

**KES Co., Ltd.**

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www.kes.co.kr

Report No.:

KES-EM-21T0971-R1

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EMC TEST REPORT

Test Report No. : KES-EM-21T0971-R1

Date of Issue : Feb. 24, 2023

Product name : NETWORK CAMERA

Model/Type No. : XNV-6020R

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.

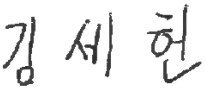
Manufacturer Address : 1. Lot O-2, Que Vo Industrial Zone extended area,
Nam Son commune, Bac Ninh city, Bac Ninh province, Vietnam
2. 173-25, Saneop-ro, Gwonseon-gu, Suwon-si, Gyeonggi- do,
Korea (Suwon Industrial Complex)

Equipment authorization : **Supplier's Declaration of Conformity**

Date of Receipt : Aug. 27, 2021

Test date : Sep. 09, 2021

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

Tested by : 
Se Heon, Kim
EMC Test Engineer

Reviewed by : 
Dong-Hun, Jang
EMC Technical Manager

Tested by In Han, Kang
(Retries person)
Proxy signature : Se Heon, 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
Oct. 07, 2021	KES-EM-21T0971	Issued
Feb. 24, 2023	KES-EM-21T0971-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" 2M 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 Scan
Min. Illumination	Color : 0.015 lux(F1.4, 1/30sec), B/W : 0Lux(IR LED On)
S / N Ratio	50dB
Video Out	CVBS : 1.0Vpp / 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)	4mm Fixed
Max. Aperture Ratio	F1.4
Angular Field of View	H: 88.6°, V: 47.5°, D: 104.8°
Min. Object Distance	0.4m (1.31ft)
Focus Control	Manual
Lens / Mount Type	Fixed / Board-in type
PAN / TILT / ROTATE	
Pan / Tilt / Rotate Range	0° ~ 354° / 0° ~ 67° / 0° ~ 355°
OPERATIONAL	
IR Viewable Length	30m(98.43ft)
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 / External / Schedule
Backlight Compensation	Off / BLC / HLC (Masking / Dimming), 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
Defog	Off / Auto (Input from fog detection) / Manual
Motion Detection	Off / On (Bea, 8point polygonal zones), Handover
Privacy Masking	Off / On (32ea, Polygonal) - Color : Grey / Green / Red / Blue / Black / White, Mosaic
Gain Control	Off / Low / Middle / High
White Balance	ATW / AWC / Manual / Indoor / Outdoor (Included mercury & Sodium)
Contrast	Level adjustment
LDC (Lens Distortion Correction)	Off / On (5 levels with min / max)
Electronic Shutter Speed	Minimum / Maximum / Anti flicker (2 ~ 1/12,000sec)
Digital PTZ	24x, Digital PTZ (Preset, Group)
Flip / Mirror	Off / On, Hallway view : 90°/270°
Video & Audio Analytics	Tampering, Loitering, Directional detection, Defocus detection, Fog detection, Virtual line, Enter / Exit, (Dis)Appear, Audio detection, Face detection, Motion detection, Digital auto tracking, Sound classification, Heatmap, People counting, Queue management
Alarm I/O	Input 1ea / Output 1ea
Alarm Triggers	Alarm input, Motion detection, Video & Audio analytics, Network disconnect
Alarm Events	File upload via FTP, E-mail, Notification via E-mail, Local storage (SD/SDHC/SDXC) or NAS recording at event triggers, External output, DPTZ 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) : Main / Baseline / High, MJPEG
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, MJPEG : Max. 30fps
Smart Codec	Manual mode (Area-based : Sea)
WiseStream II	Support
Video Quality Adjustment	H.265 / H.264 : Target bitrate level control, MJPEG : Target bitrate level control
Bitrate Control Method	H.265 / H.264 : CBR or VBR, MJPEG : VBR
Streaming Capability	Multiple streaming (Up to 10 profiles)
Audio In	Selectable (Mic in / Line in), Supply voltage : 2.5V DC (4mA), Input impedance : approx. 2K Ohm
Audio Out	Line out, Max output level : 1Vrms
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 8/16/32/48KHz
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 2slot (Up to 512GB) - Continuous recording (1st slot to 2nd slot) NAS (Network Attached Storage), Local PC for instant recording
Application Programming Interface	ONVIF profile S/G, 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
	Non-plugin Webviewer - Supported Browser : Google Chrome 54, MS Edge 38, Mozilla Firefox 49 (Window 64bit only), Apple Safari 9 * Mac OS X only
	Plug-in Webviewer - Supported Browser : MS Explore 11, Apple Safari 9 * Mac OS X only
Central Management Software	
ENVIRONMENTAL	
Operating Temperature / Humidity	-30°C ~ +55°C (-22°F ~ +131°F) / Less than 90% RH * Start up should be done at above -20°C (-4°F)
Storage Temperature / Humidity	-50°C ~ +60°C (-58°F ~ +140°F) / Less than 90% RH
Ingress Protection / Vandal Resistance	IP67, IP66 / IK10
ELECTRICAL	
Input Voltage / Current	12V DC ±10%, PoE (IEEE802.3af)
Power Consumption	Max. 8W(12VDC), Max. 9W(PoE)
MECHANICAL	
Color / Material	Ivory / Metal
Dimensions (WxH)	Ø120.0 x 97.5mm (Ø4.72" x 3.84")
Weight	615g (1.36lb)

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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 120 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	XNV-6020R	-	HANWHA VISION VIETNAM COMPANY LIMITED	EUT
Adapter	2ACB022F	-	Channel Well Technology (Guangzhou) Co., Ltd.	-

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1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
PoE Adaptor	PT-PSE109GBRO	-	-	-
Notebook	P95G001	8KM8HT2	Wistron Infocom (Chengdu) Company Limited	-
Notebook Adapter	LA65NS2-01	-	LITE-ON TECHNOLOGY(CHANGZ HOU)CO.,LTD.	-
Button alarm	-	-	-	-
Multimeter	-	-	-	-
Micro SD Card	-	-	Sandisk	8 GB
Mic	MP1000	-	-	-
iPhone	A1429	-	Apple Inc.	-
Speaker	BR1000A Cuve Black 2	-	DONGGUAN EDIFIER TECHNOLOGY Co., Ltd	-

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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	Adapter (EUT)	LINE OUT	1.6	U
	RJ-45 (LAN)	Notebook	RJ-45 (LAN)	3.0	U
	Micro SD Slot	Micro SD Card	Micro SD Slot	-	-
	2 Pin	Button alarm	2 Pin	3.0	U
	2 Pin	Multimeter	2 Pin	3.0	U
	3.5 mm	Mic	3.5 mm	1.4	U
	3.5 mm	Speaker	3.5 mm	1.5	U
	DC Jack	Notebook Adapter	LINE OUT	1.4	U
Notebook	3.5 mm	iPhone	3.5 mm	1.1	U
	3.5 mm	iPhone	3.5 mm	1.1	U

* Unshielded=U, Shielded=S

■ PoE Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (EUT)	RJ-45 (PoE)	PoE Adapter	RJ-45 (PoE)	3.0	U
	Micro SD Slot	Micro SD Card	Micro SD Slot	-	-
	2 Pin	Button alarm	2 Pin	3.0	U
	2 Pin	Multimeter	2 Pin	3.0	U
	3.5 mm	Mic	3.5 mm	1.4	U
	3.5 mm	Speaker	3.5 mm	1.5	U
Notebook	RJ-45 (LAN)	PoE Adapter	RJ-45 (LAN)	1.0	U
	DC Jack	Notebook Adapter	LINE OUT	1.4	U
	3.5 mm	iPhone	3.5 mm	1.1	U

* Unshielded=U, Shielded=S

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1.7 EUT Operating Mode(s)

Test Mode	operating
DC Mode	EUT Monitoring, Ping Test
PoE Mode	

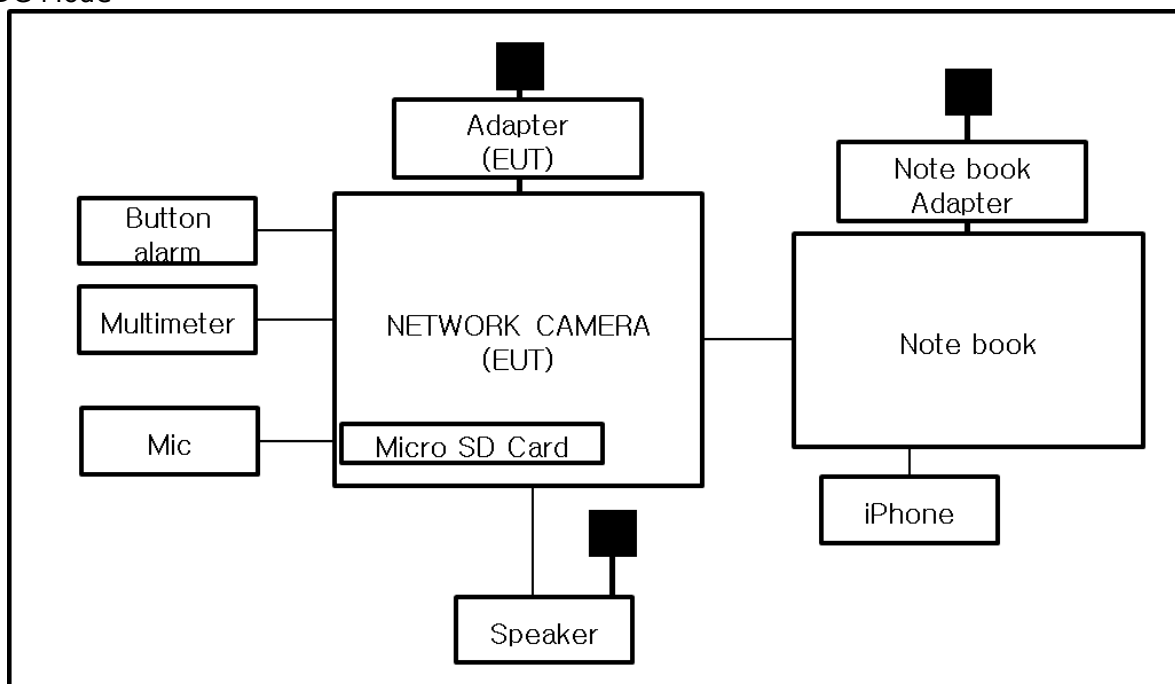
EUT Test operating S/W		
Name	Version	Manufacture Company
Web Viewer	-	Hanwha Vision Co., Ltd

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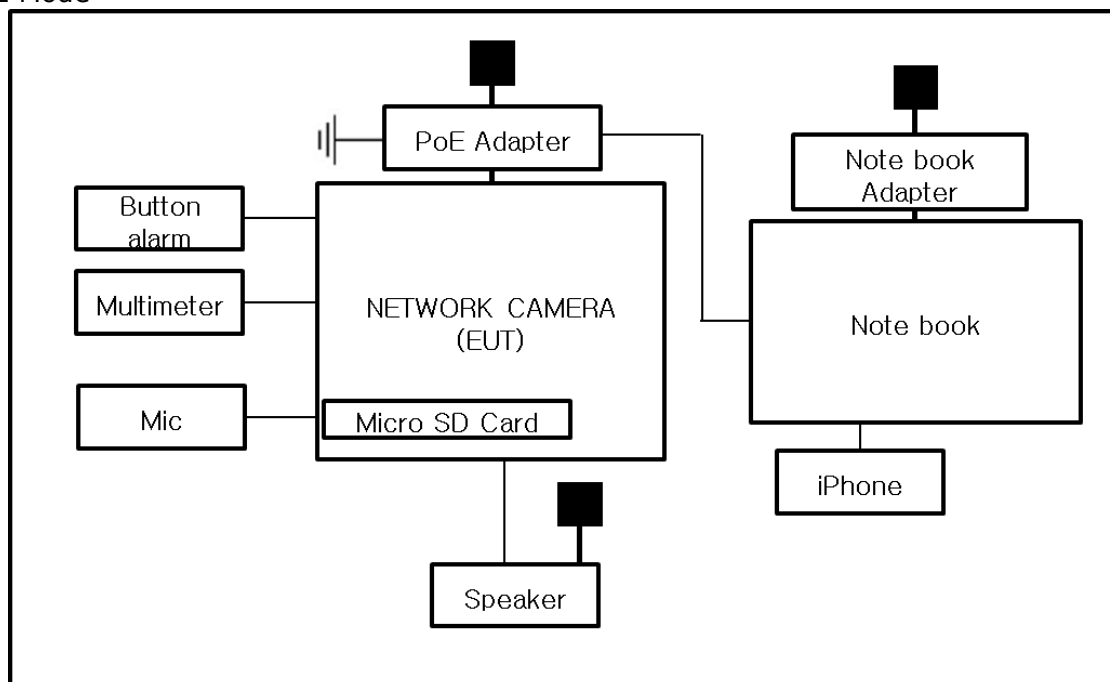
1.8 Configuration

■ AC Main
 □ DC Main

■ DC Mode



■ PoE Mode



1.9 Remarks when standards applied

VIDEO, USB ports are not used and have not been tested.

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



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

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- | | | |
|---|---|----------------------------------|
| ☐ VCCI-CISPR 32:2016 | ☐ 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 C63.4-2017 | ☒ Class A | ☐ Class B |
| ☒ IC Regulation ICES-003 Issue 7 | | |
| ☒ CAN/CSA-CISPR 32:17 | ☒ Class A | ☐ Class B |
| ☐ ANSI C63.4-2017 | ☐ Class A | ☐ Class B |
| ☐ 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 | | |

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2.1 Conducted Emissions at Mains Power Ports

Test Date

Sep. 09, 2021

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	01, 15, 2022
☒	LISN	ENV216	R & S	101787	12, 29, 2021
☒	LISN	ESH2-Z5	R & S	100450	12, 29, 2021
☒	PULSE LIMITER	ESH3-Z2	R & S	101915	12, 29, 2021

Test Conditions

Temperature: (24,4 ± 0,1) °C

Relative Humidity: (50,1 ± 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 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Sep. 09, 2021

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, 25, 2021
☒	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	715	12, 08, 2022
☒	ATTENUATOR	8491A	HP	32173	03, 10, 2022

Test Conditions

Temperature: (24,1 ± 0,1) °C

Relative Humidity: (50,1 ± 0,2) % 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

Sep. 09, 2021

Test Location

SEMI ANECHOIC CHAMBER #5

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.120	-
☒	EMI TEST RECEIVER	ESU26	Rohde & Schwarz	100552	04, 01, 2022
☒	HORN ANTENNA	BBHA 9120D	SCHWARZBECK	9120D-1802	12, 14, 2021
☒	PREAMPLIFIER	8449B	HP	3008A00538	06, 21, 2022

Test Conditions

Temperature: (24,1 ± 0,1) °C

Relative Humidity: (50,1 ± 0,3) % 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

■ DC Mode

HOT LINE

Common Information

Test Description:

Conducted Emission

Model No.:

XNV-6020R

Phase:

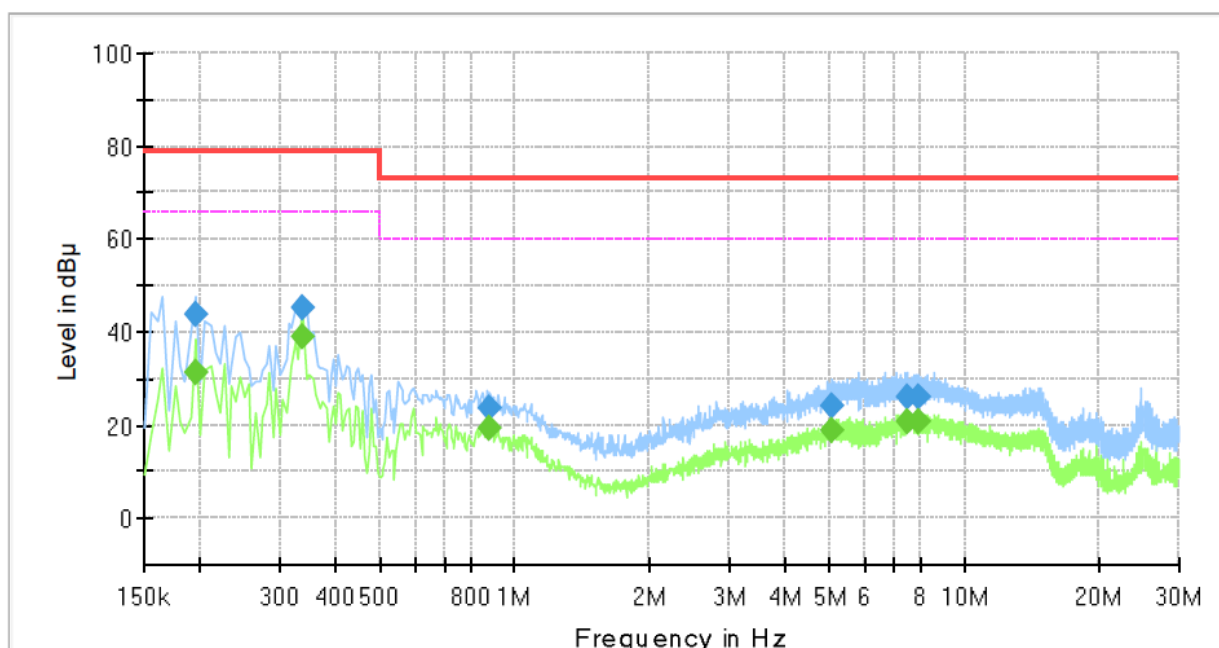
L1

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)
0.195000	---	31.39	66.00	34.61	1000.0	9.000	L1	19.5
0.195000	43.56	---	79.00	35.44	1000.0	9.000	L1	19.5
0.335000	---	38.92	66.00	27.08	1000.0	9.000	L1	19.6
0.335000	45.40	---	79.00	33.60	1000.0	9.000	L1	19.6
0.880000	---	19.16	60.00	40.84	1000.0	9.000	L1	20.1
0.880000	23.78	---	73.00	49.22	1000.0	9.000	L1	20.1
5.095000	---	18.92	60.00	41.08	1000.0	9.000	L1	19.7
5.095000	24.30	---	73.00	48.70	1000.0	9.000	L1	19.7
7.435000	---	20.72	60.00	39.28	1000.0	9.000	L1	19.6
7.435000	25.98	---	73.00	47.02	1000.0	9.000	L1	19.6
7.905000	---	20.88	60.00	39.12	1000.0	9.000	L1	19.6
7.905000	25.93	---	73.00	47.07	1000.0	9.000	L1	19.6

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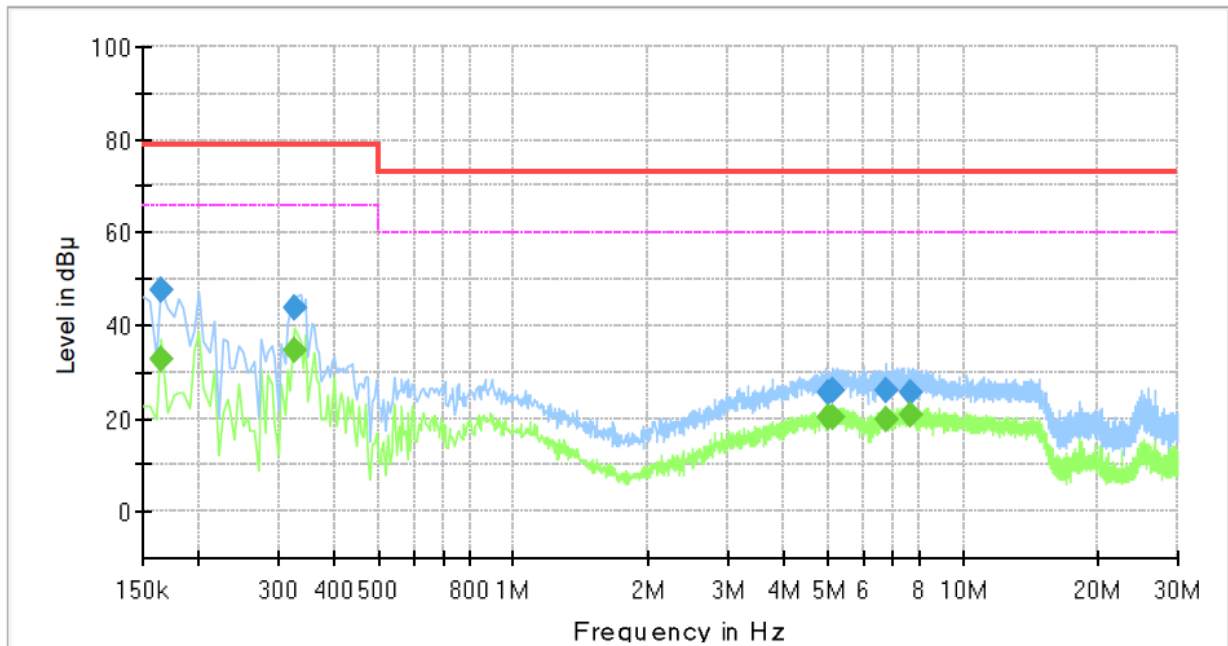
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NEUTRAL LINE

Common Information

Test Description:	Conducted Emission
Model No.:	XNV-6020R
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)
0.165000	---	32.71	66.00	33.29	1000.0	9.000	N	19.4
0.165000	47.66	---	79.00	31.34	1000.0	9.000	N	19.4
0.325000	---	34.58	66.00	31.42	1000.0	9.000	N	19.6
0.325000	43.63	---	79.00	35.37	1000.0	9.000	N	19.6
5.025000	---	20.33	60.00	39.67	1000.0	9.000	N	19.7
5.025000	25.77	---	73.00	47.23	1000.0	9.000	N	19.7
5.110000	---	20.50	60.00	39.50	1000.0	9.000	N	19.7
5.110000	26.15	---	73.00	46.85	1000.0	9.000	N	19.7
6.760000	---	19.96	60.00	40.04	1000.0	9.000	N	19.5
6.760000	25.82	---	73.00	47.18	1000.0	9.000	N	19.5
7.645000	---	20.72	60.00	39.28	1000.0	9.000	N	19.6
7.645000	25.78	---	73.00	47.22	1000.0	9.000	N	19.6

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PoE Mode
HOT LINE
Common Information

Test Description:

Model No.:

Phase:

Mode:

Operator Name:

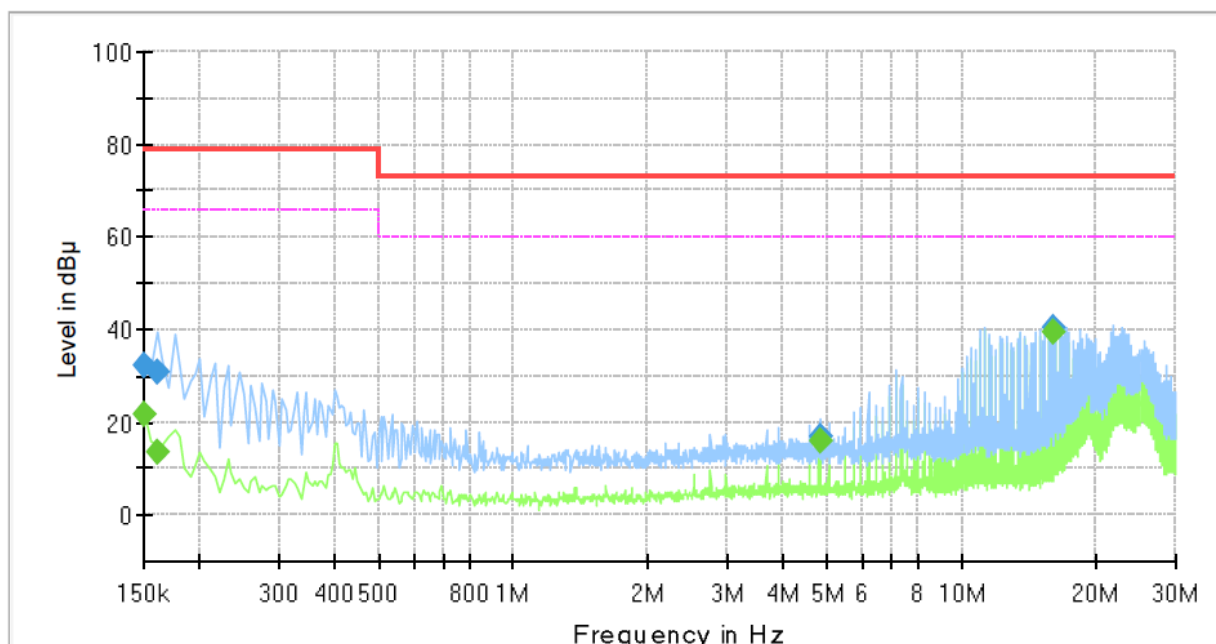
Conducted Emission

XNV-6020R

L1

PoE

KES


Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.150000	---	21.80	66.00	44.20	1000.0	9.000	L1	19.4
0.150000	32.33	---	79.00	46.67	1000.0	9.000	L1	19.4
0.160000	---	13.51	66.00	52.49	1000.0	9.000	L1	19.5
0.160000	30.92	---	79.00	48.08	1000.0	9.000	L1	19.5
4.820000	---	15.84	60.00	44.16	1000.0	9.000	L1	19.7
4.820000	16.69	---	73.00	56.31	1000.0	9.000	L1	19.7
16.065000	---	39.52	60.00	20.48	1000.0	9.000	L1	19.9
16.065000	40.32	---	73.00	32.68	1000.0	9.000	L1	19.9

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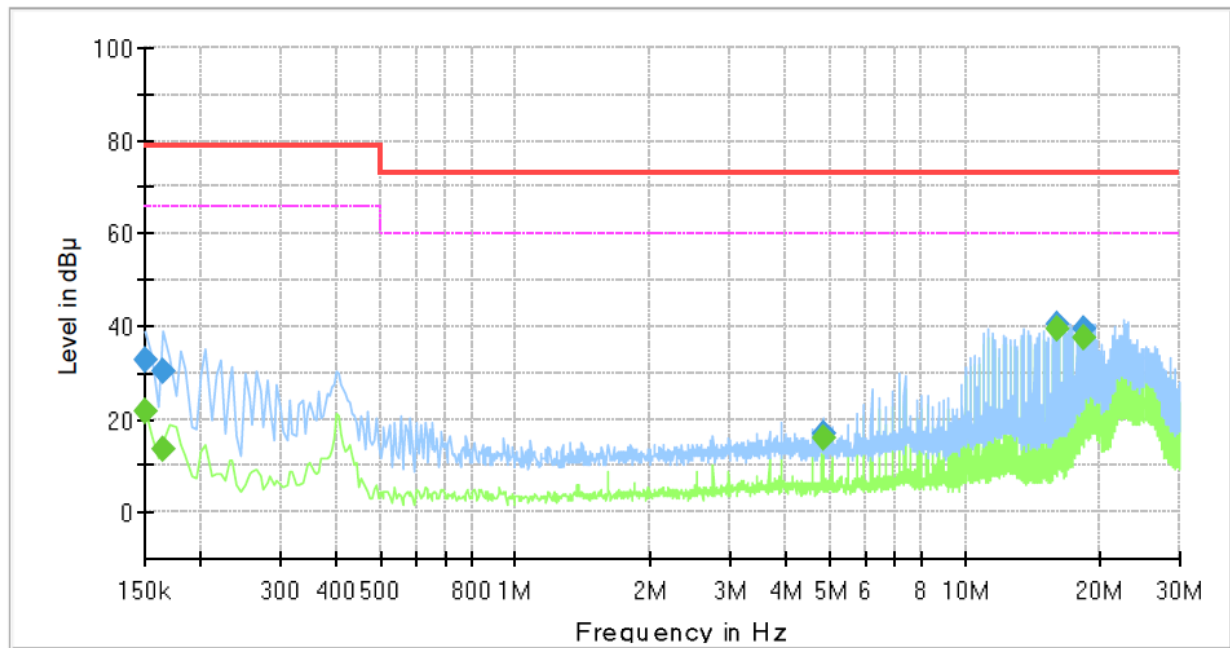
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NEUTRAL LINE

Common Information

Test Description:	Conducted Emission
Model No.:	XNV-6020R
Phase:	N
Mode:	PoE
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	---	21.54	66.00	44.46	1000.0	9.000	N	19.4
0.150000	32.96	---	79.00	46.04	1000.0	9.000	N	19.4
0.165000	---	13.73	66.00	52.27	1000.0	9.000	N	19.4
0.165000	30.43	---	79.00	48.57	1000.0	9.000	N	19.4
4.820000	---	15.79	60.00	44.21	1000.0	9.000	N	19.7
4.820000	16.80	---	73.00	56.20	1000.0	9.000	N	19.7
16.065000	---	39.41	60.00	20.59	1000.0	9.000	N	19.9
16.065000	40.22	---	73.00	32.78	1000.0	9.000	N	19.9
18.360000	---	37.53	60.00	22.47	1000.0	9.000	N	20.1
18.360000	39.38	---	73.00	33.62	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))

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Report No.:

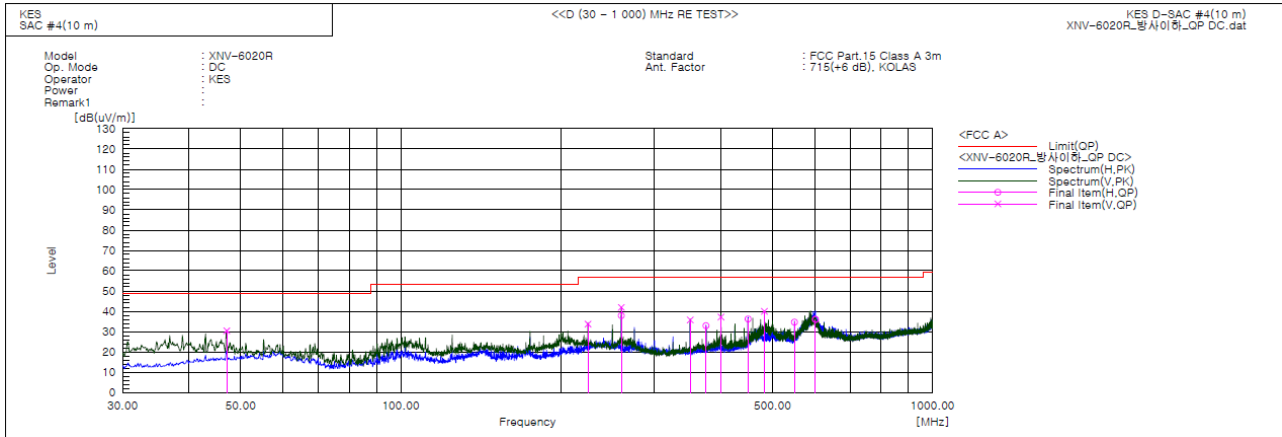
KES-EM-21T0971-R1

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Radiated Electric Field Emissions(Below 1 GHz)

- 47 CFR Part 15, Subpart B

■ DC Mode



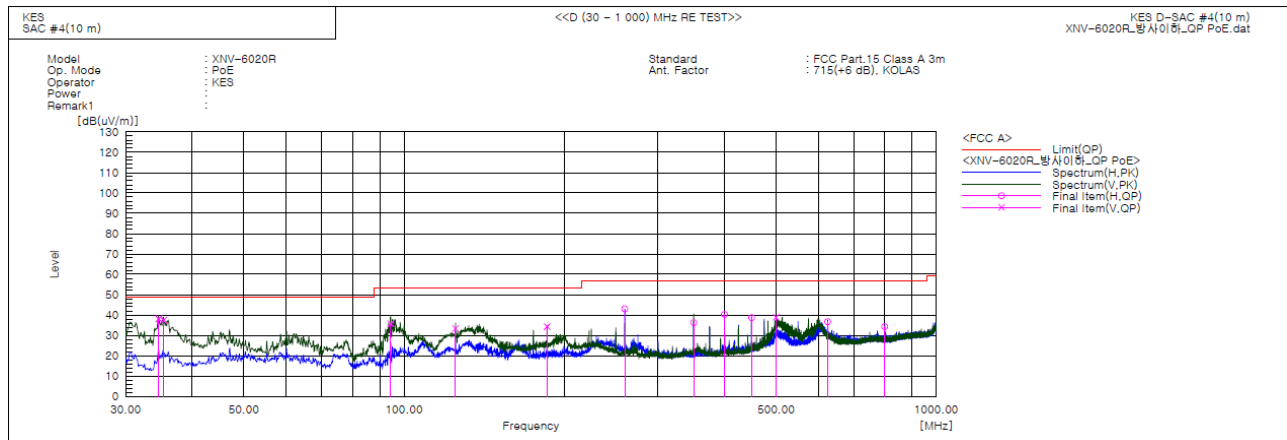
Final Result

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	47.096	V	51.7	-21.3	30.4	49.0	18.6	119.0	109.0	
2	175.015	H	17.8	-23.8	-6.0	53.5	59.5	398.0	273.0	
3	224.970	V	53.7	-20.0	33.7	56.5	22.8	109.0	169.0	
4	259.890	V	60.8	-18.9	41.9	56.5	14.6	104.0	353.0	
5	259.890	H	56.8	-18.9	37.9	56.5	18.6	395.0	306.0	
6	349.979	V	51.1	-15.3	35.8	56.5	20.7	105.0	169.0	
7	374.956	H	47.7	-14.8	32.9	56.5	23.6	392.0	78.0	
8	400.055	V	51.4	-14.2	37.2	56.5	19.3	111.0	297.0	
9	450.010	H	49.3	-13.1	36.2	56.5	20.3	394.0	52.0	
10	482.626	V	52.1	-12.1	40.0	56.5	16.5	106.0	166.0	
11	550.041	H	45.0	-10.3	34.7	56.5	21.8	277.0	263.0	
12	602.300	H	44.4	-8.4	36.0	56.5	20.5	199.0	311.0	

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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	34.608	V	62.9	-24.7	38.2	49.0	10.8	102.0	82.0	
2	35.335	V	62.2	-24.7	37.5	49.0	11.5	103.0	124.0	
3	94.384	V	59.4	-23.6	35.8	53.5	17.7	104.0	286.0	
4	124.939	V	58.2	-24.8	33.4	53.5	20.1	107.0	297.0	
5	185.564	V	56.9	-22.6	34.3	53.5	19.2	105.0	30.0	
6	259.890	H	61.9	-18.9	43.0	56.5	13.5	399.0	181.0	
7	349.979	H	51.5	-15.3	36.2	56.5	20.3	395.0	8.0	
8	400.055	H	54.5	-14.2	40.3	56.5	16.2	247.0	324.0	
9	450.010	H	51.8	-13.1	38.7	56.5	17.8	398.0	71.0	
10	500.086	V	50.5	-11.6	38.9	56.5	17.6	110.0	349.0	
11	624.974	H	44.8	-8.1	36.7	56.5	19.8	281.0	271.0	
12	800.059	H	40.7	-6.4	34.3	56.5	22.2	199.0	209.0	

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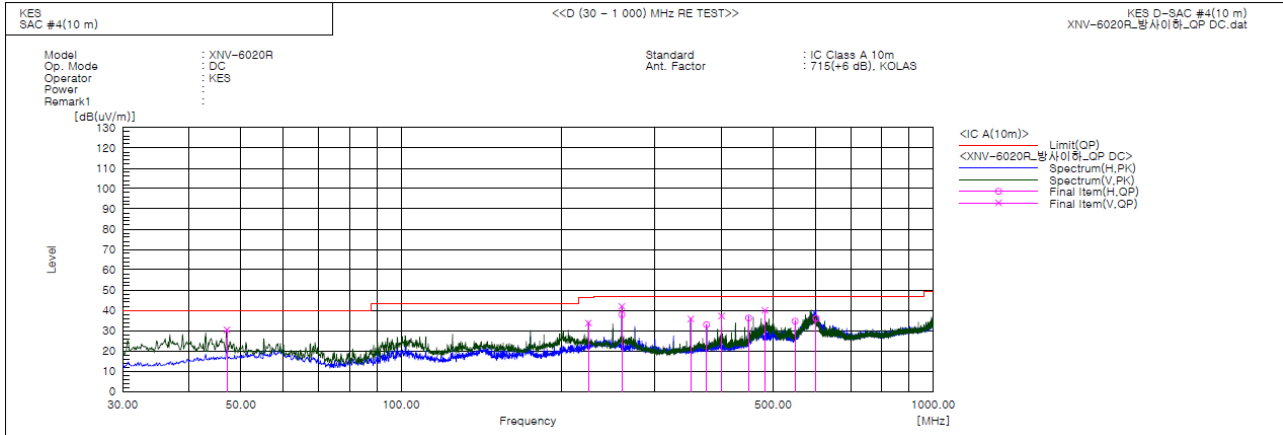
Report No.:

KES-EM-21T0971-R1

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- IC Regulation ICES-003 Issue 7

■ 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	47.096	V	51.7	-21.3	30.4	40.0	9.6	119.0	109.0	
2	175.015	H	17.8	-23.8	-6.0	43.5	49.5	398.0	273.0	
3	224.970	V	53.7	-20.0	33.7	46.4	12.7	109.0	169.0	
4	259.890	V	60.8	-18.9	41.9	47.0	5.1	104.0	353.0	
5	259.890	H	56.8	-18.9	37.9	47.0	9.1	395.0	306.0	
6	349.979	V	51.1	-15.3	35.8	47.0	11.2	105.0	169.0	
7	374.956	H	47.7	-14.8	32.9	47.0	14.1	392.0	78.0	
8	400.055	V	51.4	-14.2	37.2	47.0	9.8	111.0	297.0	
9	450.010	H	49.3	-13.1	36.2	47.0	10.8	394.0	52.0	
10	482.626	V	52.1	-12.1	40.0	47.0	7.0	106.0	166.0	
11	550.041	H	45.0	-10.3	34.7	47.0	12.3	277.0	263.0	
12	602.300	H	44.4	-8.4	36.0	47.0	11.0	199.0	311.0	

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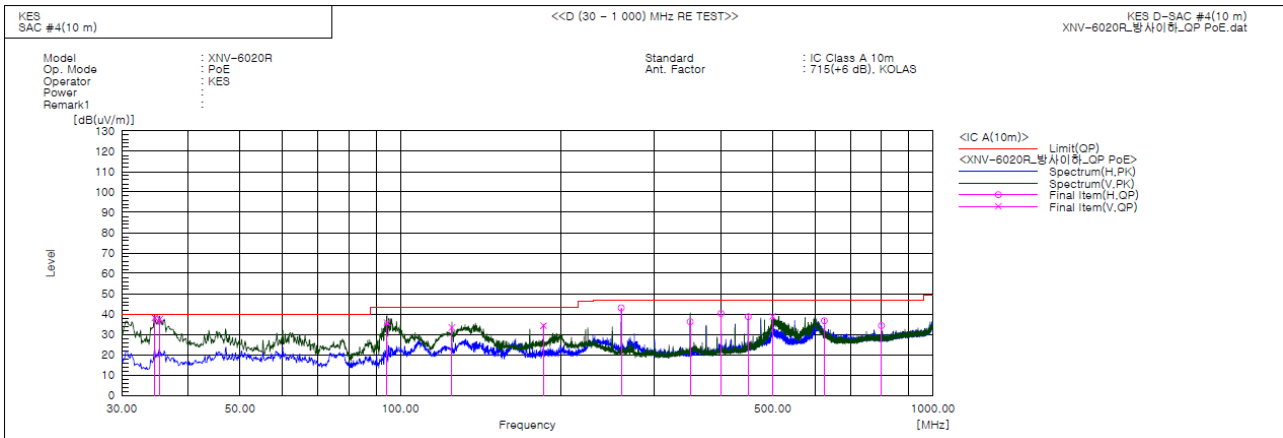
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PoE Mode



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	34.608	V	62.9	-24.7	38.2	40.0	1.8	102.0	82.0	
2	35.335	V	62.2	-24.7	37.5	40.0	2.5	103.0	124.0	
3	94.384	V	59.4	-23.6	35.8	43.5	7.7	104.0	286.0	
4	124.939	V	58.2	-24.8	33.4	43.5	10.1	107.0	297.0	
5	185.564	V	56.9	-22.6	34.3	43.5	9.2	105.0	30.0	
6	259.890	H	61.9	-18.9	43.0	47.0	4.0	399.0	181.0	
7	349.979	H	51.5	-15.3	36.2	47.0	10.8	395.0	8.0	
8	400.055	H	54.5	-14.2	40.3	47.0	6.7	247.0	324.0	
9	450.010	H	51.8	-13.1	38.7	47.0	8.3	398.0	71.0	
10	500.086	V	50.5	-11.6	38.9	47.0	8.1	110.0	349.0	
11	624.974	H	44.8	-8.1	36.7	47.0	10.3	281.0	271.0	
12	800.059	H	40.7	-6.4	34.3	47.0	12.7	199.0	209.0	

◆ Calculation – SAC #4(10 m)

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

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

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

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

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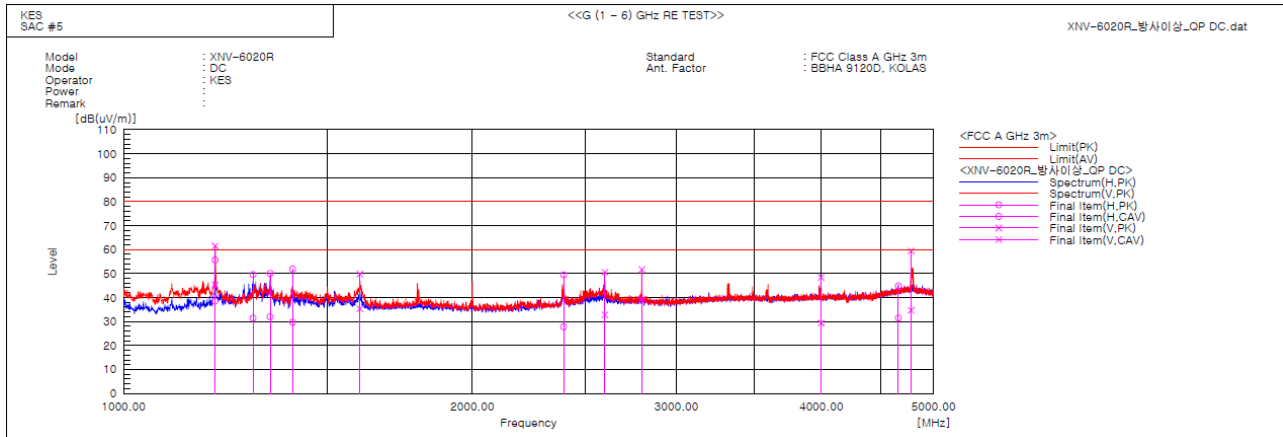
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Radiated Electric Field Emissions(Above 1 GHz)

■ 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	1199.374	V	68.4	52.2	-6.9	61.5	45.3	80.0	60.0	18.5	14.7	125.5	204.9	
2	1199.371	H	62.6	45.4	-6.9	55.7	38.5	80.0	60.0	24.3	21.5	222.1	232.8	
3	1293.125	H	56.1	37.8	-6.4	49.7	31.4	80.0	60.0	30.3	28.6	136.0	320.8	
4	1338.123	H	56.3	38.2	-6.2	50.1	32.0	80.0	60.0	29.9	28.0	100.6	328.1	
5	1399.376	H	57.7	35.5	-5.8	51.9	29.7	80.0	60.0	28.1	30.3	108.8	322.8	
6	1599.372	V	54.8	40.2	-4.9	49.9	35.3	80.0	60.0	30.1	24.7	101.2	104.1	
7	2396.877	H	51.6	29.9	-2.1	49.5	27.8	80.0	60.0	30.5	32.2	99.8	110.9	
8	2602.503	V	51.8	34.0	-1.2	50.6	32.8	80.0	60.0	29.4	27.2	113.4	22.8	
9	2800.121	V	52.0	39.4	-0.3	51.7	39.1	80.0	60.0	28.3	20.9	138.6	168.7	
10	3998.759	V	46.3	27.3	2.1	48.4	29.4	80.0	60.0	31.6	30.6	100.3	42.2	
11	4662.512	H	40.2	26.8	4.7	44.9	31.5	80.0	60.0	35.1	28.5	394.3	234.1	
12	4781.257	V	54.2	29.5	5.2	59.4	34.7	80.0	60.0	20.6	25.3	99.8	159.3	

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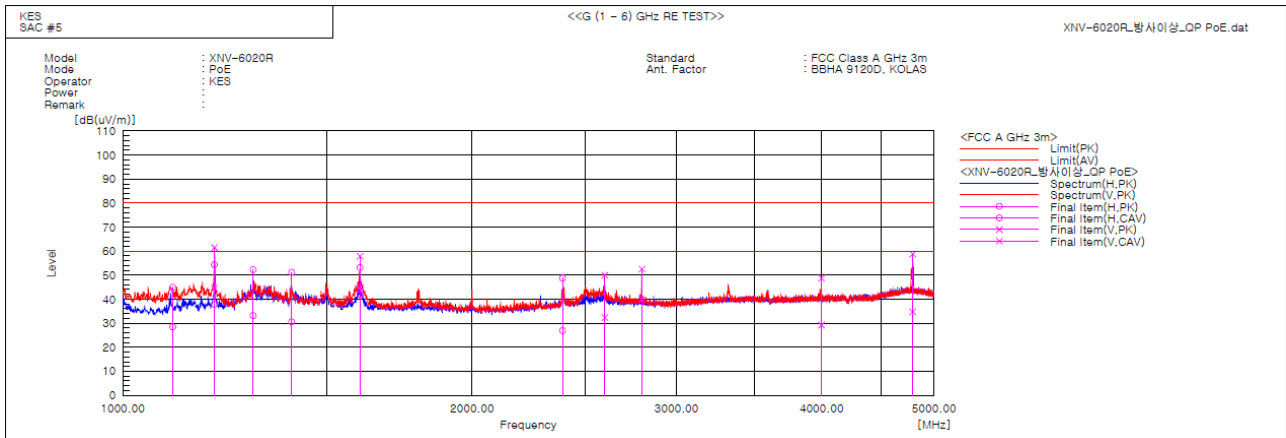
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Report No.:

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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	1104.254	H	52.4	35.9	-7.4	45.0	28.5	80.0	60.0	35.0	31.5	124.6	216.4	
2	1199.377	V	68.4	51.5	-6.9	61.5	44.6	80.0	60.0	18.5	15.4	141.2	151.8	
3	1199.376	H	61.3	44.8	-6.9	54.4	37.9	80.0	60.0	25.6	22.1	138.6	246.3	
4	1295.028	H	58.7	39.6	-6.4	52.3	33.2	80.0	60.0	27.7	26.8	210.5	334.1	
5	1397.503	H	57.0	36.4	-5.8	51.2	30.6	80.0	60.0	28.8	29.4	100.1	320.7	
6	1601.021	V	62.8	49.9	-4.9	57.9	45.0	80.0	60.0	22.1	15.0	114.9	8.2	
7	1601.014	H	58.1	47.0	-4.9	53.2	42.1	80.0	60.0	26.8	17.9	101.9	345.4	
8	2392.521	H	50.9	29.0	-2.1	48.8	26.9	80.0	60.0	31.2	33.1	100.2	99.5	
9	2601.876	V	51.2	33.6	-1.2	50.0	32.4	80.0	60.0	30.0	27.6	113.7	7.7	
10	2800.031	V	52.9	40.2	-0.3	52.6	39.9	80.0	60.0	27.4	20.1	101.4	195.2	
11	3998.125	V	46.6	27.2	2.1	48.7	29.3	80.0	60.0	31.3	30.7	110.9	144.6	
12	4791.878	V	53.5	29.5	5.3	58.8	34.8	80.0	60.0	21.2	25.2	104.3	29.8	

◆ 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

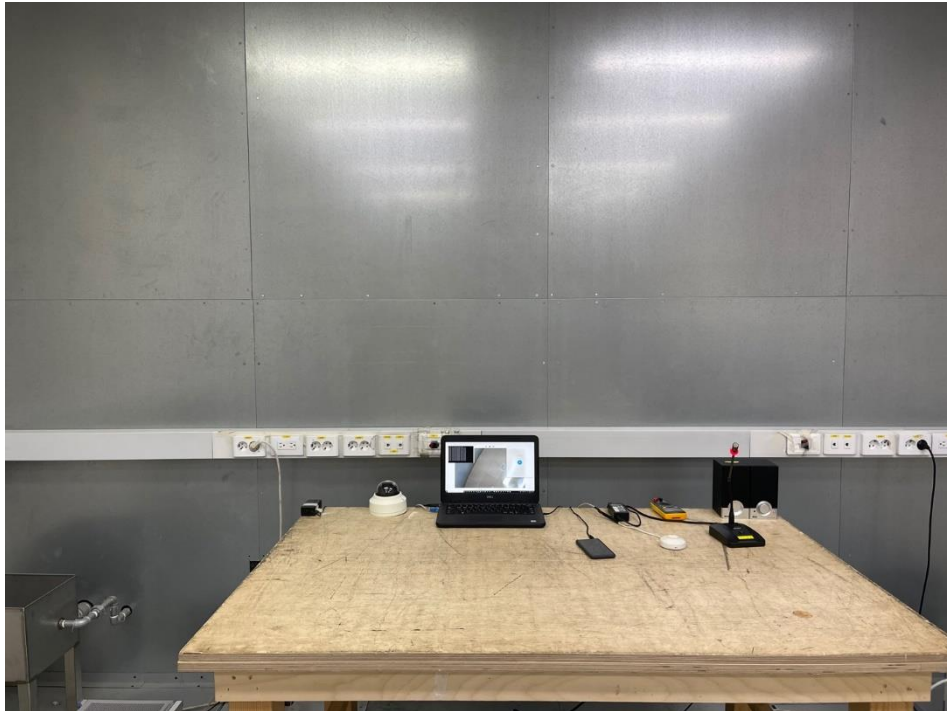
Limit(QP) : Limit value, c.f : (ANT Factor + Cable Loss - Preamp Factor), Margin: Margin value

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Test Setup Photos and Configuration

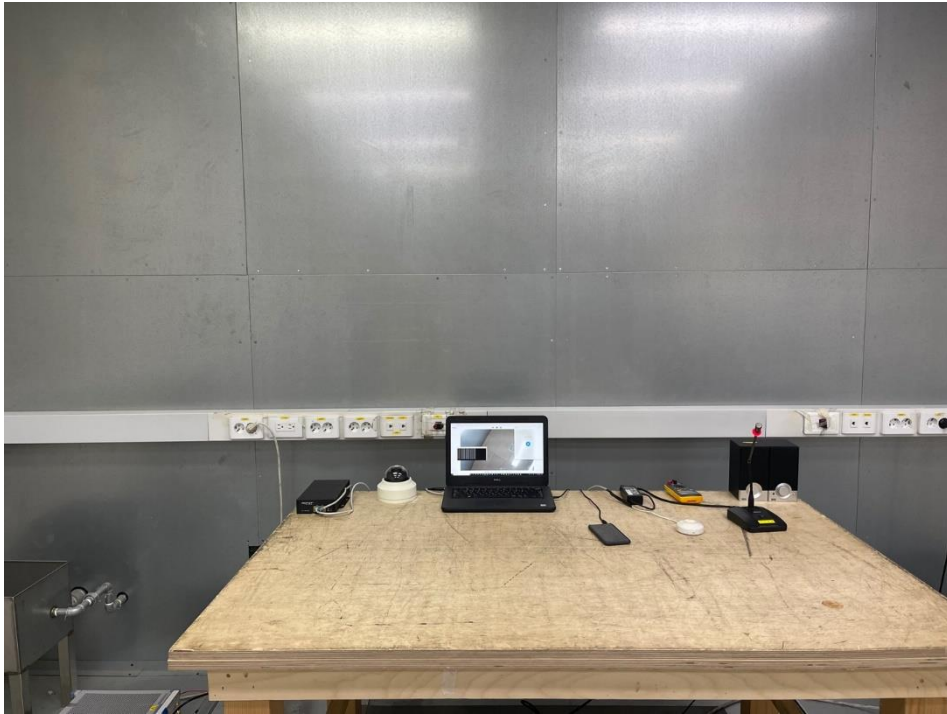
Conducted Emissions at Mains Power Ports

■ DC Mode



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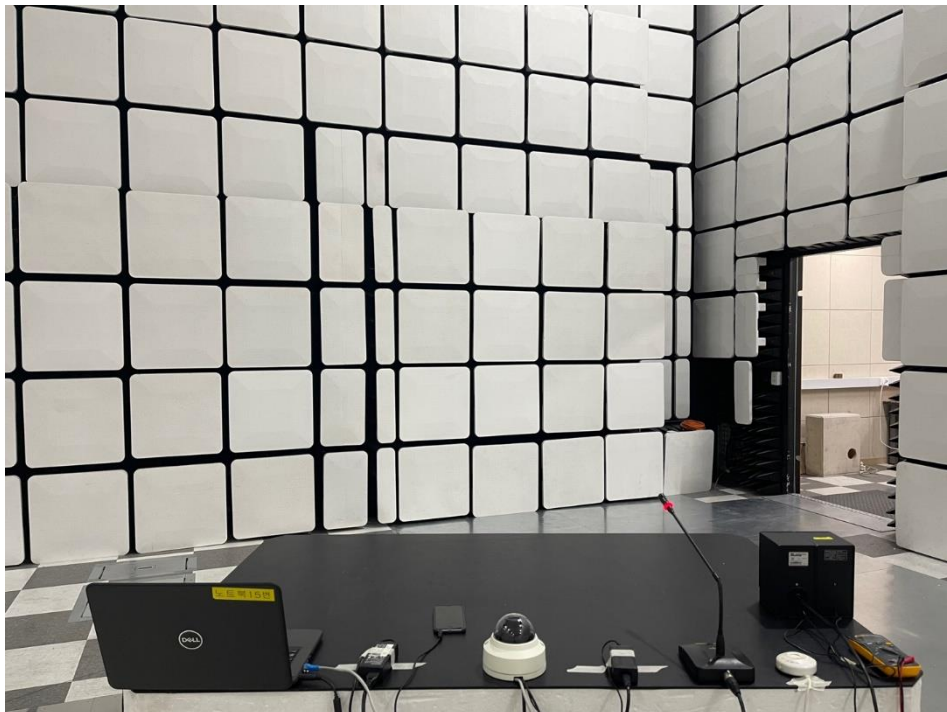
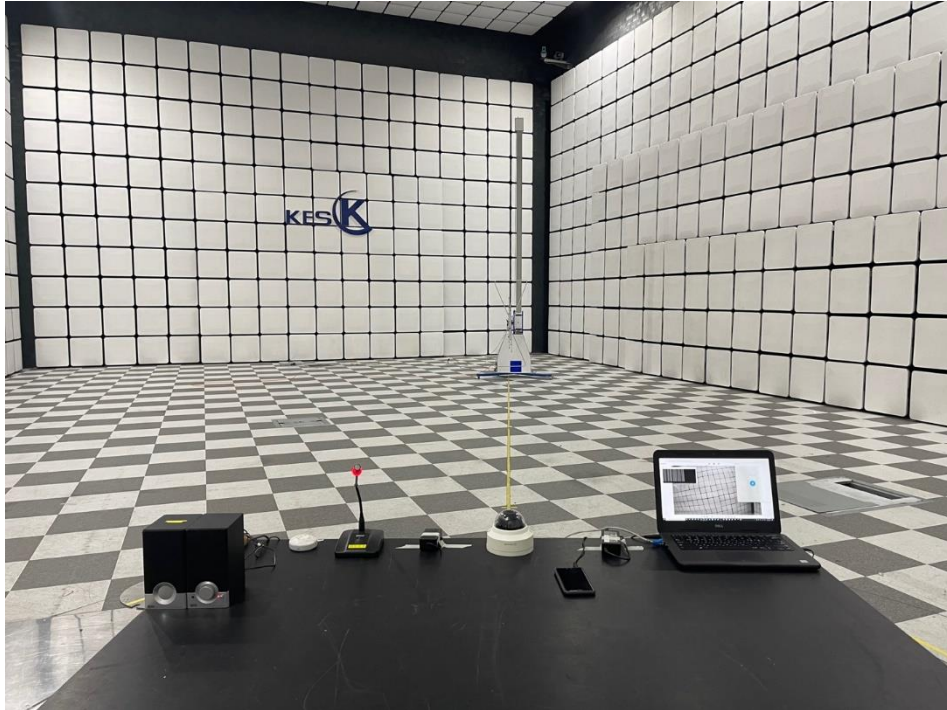
■ PoE Mode



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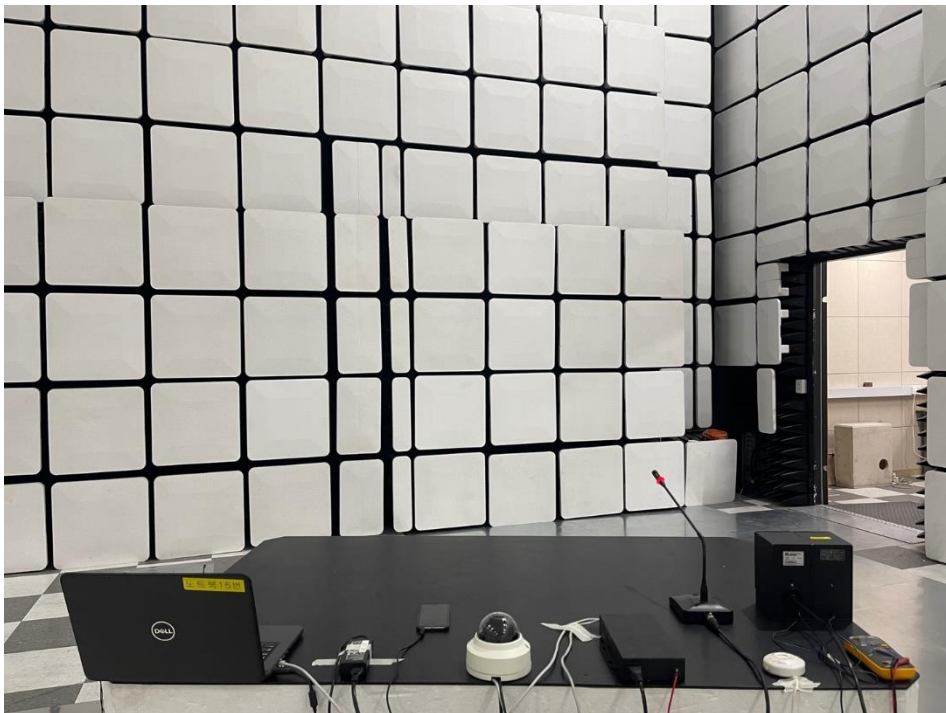
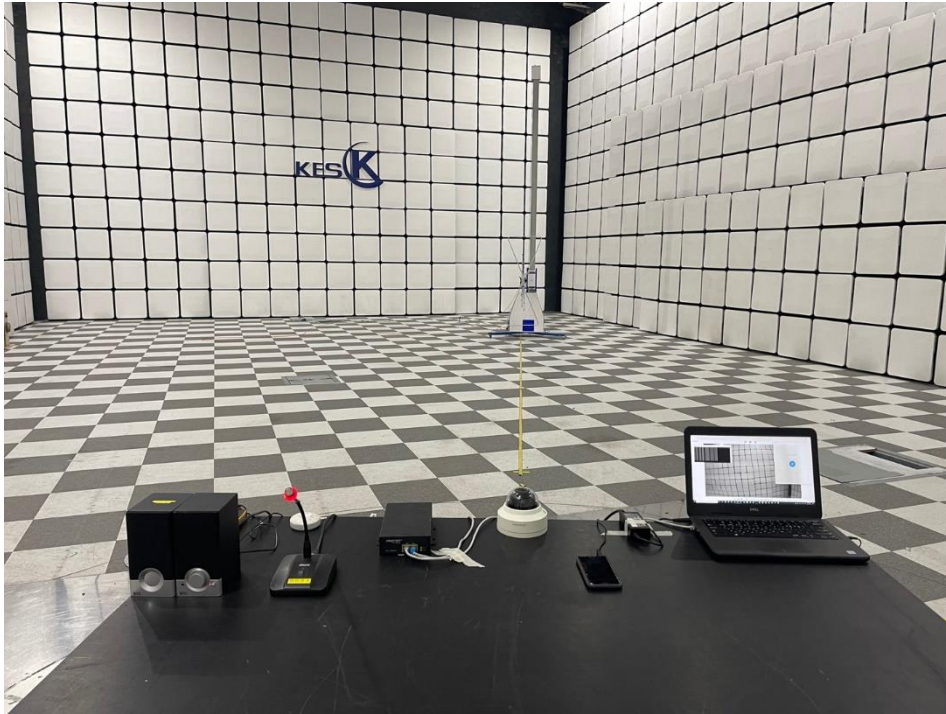
Radiated Electric Field Emissions(Below 1 GHz)

■ DC Mode



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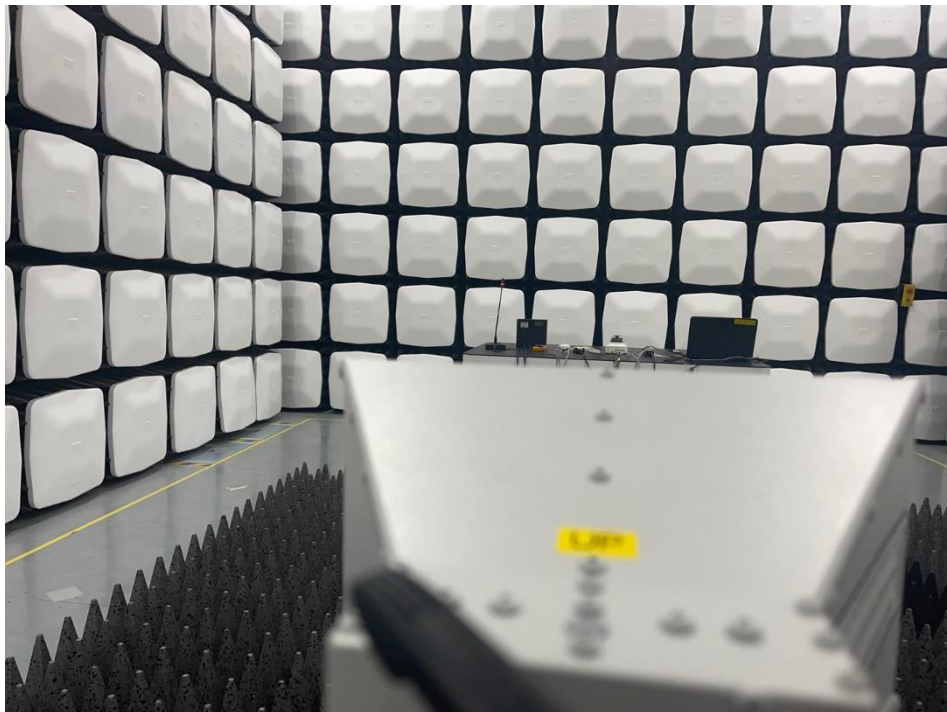
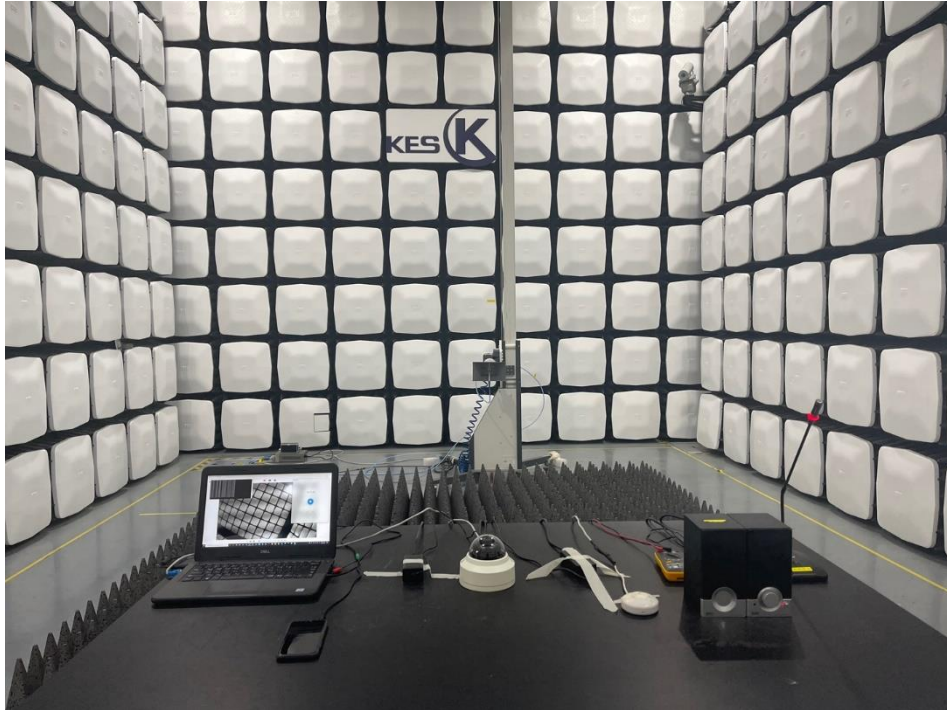
■ PoE Mode



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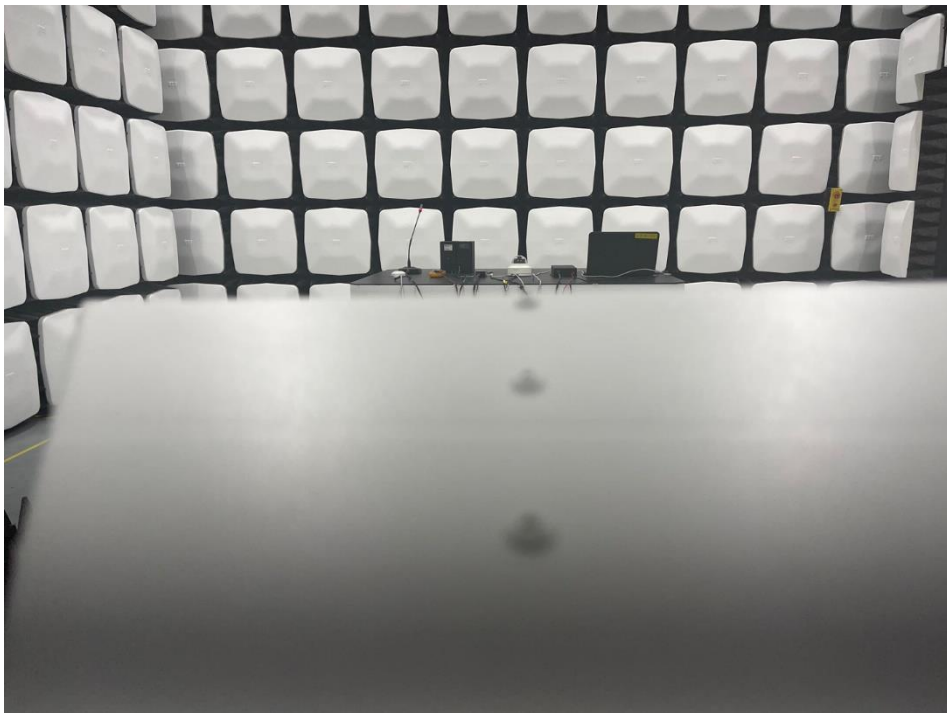
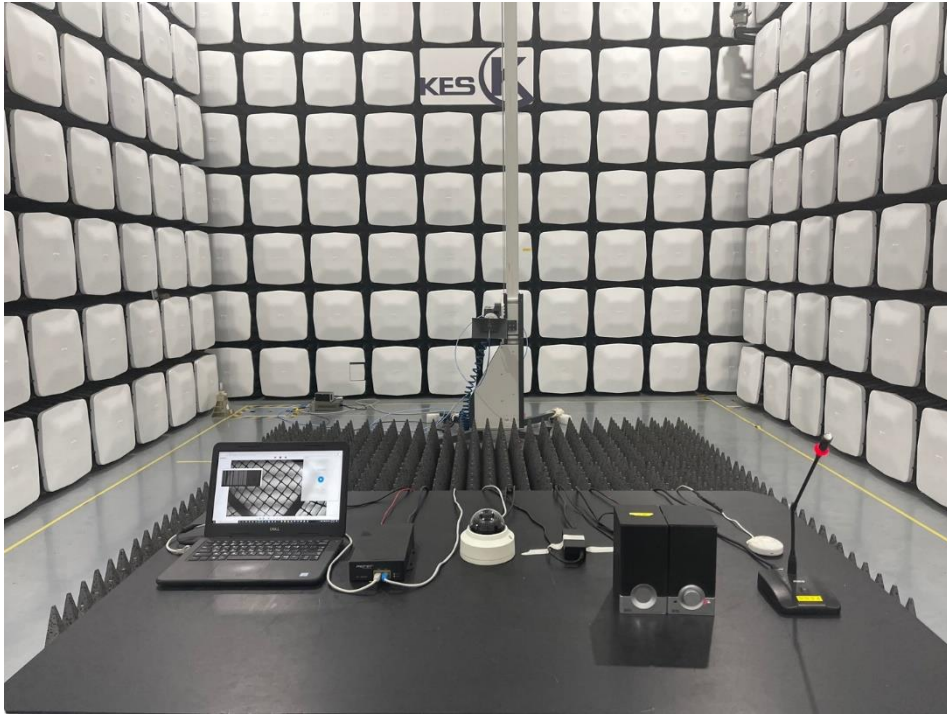
Radiated Electric Field Emissions(Above 1 GHz)

■ DC Mode



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■ PoE Mode



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EUT External Photographs

(Top)



(Bottom)



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EUT Internal Photographs

(Internal View)

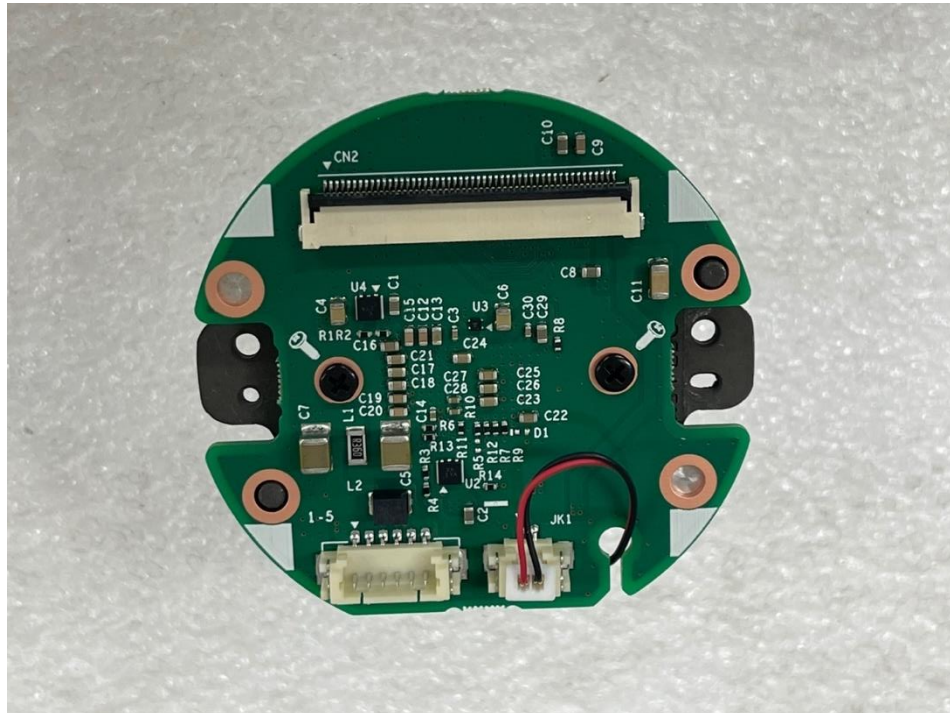


EUT Internal View – Main Board

(Top)



(Bottom)



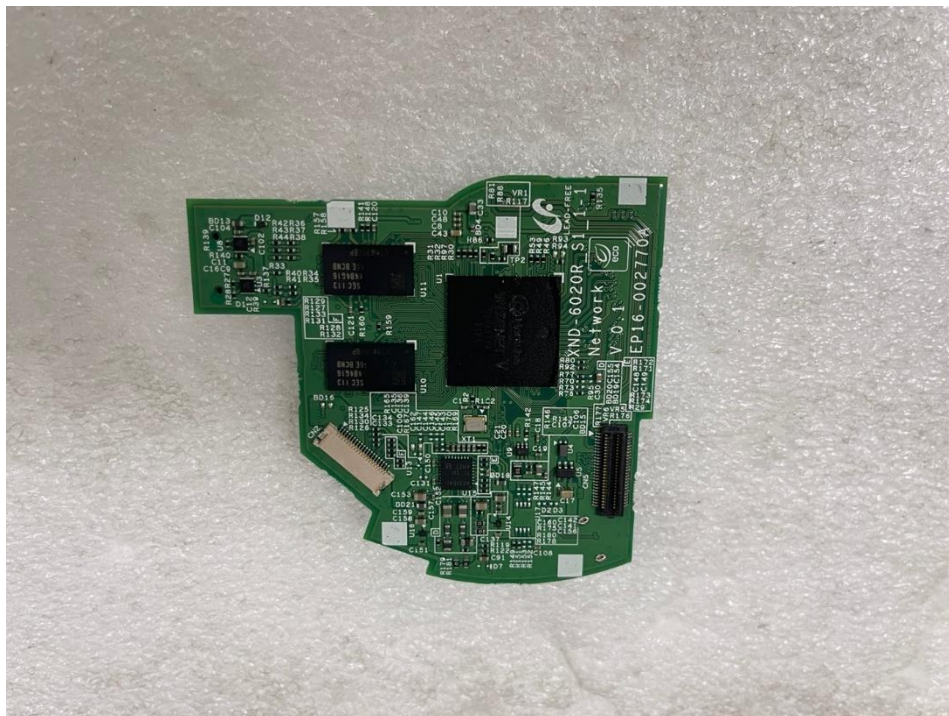
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EUT Internal View – Sub Board 1

(Top)



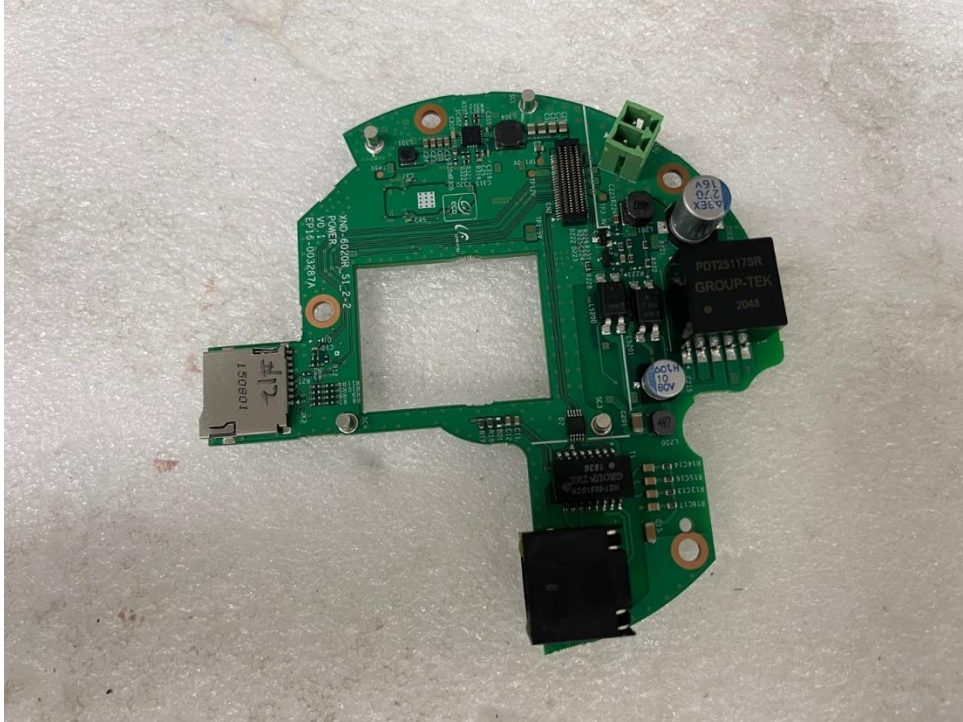
(Bottom)



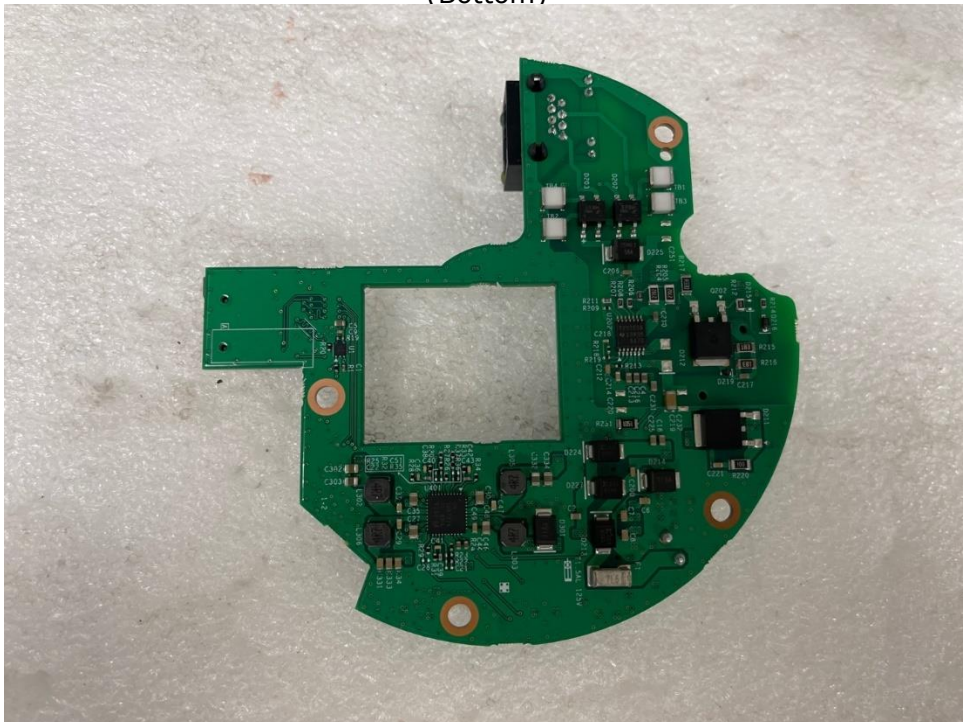
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EUT Internal View – Sub Board 2

(Top)



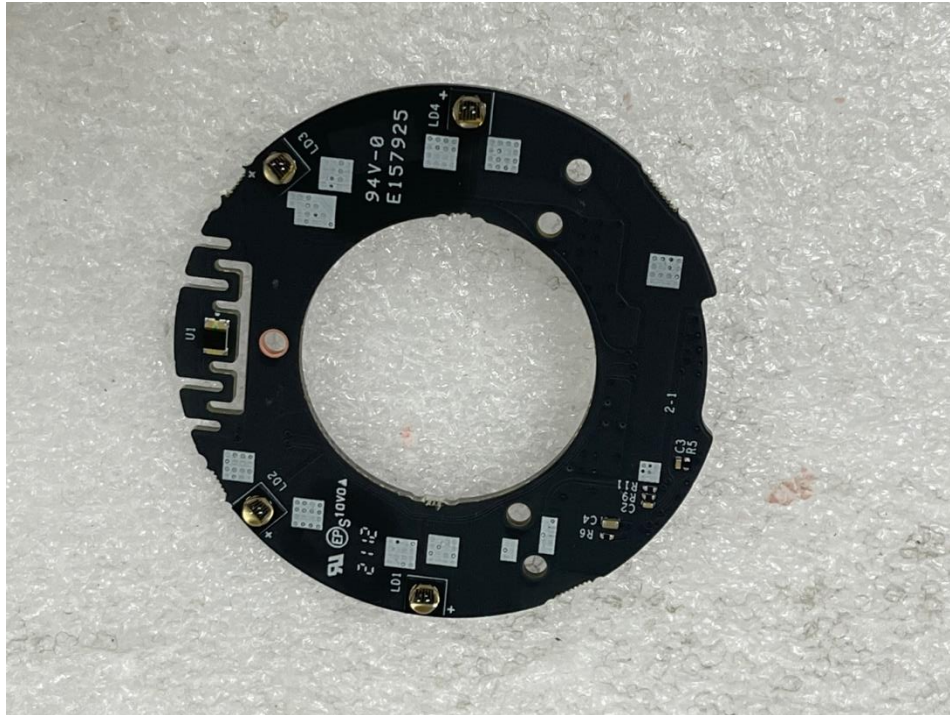
(Bottom)



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EUT Internal View – Sub Board 3

(Top)

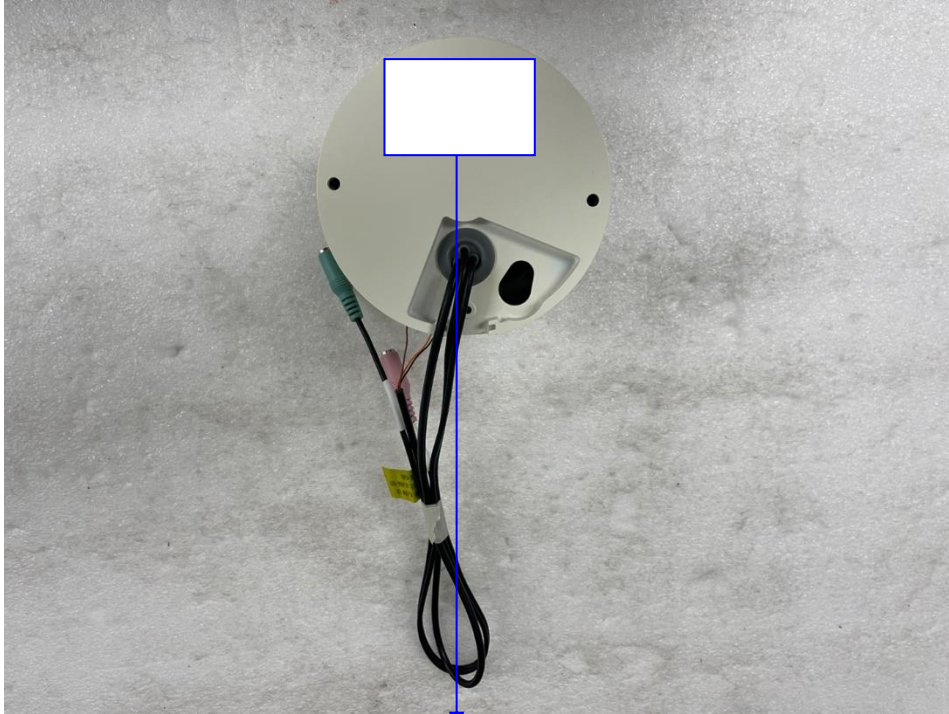


(Bottom)



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Label Photographs



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.