

**KES Co., Ltd.**

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www.kes.co.kr

Report No.:

KES-E1-18T0100-R3

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EMC TEST REPORT

Test Report No. : KES-E1-18T0100-R2
Date of Issue : Feb. 24, 2023
Product name : Network Camera
Model/Type No. : XNV-8080RS
Variant Mode : XNV-8080RSA
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 : **Supply's Declaration of Conformity**
Date of Receipt : Jan. 03, 2018
Test date : Jan. 03, 2018 ~ Jan. 04, 2018
Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Dong Il, Lee
EMC Test Engineer

Reviewed by

Dong-Hun, Jang
EMC Technical Manager

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. 17, 2017	KES-E1-18T0100	Issued
Jul. 27, 2020	KES-E1-18T0100-R1	Reissuance due to the addition of a derivative
Nov. 15, 2021	KES-E1-18T0100-R2	- Address/Manufacturer change at customer's request - IC Regulation ICES-003 Issue 7 Update ANSI C63.4-2014 or ANSI C63.4-2014 amended as per ANSI C63.4a-2017
Feb. 24, 2023	KES-E1-18T0100-R3	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:

	XNV-8080RS
Video	
Imaging Device	1/1.8" 6M CMOS
Total Pixels	3096(H) x 2094(V)
Effective Pixels	2616(H) x 1976(V)
Scanning System	Progressive Scan
Min. Illumination	Color : 0.07lux(F1.3, 1/30sec) B/W : 0Lux(IR LED on)
S / N Ratio	50dB
Video Out	CVBS : 1.0 Vp-p / 75Ω composite, 720x480(N), 720x576(P), for installation USB : Micro USB type B, 1280x720, for installation
Lens	
Focal Length (Zoom Ratio)	3.9~9.4mm(2.4x) motorized varifocal
Max. Aperture Ratio	F1.3
Angular Field of View	H: 92.1°, V: 67.2°, D: 119.9° H: 38.7°, V: 29.0°, D: 48.6°
Min. Object Distance	0.5m (1.64ft)
Focus Control	Simple focus(Motorized V/F) / Manual, Remote control via network(Manual, Simple focus)
Lens Type	DC Auto Iris, P-iris
Mount Type	Board-in type
Pan / Tilt / Rotate	
Pan / Tilt / Rotate range	0° ~ 354° / 0° ~ 67° / 0° ~ 355°
Operational	
IR Viewable Length	50m(164.04ft)
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	120dB
Contrast Enhancement	SSDR (Off / On)
Digital Noise Reduction	SSNR5 (2D+3D Noise Filter) (Off / On)
Digital Image Stabilization	Off / On
Defog	Auto / Manual / Off
Motion Detection	Off/ On(8ea, 8point Polygonal zones), Handover

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Privacy Masking	Off / On (32ea, polygonal zones) - Color : Grey/Green/Red/Blue/Black/White - Mosaic
Gain Control	Off / Low / Medle / High / Manual
White Balance	ATW / AWC / Manual / Indoor / Outdoor((included Mercury & Sodium)
Contrast	level adjustment
LDC	On/Off (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	Flip : On/Off Mirror : On/Off Hallway view : 90°/270°
Video & Audio Analytics	Tampering, Loitering, Directional Detection, Defocus Detection, Fog Detection, Virtual Line, Enter/Exit, Appear / Disappear, Audio Detection, Face Detection, Motion Detection, Digital Auto Tracking, Sound Classification
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
Network	
Ethernet	RJ-45 (10/100BASE-T)
Video Compression Form	H.265/H.264 (MPEG-4 Part 10/AVC) : Main/Baseline/High , Motion JPEG
Resolution	2560 x 1920, 2560 x 1440, 1920 x 1080, 1600 x 1200, 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. 30fps at all resolutions Motion JPEG : Max. 30fps
Smart Codec	Manual Mode (area-based : 5EA)
WiseStream II	Support
Video Quality Adjustment	H.264/H.265 : Target Bitrate Level Control MJPEG : Target Bitrate Level Control

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Bitrate Control Method	H.264/H.265 : CBR or VBR, with WiseStream MJPEG : 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, Max output level: 1 Vrms
Audio Compression Form	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 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	ONVIF Profile S/G SUNAPI(HTTP API) 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, MS Edge, Mozilla Firefox(Window 64bit only) , Apple Safari 10 (Mac OS X only) Plug-in Webviewer Supported Browser : MS Explore 11, Apple Safari(Mac OS X only)
Central Management Soft	SmartViewer, SSM

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Environmental	
Operating Temperature / Humidity	-40°C ~ +55°C (-40°F ~ +131°F) / Less than 90% RH
Storage Temperature / Humidity	-50°C ~ +60°C (-58°F ~ +140°F) / Less than 90% RH
Ingress Protection	IP67, IP66, NEMA 4X
Vandal Resistance	IK10+
Electrical	
Input Voltage / Current	24VAC $\pm$ 10%, 12VDC $\pm$ 10%, PoE(IEEE802.3af)
Power Consumption	Max. 11.5W(12VDC), Max. 12.95W(PoE), Max. 14W(24VAC)
Mechanical	
Color / Material	Silver / SUS316L
Dimension (WxHxD)	Ø 162 X H120.5mm (Ø6.38" x 4.74")
Weight	TBD

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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

Addition of derivative model for distribution route classification

1.3 Device Modifications

Not applicable

1.4 Equipment Under Test

Description	Model Number	Serial Number	Manufacturer	Remarks
Network Camera	XNV-8080RS	-	HANWHA VISION VIETNAM COMPANY LIMITED	EUT

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
PoE Adaptor	ANY4805C-LT1	10H300002	ANY ELECTRONICS CO., LTD	-
Notebook	X56K	HN11N5151FJ0045W	HanSung Corporation	-
Notebook AC/DC Adaptor	A12-120P1A	F180271552011758	CHICONY POWER TECHNOLOGY CO.,LTD.	-
Micro SD Card1	-	-	SanDisk	-
Micro SD Card2	-	-	SanDisk	-
MIC	CMK-303	-	CAMAC	-
Speaker	BR10000A CUVE	-	BEIJING EDIFIER HI-TECH GROUP.	-
Alarm1	-	-	-	-
Alarm2	SIP-1201DD D0	-	SAMSUNG TECHWIN CO., LTD.	-



1.6 External I/O Cabling

■ AC 24 V, DC 12 V Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
Network Camera (E.U.T)	RJ-45	Notebook	RJ-45	3.0	U
Network Camera (E.U.T)	Micro SD Slot	Micro SD Card1	Micro SD Slot	-	-
Network Camera (E.U.T)	Micro SD Slot	Micro SD Card2	Micro SD Slot	-	-
Network Camera (E.U.T)	3.5 mm	MIC	3.5 mm	1.7	U
Network Camera (E.U.T)	3.5 mm	Speaker	3.5 mm	1.6	U
Network Camera (E.U.T)	2 PIN	Alarm1	2 PIN	3.0	U
Network Camera (E.U.T)	2 PIN	Alarm2	2 PIN	3.0	U

* Unshielded=U, Shielded=S

■ PoE Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
Network Camera (E.U.T)	RJ-45	PoE Adaptor	RJ-45	3.0	U
PoE Adaptor	RJ-45	Notebook	RJ-45	3.0	U
Network Camera (E.U.T)	Micro SD Slot	Micro SD Card1	Micro SD Slot	-	-
Network Camera (E.U.T)	Micro SD Slot	Micro SD Card2	Micro SD Slot	-	-
Network Camera (E.U.T)	3.5 mm	MIC	3.5 mm	1.7	U
Network Camera (E.U.T)	3.5 mm	Speaker	3.5 mm	1.6	U
Network Camera (E.U.T)	2 PIN	Alarm1	2 PIN	3.0	U
Network Camera (E.U.T)	2 PIN	Alarm2	2 PIN	3.0	U

* Unshielded=U, Shielded=S

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1.7 EUT Operating Mode(s)

Test mode	operating
AC, DC, PoE	E.U.T Monitoring, Ping Test

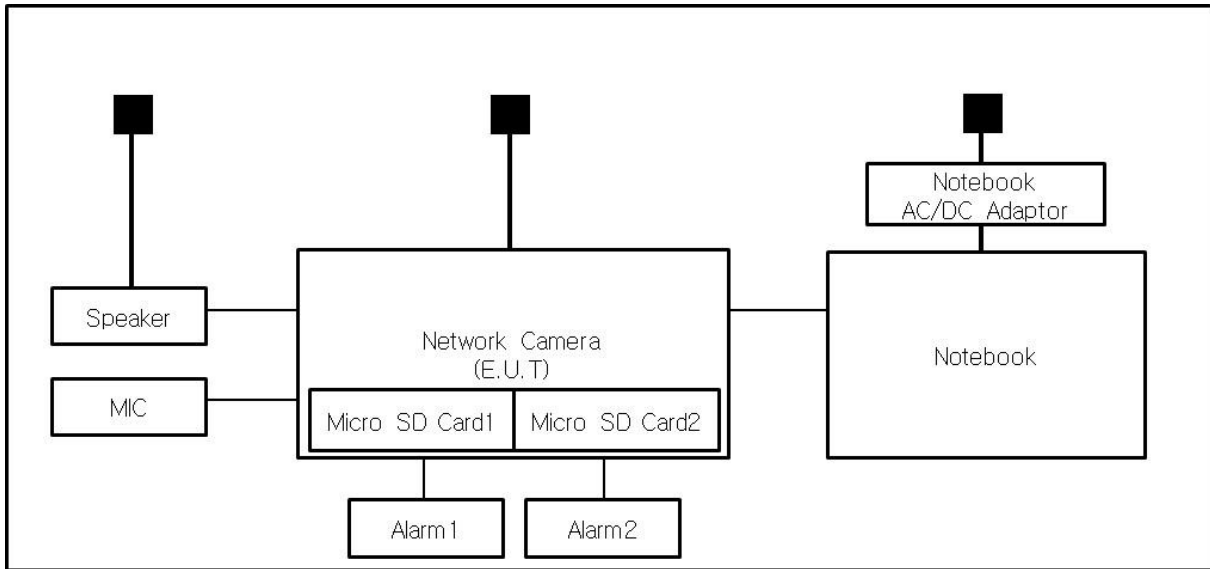
E.U.T Test operating S/W		
Name	Version	Manufacture Company
Webviewer	-	Hanwha Vision Co., Ltd

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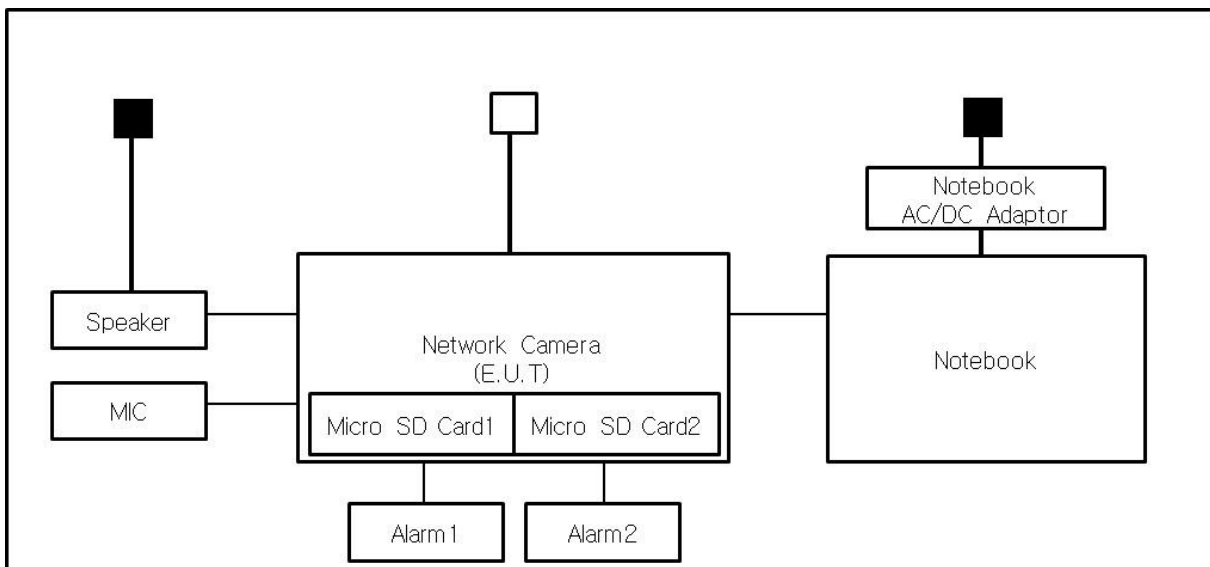
1.8 Configuration

■ AC Main
 □ DC Main

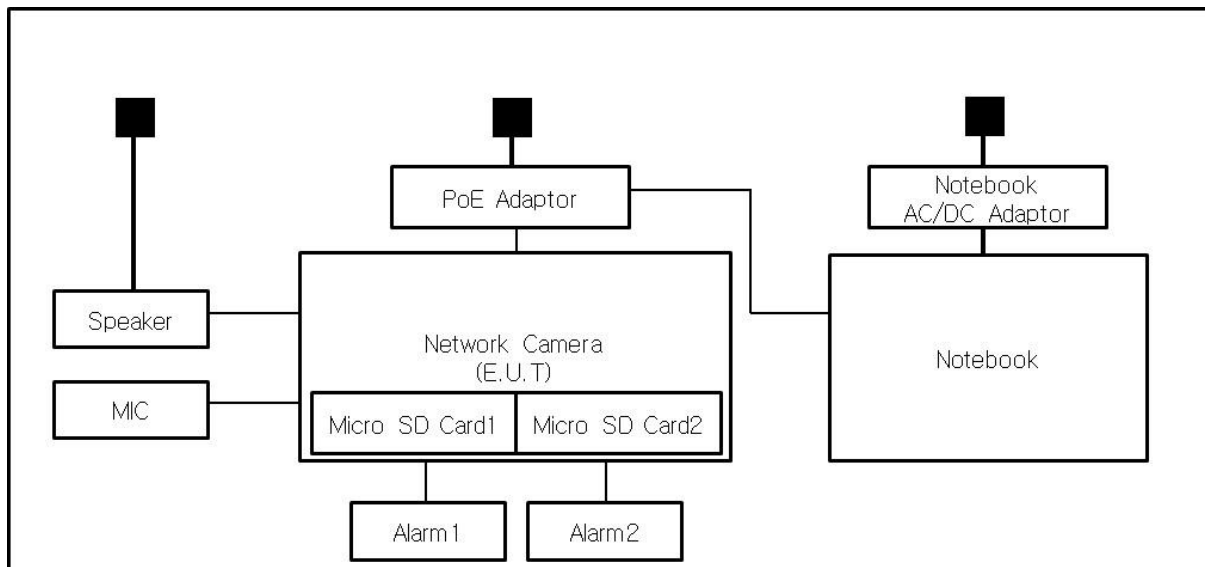
■ AC 24 V Mode



■ DC 12 V Mode



■ PoE Mode



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, 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:

☒ **47 CFR Part 15, Subpart B**

☒ CISPR 22:2009 +A1:2010

☒ Class A

☐ Class B

☐ ANSI C63.4a-2017

☐ Class A

☐ Class B

☒ **IC Regulation ICES-003 Issue 7**

☒ CAN/CSA-CISPR 32:17

☒ Class A

☐ Class B

☐ ANSI C63.4a-2017

☐ Class A

☐ Class B



2.1 Conducted Emissions at Mains Power Ports

Test Date

Jan. 04, 2018

Test Location

Electro wave Shieldroom #3

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	04, 27, 2018
☒	LISN	ENV216	R & S	101137	02, 03, 2018
☒	LISN	ENV216	R & S	101786	04, 27, 2018
☒	PULSE LIMITER	ESH3-Z2	R & S	101914	11, 27, 2018
☐	LISN	NNBM8124	SCHWARZBECK	8124-1002	08, 07, 2018
☐	LISN	NNBM8124	SCHWARZBECK	8124-1003	08, 07, 2018

Test Conditions

Temperature: 23,9 °C
Relative Humidity: 42,8 % 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

Jan. 03, 2018

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, 18, 2018
☒	AMPLIFIER	SCU 01	R & S	100603	11, 27, 2018
☒	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	716	11, 28, 2018

Test Conditions

Temperature: 24,1 °C
Relative Humidity: 42,0 % 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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2.3 Radiated Electric Field Emissions(Above 1 GHz)

Test Date

Jan. 03, 2018

Test Location

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, 17, 2018
☒	PREAMPLIFIER	8449B	AGILENT	3008A01967	05, 31, 2018
☒	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	05, 02, 2019

Test Conditions

Temperature: 23,0 °C
Relative Humidity: 40,7 % 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

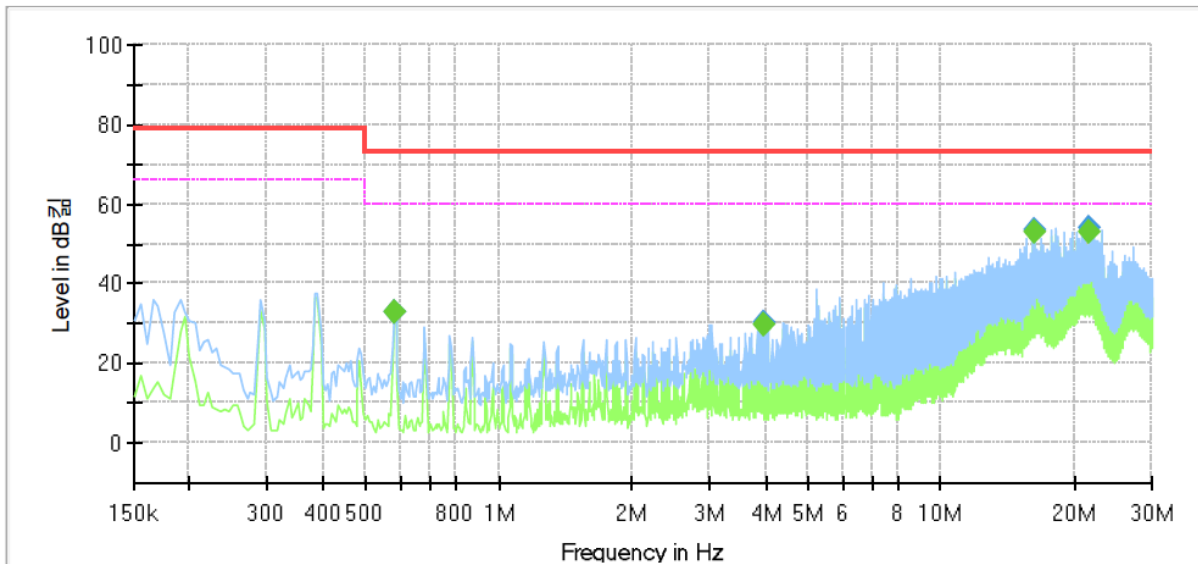
Conducted Emissions at Mains Power Ports

■ AC 24 V Mode

HOT LINE

Common Information

Test Description:	Conducted Emission
Model No.:	XNV-8080RS
Mode	AC
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	---	32.67	60.00	27.33	1000.0	9.000	L1	19.6
0.580000	32.69	---	73.00	40.31	1000.0	9.000	L1	19.6
3.955000	---	29.87	60.00	30.13	1000.0	9.000	L1	19.9
3.955000	29.98	---	73.00	43.02	1000.0	9.000	L1	19.9
16.230000	---	52.70	60.00	7.30	1000.0	9.000	L1	20.1
16.230000	53.59	---	73.00	19.41	1000.0	9.000	L1	20.1
21.665000	---	53.07	60.00	6.93	1000.0	9.000	L1	20.2
21.665000	54.22	---	73.00	18.78	1000.0	9.000	L1	20.2

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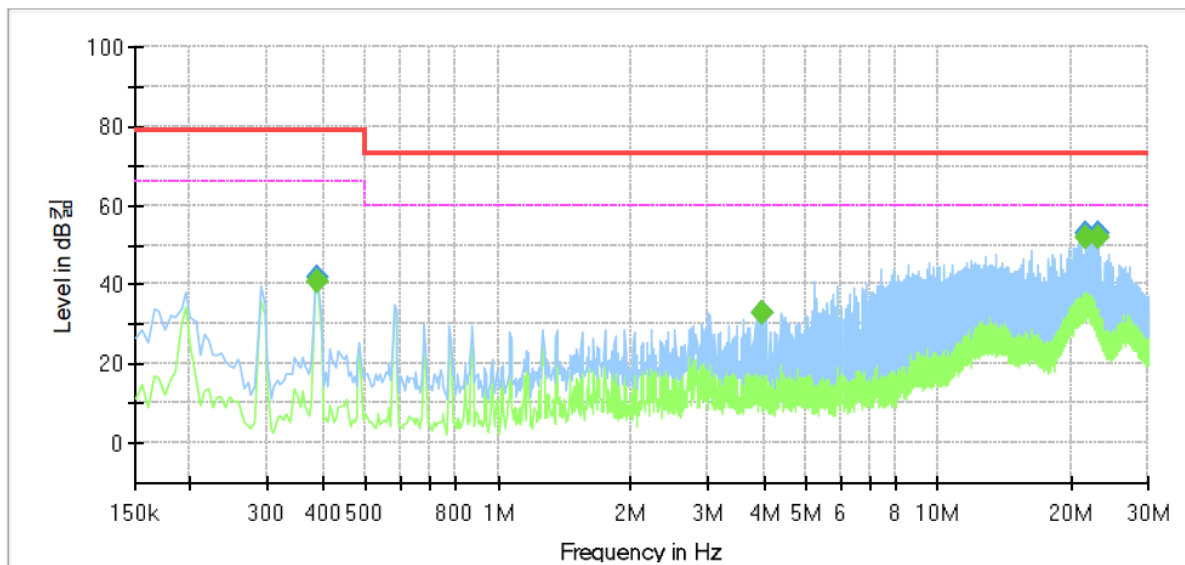
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NEUTRAL LINE

Common Information

Test Description:	Conducted Emission
Model No.:	XNV-8080RS
Mode	AC
Operator Name:	KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.390000	---	40.78	66.00	25.22	1000.0	9.000	N	19.5
0.390000	41.62	---	79.00	37.38	1000.0	9.000	N	19.5
3.955000	---	32.69	60.00	27.31	1000.0	9.000	N	19.9
3.955000	32.80	---	73.00	40.20	1000.0	9.000	N	19.9
21.665000	---	51.77	60.00	8.23	1000.0	9.000	N	20.1
21.665000	52.92	---	73.00	20.08	1000.0	9.000	N	20.1
23.130000	---	52.11	60.00	7.89	1000.0	9.000	N	20.0
23.130000	52.73	---	73.00	20.27	1000.0	9.000	N	20.0

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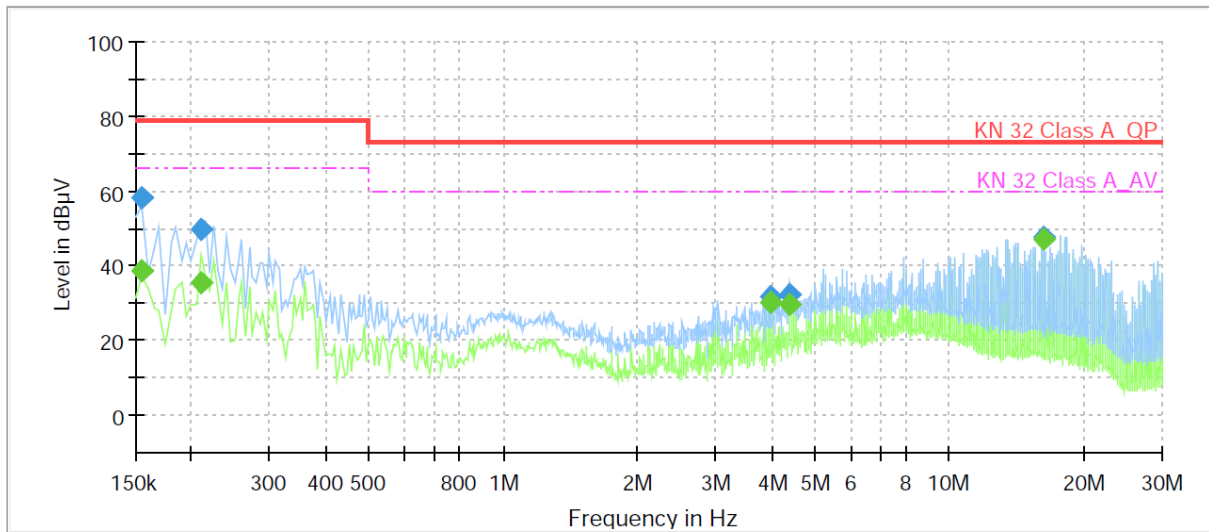
Page (20) of (36)

■ DC 12 V Mode

HOT LINE

Common Information

Test Description: Conducted Emission
Model No.: XNV-8080RS
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	---	38.90	66.00	27.10	1000.0	9.000	L1	19.4
0.155000	58.12	---	79.00	20.88	1000.0	9.000	L1	19.4
0.210000	---	35.36	66.00	30.64	1000.0	9.000	L1	19.4
0.210000	50.02	---	79.00	28.98	1000.0	9.000	L1	19.4
3.955000	---	30.18	60.00	29.82	1000.0	9.000	L1	19.9
3.955000	31.90	---	73.00	41.10	1000.0	9.000	L1	19.9
4.410000	---	29.52	60.00	30.48	1000.0	9.000	L1	19.9
4.410000	32.17	---	73.00	40.83	1000.0	9.000	L1	19.9
16.230000	---	47.29	60.00	12.71	1000.0	9.000	L1	20.1
16.230000	47.62	---	73.00	25.38	1000.0	9.000	L1	20.1

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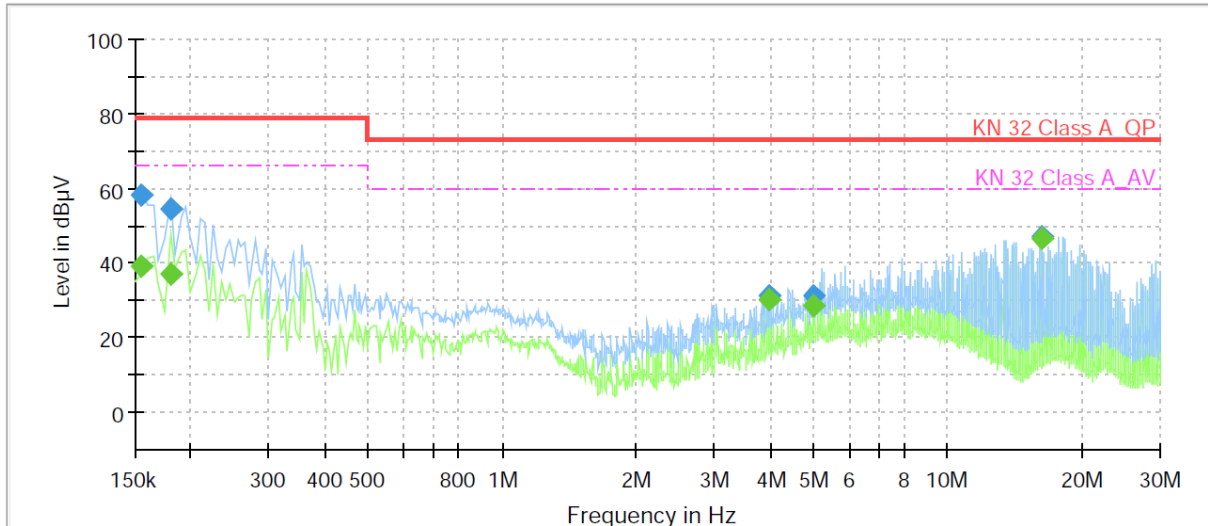
KES-E1-18T0100-R3

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NEUTRAL LINE

Common Information

Test Description: Conducted Emission
Model No.: XNV-8080RS
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	---	39.34	66.00	26.66	1000.0	9.000	N	19.4
0.155000	58.19	---	79.00	20.81	1000.0	9.000	N	19.4
0.180000	---	36.95	66.00	29.05	1000.0	9.000	N	19.4
0.180000	54.36	---	79.00	24.64	1000.0	9.000	N	19.4
3.955000	---	29.96	60.00	30.04	1000.0	9.000	N	19.9
3.955000	31.34	---	73.00	41.66	1000.0	9.000	N	19.9
5.025000	---	28.48	60.00	31.52	1000.0	9.000	N	19.9
5.025000	31.40	---	73.00	41.60	1000.0	9.000	N	19.9
16.230000	---	46.66	60.00	13.34	1000.0	9.000	N	20.0
16.230000	46.96	---	73.00	26.04	1000.0	9.000	N	20.0

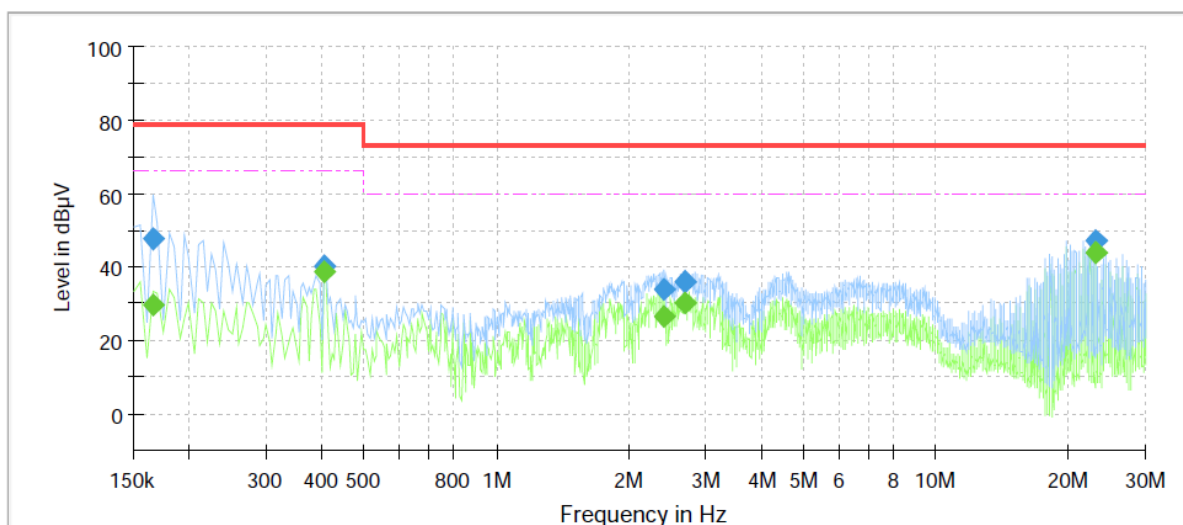
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PoE Mode
HOT LINE
Common Information

Test Description:	Conducted Emission
Model No.:	XNV-8080RS
Mode	PoE L1
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	---	29.70	66.00	36.30	1000.0	9.000	L1	9.7
0.165000	47.82	---	79.00	31.18	1000.0	9.000	L1	9.7
0.405000	---	38.81	66.00	27.19	1000.0	9.000	L1	9.8
0.405000	40.02	---	79.00	38.98	1000.0	9.000	L1	9.8
2.410000	---	26.24	60.00	33.76	1000.0	9.000	L1	10.2
2.410000	34.03	---	73.00	38.97	1000.0	9.000	L1	10.2
2.675000	---	30.30	60.00	29.70	1000.0	9.000	L1	10.2
2.675000	35.83	---	73.00	37.17	1000.0	9.000	L1	10.2
23.130000	---	43.82	60.00	16.18	1000.0	9.000	L1	10.2
23.130000	47.16	---	73.00	25.84	1000.0	9.000	L1	10.2

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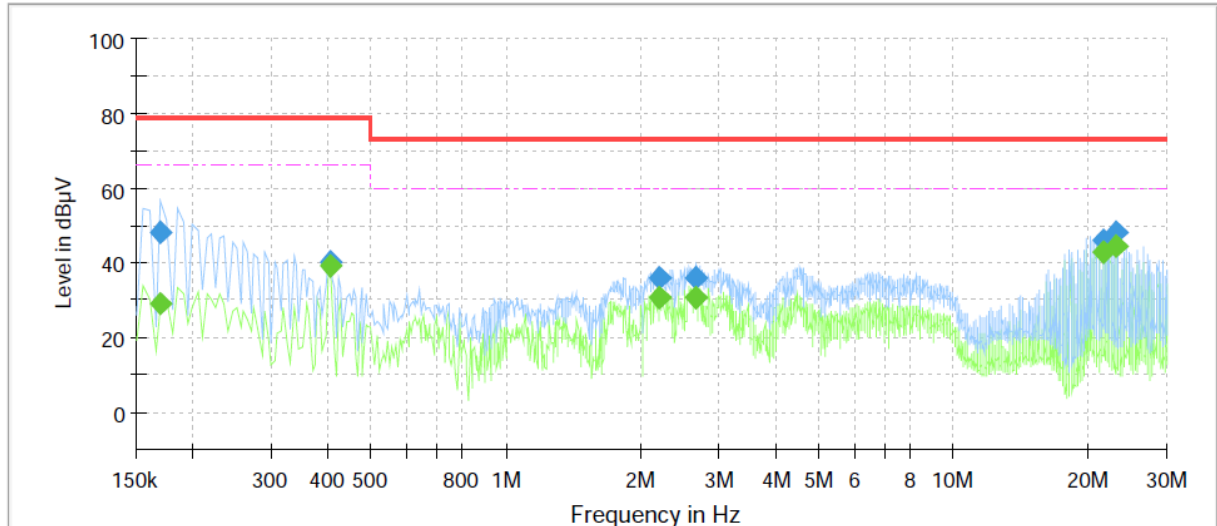
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NEUTRAL LINE

Common Information

Test Description:	Conducted Emission
Model No.:	XNV-8080RS
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)
0.170000	---	29.18	66.00	36.82	1000.0	9.000	N	9.7
0.170000	48.15	---	79.00	30.85	1000.0	9.000	N	9.7
0.405000	---	39.24	66.00	26.76	1000.0	9.000	N	9.8
0.405000	40.22	---	79.00	38.78	1000.0	9.000	N	9.8
2.210000	---	30.89	60.00	29.11	1000.0	9.000	N	10.2
2.210000	35.85	---	73.00	37.15	1000.0	9.000	N	10.2
2.665000	---	30.88	60.00	29.12	1000.0	9.000	N	10.2
2.665000	36.26	---	73.00	36.74	1000.0	9.000	N	10.2
21.665000	---	42.81	60.00	17.19	1000.0	9.000	N	10.2
21.665000	46.25	---	73.00	26.75	1000.0	9.000	N	10.2
23.130000	---	44.49	60.00	15.51	1000.0	9.000	N	10.2
23.130000	47.95	---	73.00	25.05	1000.0	9.000	N	10.2

◆ 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))



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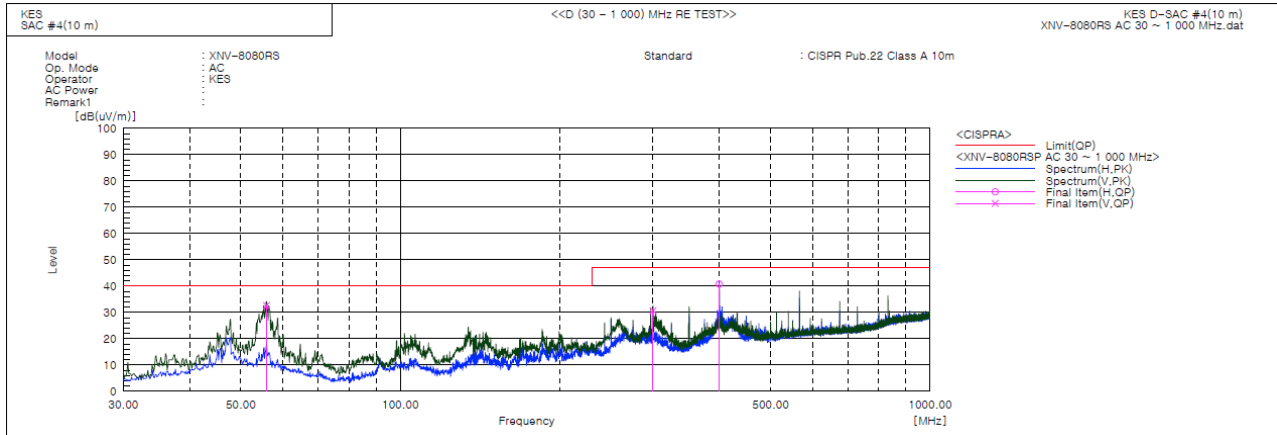
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Radiated Electric Field Emissions(Below 1 GHz)

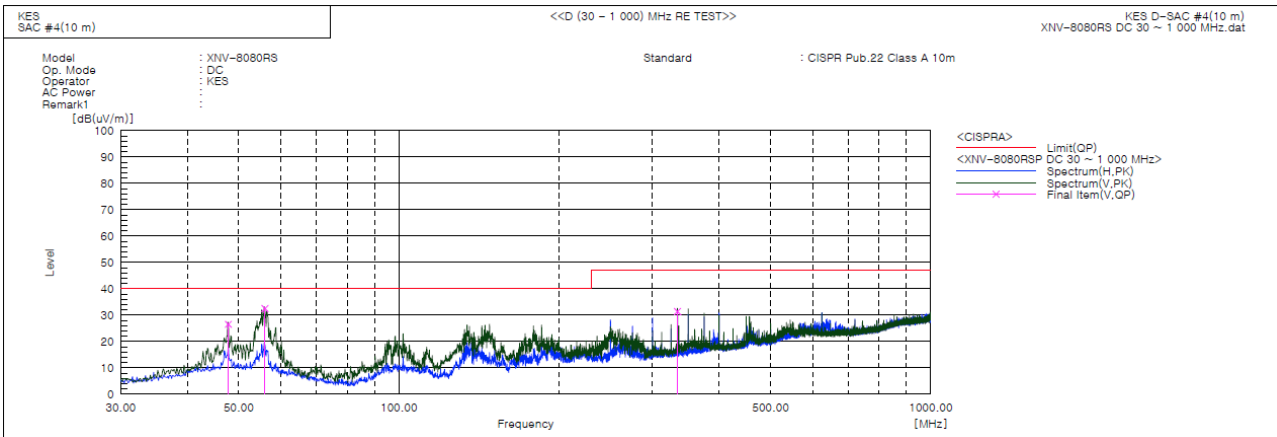
■ AC 24 V Mode



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	55.886	V	60.9	-28.2	32.7	40.0	7.3	100.0	132.0	
2	300.018	V	54.6	-23.9	30.7	47.0	16.3	100.0	16.0	
3	399.843	H	61.2	-20.4	40.8	47.0	6.2	382.0	116.0	

■ DC 12 V 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	47.812	V	54.4	-27.9	26.5	40.0	13.5	290.0	229.0	
2	56.014	V	60.8	-28.3	32.5	40.0	7.5	101.0	103.0	
3	334.116	V	54.2	-22.8	31.4	47.0	15.6	102.0	158.0	

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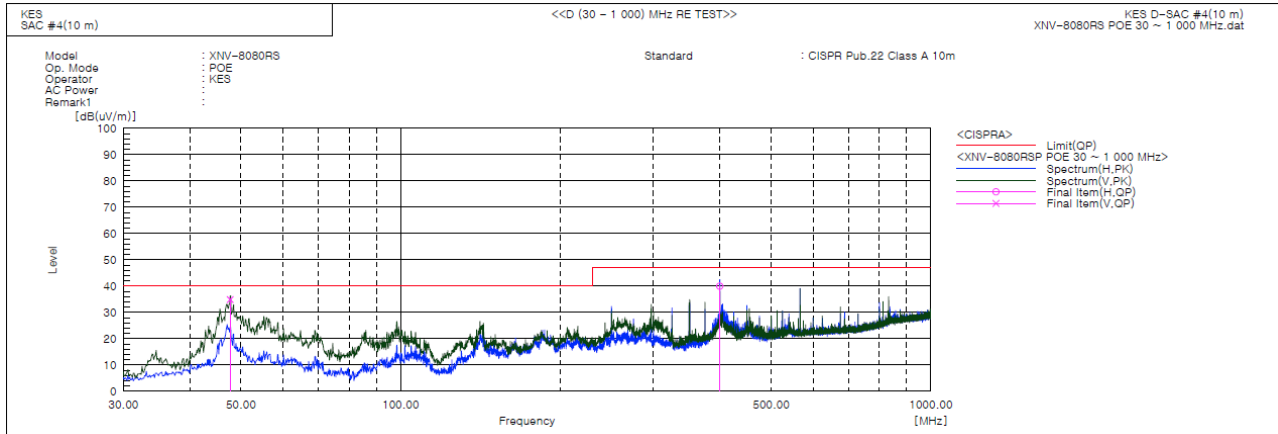
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■ PoE Mode



Final Result

No.	Frequency	(P)	Reading	c.f	Result	Limit	Margin	Height	Angle	Remark
	[MHz]		QP		QP	QP	QP			
			[dB(uV)]	[dB(1/m)]	[dB(uV/m)]	[dB(uV/m)]	[dB]	[cm]	[deg]	
1	47.714	V	62.8	-27.9	34.9	40.0	5.1	100.0	133.0	
2	399.857	H	60.4	-20.4	40.0	47.0	7.0	382.0	182.0	

◆ 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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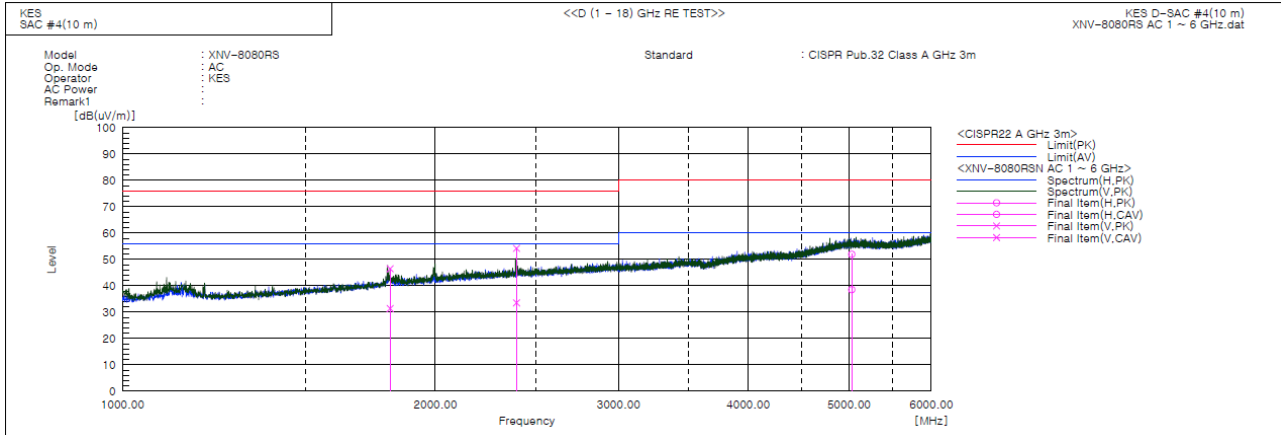
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Radiated Electric Field Emissions(Above 1 GHz)

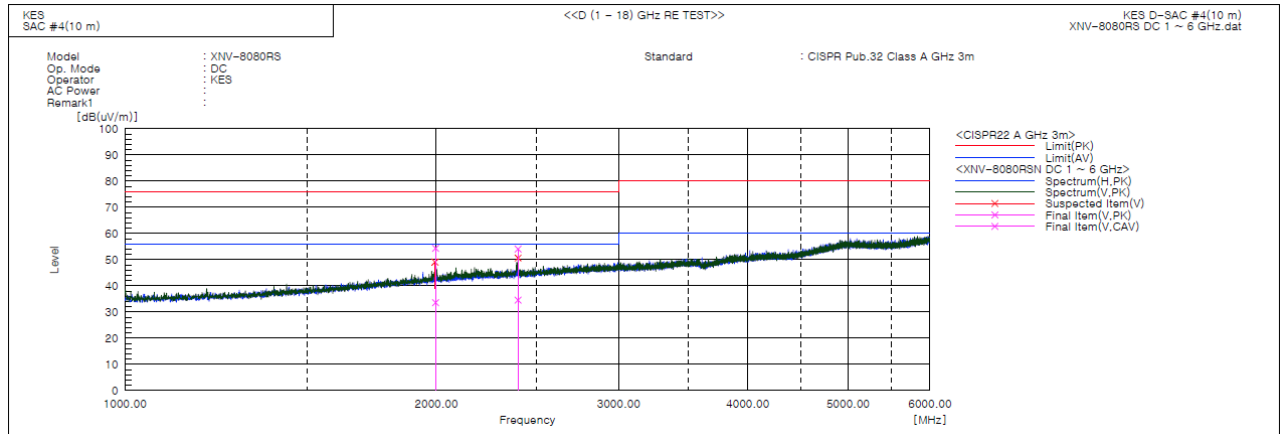
■ AC 24 V Mode



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	1809.400	V	45.5	30.4	1.0	46.5	31.4	76.0	56.0	29.5	24.6	100.0	167.0	
2	2394.050	V	49.2	28.5	5.0	54.2	33.5	76.0	56.0	21.8	22.5	100.0	40.0	
3	5030.819	H	34.3	20.9	17.6	51.9	38.5	80.0	60.0	28.1	21.5	100.0	314.0	

■ DC 12 V 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	1996.094	V	51.6	30.9	2.7	54.3	33.6	76.0	56.0	21.7	22.4	100.0	48.0	
2	2398.525	V	49.1	29.6	5.0	54.1	34.6	76.0	56.0	21.9	21.4	100.0	39.0	

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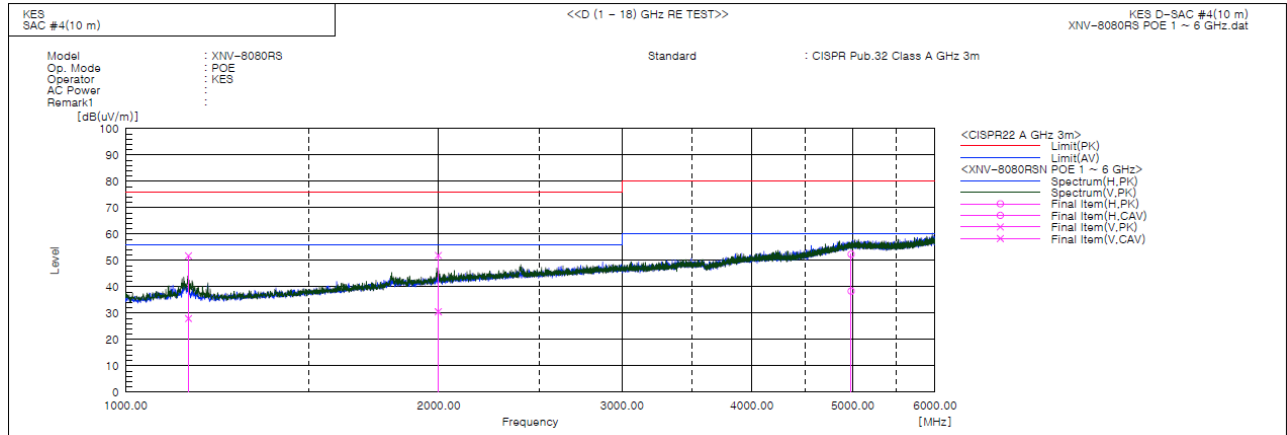
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PoE Mode



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	1149.350	V	57.3	33.4	-5.5	51.8	27.9	76.0	56.0	24.2	28.1	100.0	187.0	
2	1997.863	V	49.2	27.8	2.7	51.9	30.5	76.0	56.0	24.1	25.5	100.0	4.0	
3	4984.088	H	34.8	20.8	17.5	52.3	38.3	80.0	60.0	27.7	21.7	100.0	215.0	

Calculation

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

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

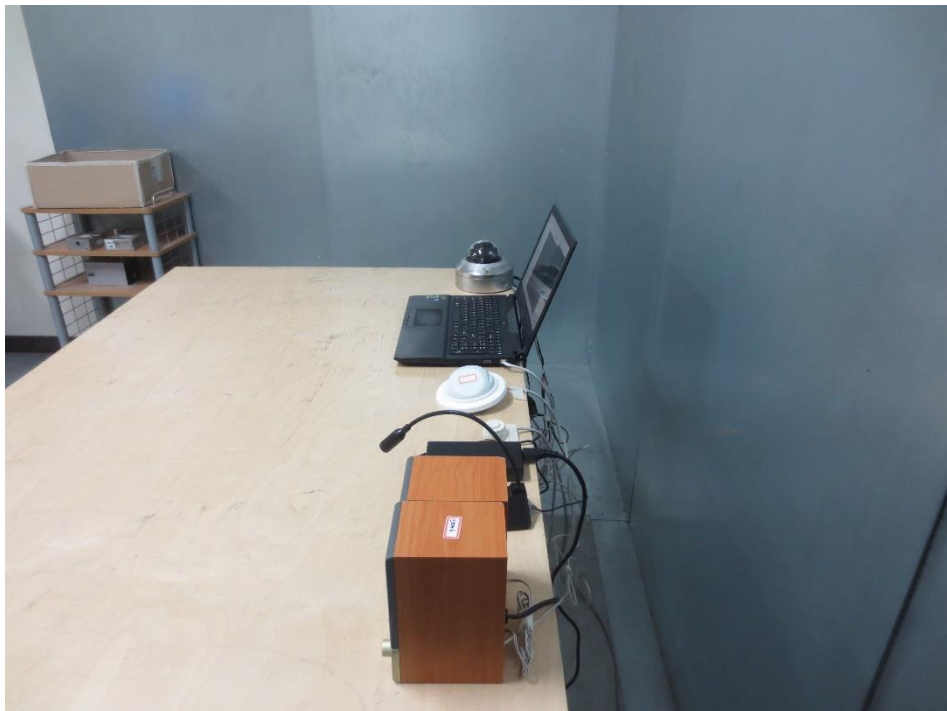
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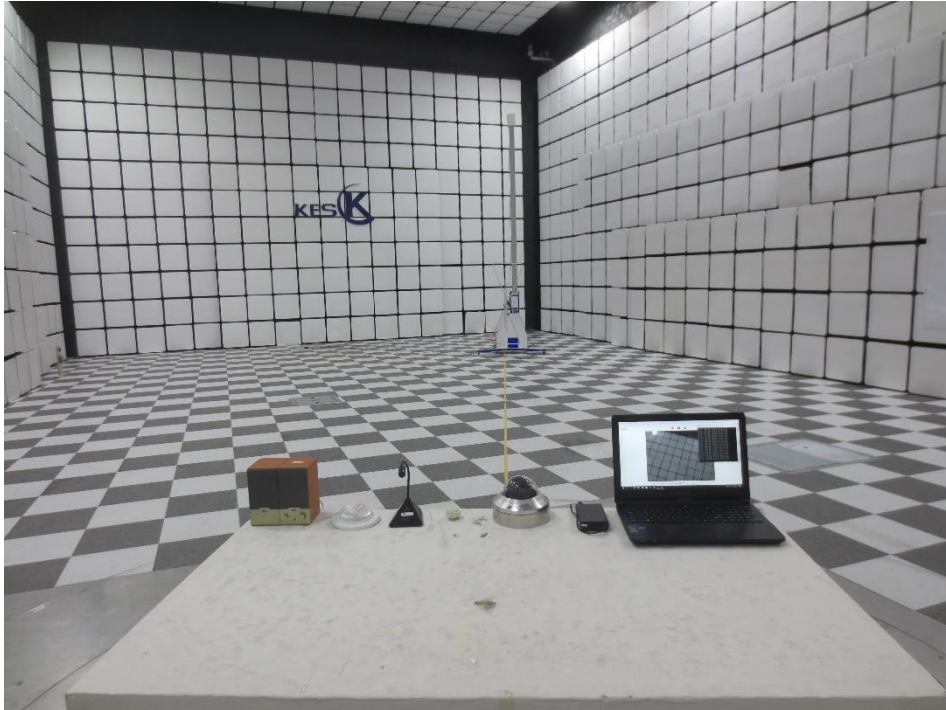
Test Setup Photos and Configuration

Conducted Voltage Emissions



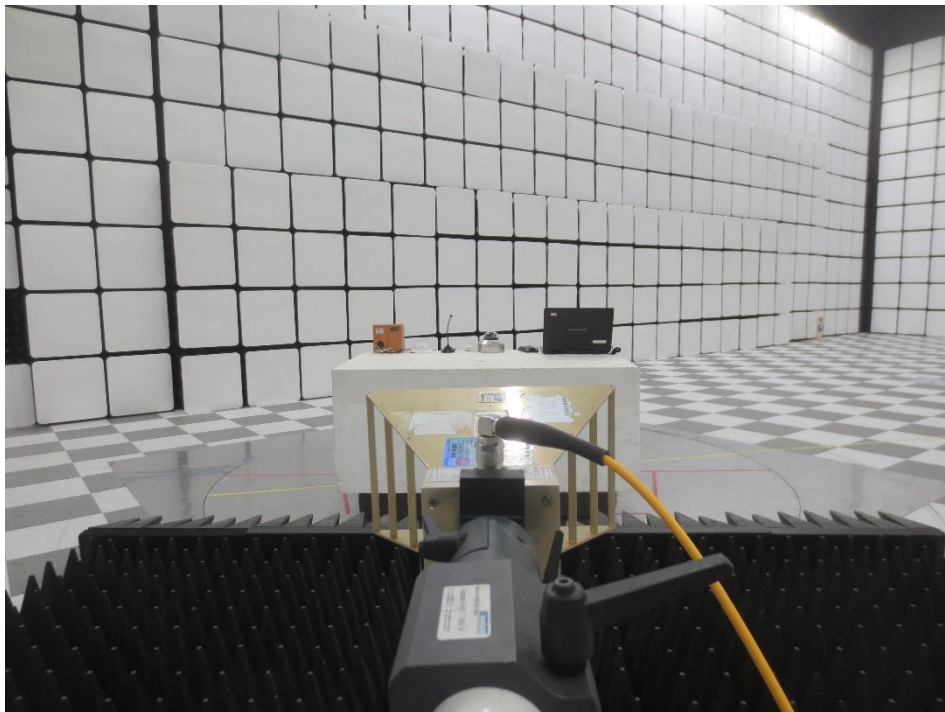
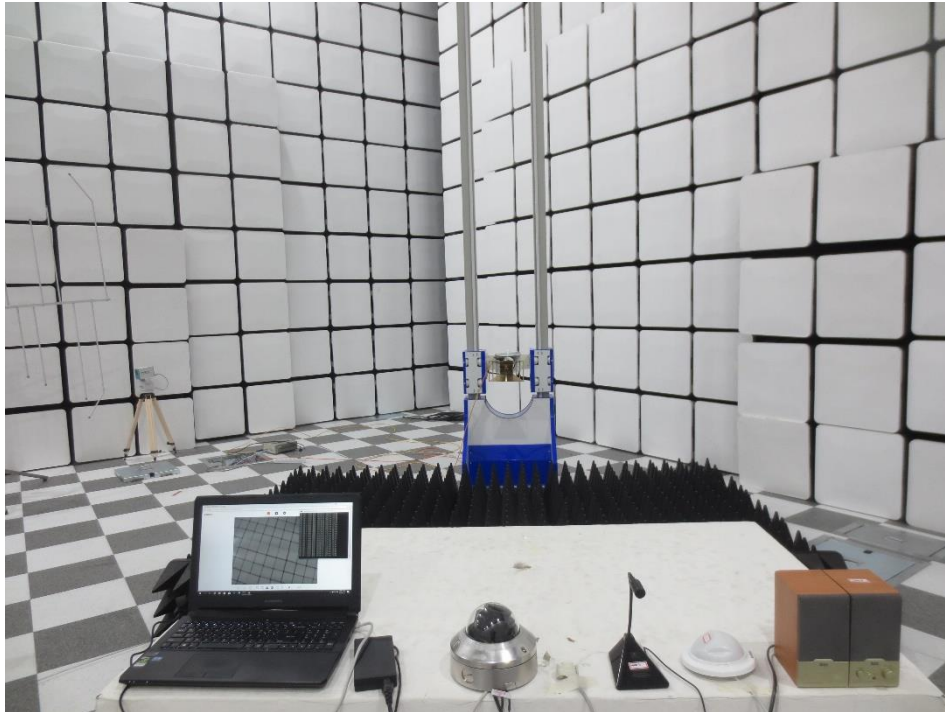
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Radiated Electric Field Emissions(Below 1 GHz)



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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

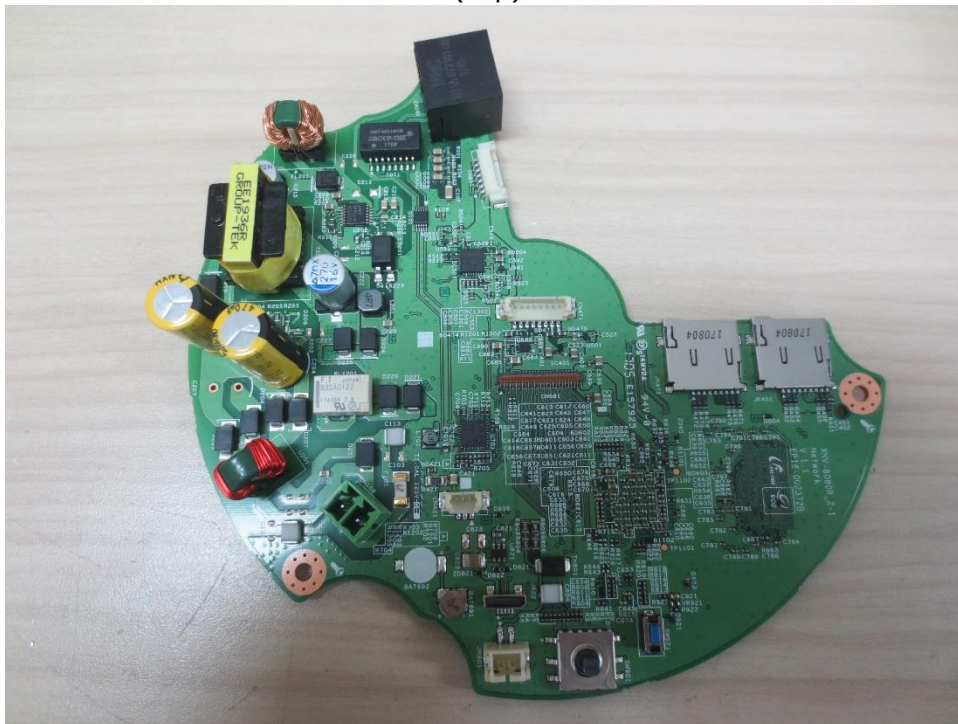
(Internal View)



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EUT Internal View – Main board

(Top)



(Bottom)



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EUT Internal View – Sub board 1

(Top)



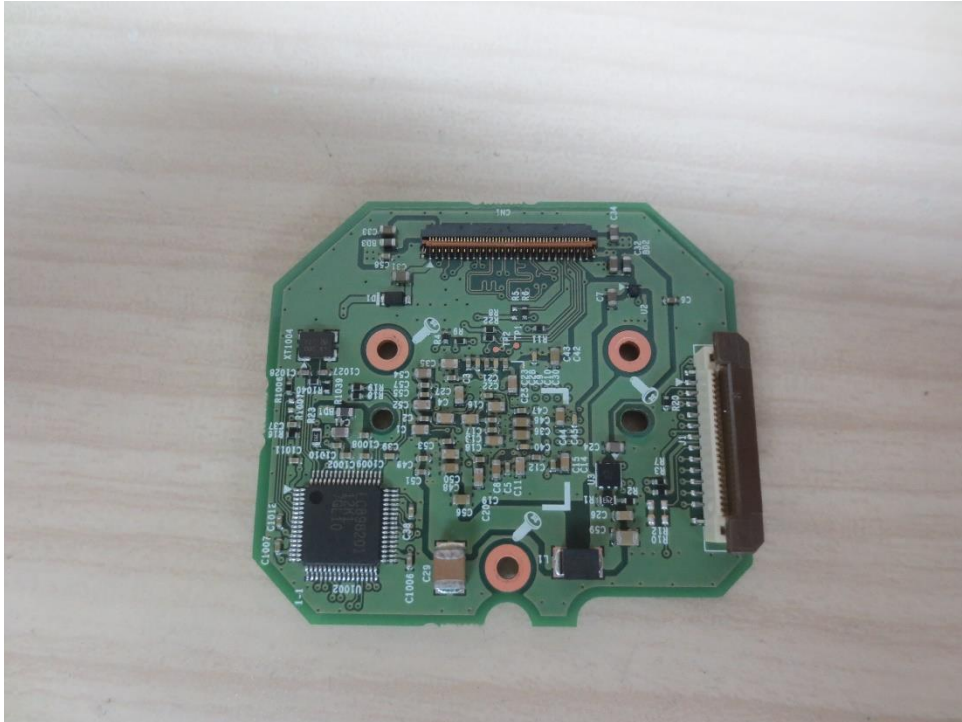
(Bottom)



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EUT Internal View – Sub board 2

(Top)

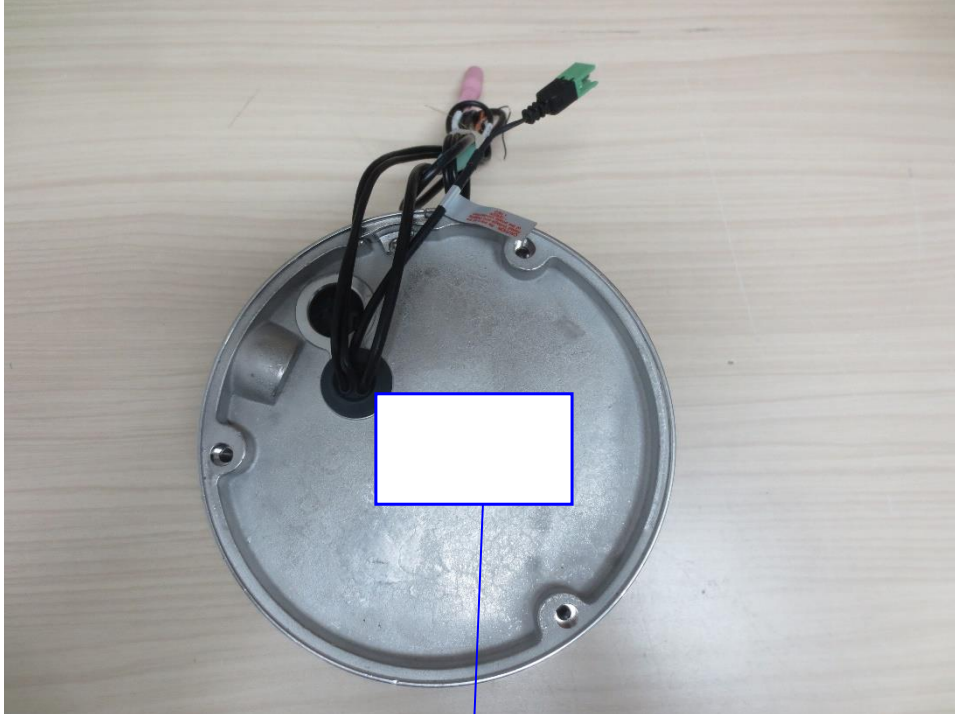


(Bottom)



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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.