
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EUT Internal View – Board 2

(Top)



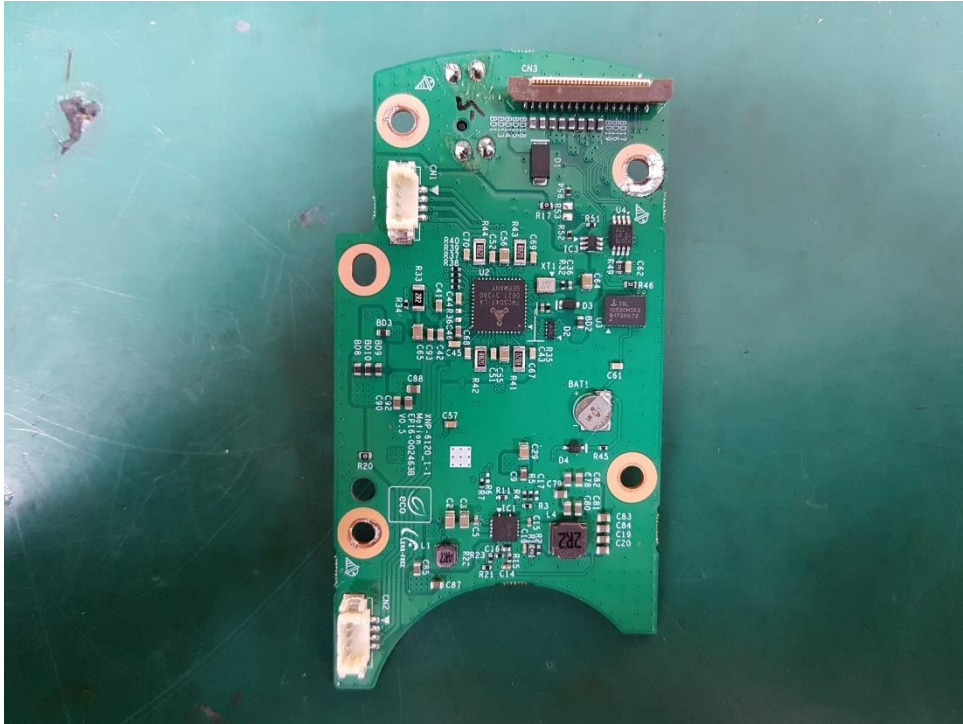
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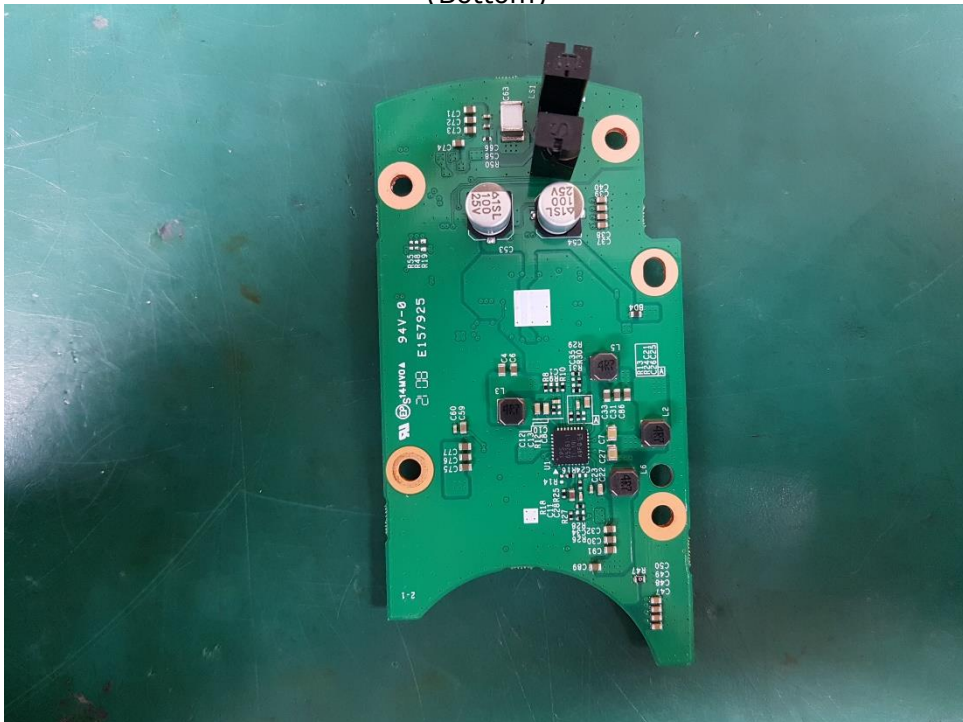
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EUT Internal View – Board 3

(Top)



(Bottom)



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EUT Internal View – Board 4

(Top)



(Bottom)



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EUT Internal View – Board 5

(Top)

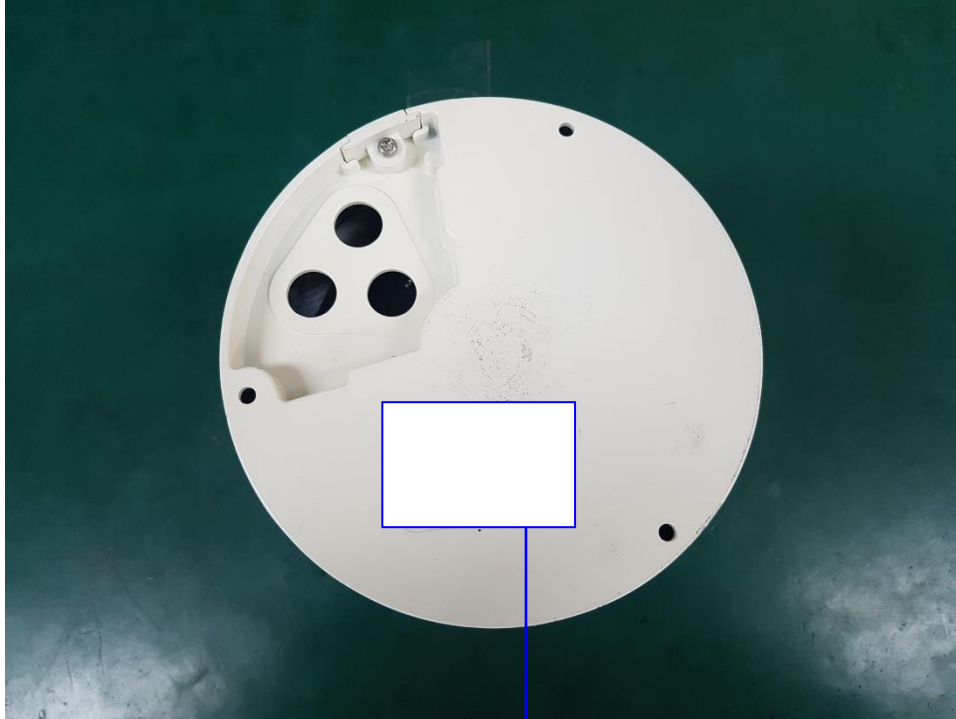


(Bottom)



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Label Photographs



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