



EMC TEST REPORT For VCCI

Test Report No. : KES-EM-21T1201-R1
Date of Issue : Feb. 24, 2023
Product name : NETWORK CAMERA
Model/Type No. : XNZ-6320A
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 : Nov. 12, 2021
Test date : Nov. 24, 2021 ~ Nov. 26, 2021
Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Sung Keun, Park
EMC Test Engineer

Reviewed by

Dong-Hun, Jang
EMC Technical Manager

Tested by Ki Man, Kim
(Retired person)
Proxy signature : Sung Keun, Park

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

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Report No.:

KES-EM-21T1201-R1

Page (2) of (55)

REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Dec. 21, 2021	KES-EM-21T1201	Issued
Feb. 24, 2023	KES-EM-21T1201-R1	Change the Applicant and manufacturer at the request of the customer

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TABLE OF CONTENTS

1.0	General Product Description.....	4
1.1	Test Voltage & Frequency	6
1.2	Variant Model Differences	6
1.3	Device Modifications	6
1.4	Equipment Under Test.....	6
1.5	Support Equipments	7
1.6	External I/O Cabling	8
1.7	EUT Operating Mode(s)	12
1.8	Configuration.....	13
1.9	Remarks when standards applied	14
1.10	Calibration Details of Equipment Used for Measurement	15
1.11	Test Facility	15
1.12	Laboratory Accreditations and Listings	15
2.0	Test Regulations.....	15
2.1	Conducted Emissions Mains Power Ports.....	17
2.2	Conducted Emissions at Telecommunication Ports.....	18
2.3	Radiated Electric Field Emissions(Below 1 GHz)	19
2.4	Radiated Electric Field Emissions(Above 1 GHz)	20
APPENDIX A – TEST DATA.....		21
Conducted Emissions at Mains Power Ports.....		21
Conducted Emissions at Telecommunication Ports		27
Radiated Electric Field Emissions(Below 1 GHz)		29
Radiated Electric Field Emissions(Above 1 GHz).....		33
Test Setup Photos and Configuration		37
Conducted Emissions at Mains Power Ports.....		37
Conducted Emissions at Telecommunication Ports		38
Radiated Electric Field Emissions(Below 1 GHz)		42
Radiated Electric Field Emissions(Above 1 GHz).....		46
EUT External Photographs		50
EUT Internal Photographs		51



1.0 General Product Description

Main Specifications of EUT are:

Video	
Imaging Device	1/2.8" 2MP CMOS
Effective Pixels	1944(H)x1212(V)
Min. Illumination	Color: 0.05Lux (1/30sec, F1.6) B/W: 0.005 Lux (1/30sec, F1.6)
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)	4.44 ~ 142.6mm(Optical 32X)
Max. Aperture Ratio	F1.6(Wide)~F4.4(Tele)
Angular Field of View	H: 64.66°(Wide)~2.29°(Tele) / V: 38.08°(Wide)~1.30°(Tele)
Min. Object Distance	Wide 1.5m(4.92ft) ,Tele 2m(6.56ft)
Focus Control	Auto, One shot AF
Lens Type	DC auto Iris
Operational	
Camera Title	Displayed up to 85 characters
Day & Night	Auto(ICR)
Backlight Compensation	BLC, HLC, WDR, SDR
Wide Dynamic Range	120dB
Digital Noise Reduction	SSNR V
Digital Image Stabilization	Support
Defog	Support
Motion Detection	8ea, 8point polygonal zones
Privacy Masking	32ea, rectangular zones - Color: Grey/Green/Red/Blue/Black/White - Mosaic
Gain Control	OFF/ LOW/ MID/ HIGH
White Balance	ATW / AWC / Manual / Indoor / Outdoor / Mercury / Sodium
Electronic Shutter Speed	Minimum / Maximum / Anti flicker (2~1/12,000sec)
Video Rotation	Flip, Mirror
Analytics	Defocus detection, Directional detection, Fog detection, Face detection, Motion detection, Appear/Disappear, Enter/Exit, Loitering, Tampering, Virtual line, Audio detection, Sound classification, Shock detection
Serial Interface	RS-485/422(Samsung-T, Pelco-D/P, Panasonic, Bosch, AD, GE, Vicon, Honeywell)
Alarm I/O	Input 1ea / Output 2ea
Alarm Triggers	Analytics, Network disconnect, Alarm input
Alarm Events	File upload via FTP and e-mail Notification via e-mail SD/SDHC/SDXC or NAS recording at event triggers Alarm output PTZ Preset
Audio In	Selectable(mic in/line in) Supply voltage: 2.5VDC(4mA), Input impedance: 2K Ohm
Audio Out	Line out, Max.output level: 1Vrms
Network	
Ethernet	RJ-45(10/100BASE-T), SFP(100BASE-FX)
Video Compression	H.265/H.264: Main/Baseline/High, MJPEG
Resolution	1920x1080, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600,

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Report No.:

KES-EM-21T1201-R1

Page (5) of (55)

	800x448, 720x576, 720x480, 640x480, 640x360, 320x240
Max. Framerate	H.265/H.264: Max. 60fps/50fps(60Hz/50Hz) MJPEG: Max. 30fps/25fps(60Hz/50Hz)
Smart Codec	Manual(5ea area), WiseStream II
Bitrate Control	H.264/H.265: CBR or VBR MJPEG: VBR
Streaming	Unicast(20 users) / Multicast Multiple streaming(Up to 10 profiles)
Audio Compression	G.711 u-law /G.726 Selectable G.726(ADPCM) 8KHz, G.711 8KHz G.726: 16Kbps, 24Kbps, 32Kbps, 40Kbps AAC-LC: 48Kbps at 16KHz
Protocol	IPv4, IPv6, TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP,RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, PIM-SM, UPnP, Bonjour, LLDP, SRTP
Security	HTTPS(SSL) Login Authentication Digest Login Authentication IP Address Filtering User access Log 802.1X Authentication(EAP-TLS, EAP-LEAP)
Edge Storage	Micro SD/SDHC/SDXC 2 slot 512GB
Application Programming Interface	ONVIF Profile S/G/T SUNAPI(HTTP API) Wisenet open platform
Webpage Language	English, Korean, Chinese, French, Italian, Spanish, German, Japanese, Russian, Swedish, Portuguese, Czech, Polish, Turkish, Dutch, Hungarian, Greek
Web Viewer	None
Memory	1024MB RAM, 256MB Flash
Environmental	
Operating Temperature / Humidity	-10°C ~ +55°C(+14°F ~ +131°F) / Less than 90% RH
Storage Temperature / Humidity	-30°C ~ +60°C(-22°F ~ +140°F) / Less than 90% RH
Electrical	
Input Voltage	PoE(IEEE802.3af, Class3), 12VDC
Power Consumption	PoE: Max 7.5W, Typical 4.5W 12VDC: Max 7.0W, Typical 4.0W
Mechanical	
Color / Material	Dark grey / Aluminum
Product dimensions / weight	96 x 76 x 143.5mm, 578g
DORI (EN62676-4 standard)	
Detect (25PPM/ 8PPF)	Wide: 64.2m(199.1ft) / Tele: 192.1m(630.4ft)
Observe (63PPM/ 19PPF)	Wide: 24.3m(79.6ft) / Tele: 768.5m(2521.4ft)
Recognize (125PPM/ 38PPF)	Wide: 12.1m(39.8ft) / Tele: 384.3m(1260.7ft)
Identify (250PPM/ 76PPF)	Wide: 6.1m(19.9ft) / Tele: 192.1m(630.3ft)

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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 (DC Adapter) ☒ 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	XNZ-6320A	-	HANWHA VISION VIETNAM COMPANY LIMITED	EUT



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	Latitude 5300	8C47BE45C060	DELL INC.	-
Notebook Adaptor	HA65NM130	-	Chicony Power Technology(Suzhou)Co., Ltd.	-
Gender	-	-	-	-
Converter	FIBERFLY-5001NZ	-	KTS OPTONICS CO., LTD.	-
Converter Adaptor	SAW06D-050-1000KD	-	SHENZHEN SHI YINGYUAN ELECTRONICS CO.,LTD	-
Smartphone	LG-SU760	108KPQJ0186212	LG	-
Headset	K550	-	Britz®	-
Alarm1	-	-	-	-
Alarm2	-	-	-	-
Controller1	SPC-1010	-	SamSung Techwin Co.,Ltd.	-
Controller1 Adaptor	AP-12005A	-	A-power.	-
Controller2	SPC-1010	-	SamSung Techwin Co.,Ltd.	-
Controller2 Adaptor	AP-12005A	-	A-power.	-
Micro SD Card	-	-	SanDisk	-
Optical Module1	SFP-SM	-	Interlink Telecom Co., Limited	-
Optical Module2	SFP-SM	-	Interlink Telecom Co., Limited	-

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Report No.:

KES-EM-21T1201-R1

Page (8) of (55)

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	S
	3.5 mm	Headset	3.5 mm	1.7	U
	3.5 mm		3.5 mm	1.7	U
	RS-485	Controller1	RS-485	3.0	U
	RS-422	Controller2	RS-422	3.0	U
	SLOT	Micro SD Card	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	Gender	3.5 mm	0.1	U
Gender	3.5 mm	Smartphone	3.5 mm	1.0	U
Controller1	DC Jack	Controller1 Adaptor	DC Jack	1.6	U
Controller2	DC Jack	Controller2 Adaptor	DC Jack	1.6	U

* Unshielded=U, Shielded=S

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■ DC_Optical 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
	SFP	Optical Module1	SFP	-	-
	3.5 mm	Headset	3.5 mm	1.7	U
	3.5 mm		3.5 mm	1.7	U
	RS-485	Controller1	RS-485	3.0	U
	RS-422	Controller2	RS-422	3.0	U
	SLOT	Micro SD Card	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	Gender	3.5 mm	0.1	U
	RJ-45	Converter	RJ-45	1.5	U
Gender	3.5 mm	Smartphone	3.5 mm	1.0	U
Controller1	DC Jack	Controller1 Adaptor	DC Jack	1.6	U
Controller2	DC Jack	Controller2 Adaptor	DC Jack	1.6	U
Optical Module1	Optical	Optical Module2	Optical	5.0	U
Converter	SFP	Optical Module2	SFP	-	-
	DC Jack	Converter Adaptor	DC Jack	1.4	U

* Unshielded=U, Shielded=S

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Report No.:

KES-EM-21T1201-R1

Page (10) of (55)

■ 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	S
	3.5 mm	Headset	3.5 mm	1.7	U
	3.5 mm		3.5 mm	1.7	U
	RS-485	Controller1	RS-485	3.0	U
	RS-422	Controller2	RS-422	3.0	U
	SLOT	Micro SD Card	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	Gender	3.5 mm	0.1	U
	RJ-45 (LAN)	PoE Adaptor	RJ-45 (LAN)	3.0	S
Gender	3.5 mm	Smartphone	3.5 mm	1.0	U
Controller1	DC Jack	Controller1 Adaptor	DC Jack	1.6	U
Controller2	DC Jack	Controller2 Adaptor	DC Jack	1.6	U

* Unshielded=U, Shielded=S

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■ PoE_Optical 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	S
	SFP	Optical Module1	SFP	-	-
	3.5 mm	Headset	3.5 mm	1.7	U
	3.5 mm		3.5 mm	1.7	U
	RS-485	Controller1	RS-485	3.0	U
	RS-422	Controller2	RS-422	3.0	U
	SLOT	Micro SD Card	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	Gender	3.5 mm	0.1	U
	RJ-45	Converter	RJ-45	1.5	U
Gender	3.5 mm	Smartphone	3.5 mm	1.0	U
Controller1	DC Jack	Controller1 Adaptor	DC Jack	1.6	U
Controller2	DC Jack	Controller2 Adaptor	DC Jack	1.6	U
Optical Module1	Optical	Optical Module2	Optical	5.0	U
Converter	SFP	Optical Module2	SFP	-	-
	DC Jack	Converter Adaptor	DC Jack	1.4	U

* Unshielded=U, Shielded=S

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Report No.:

KES-EM-21T1201-R1

Page (12) of (55)

1.7 EUT Operating Mode(s)

operating
EUT Monitoring, Ping Test

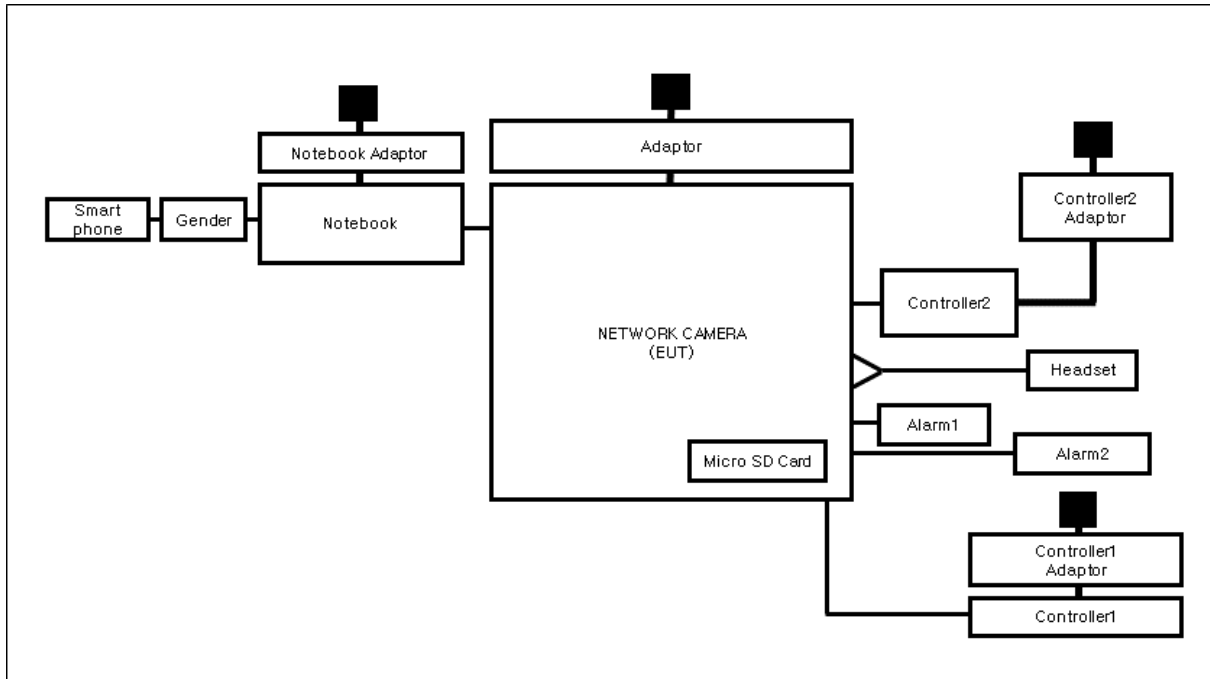
EUT Test operating S/W		
Name	Version	Manufacture Company
Web Viewer	-	Hanwha Vision Co., Ltd

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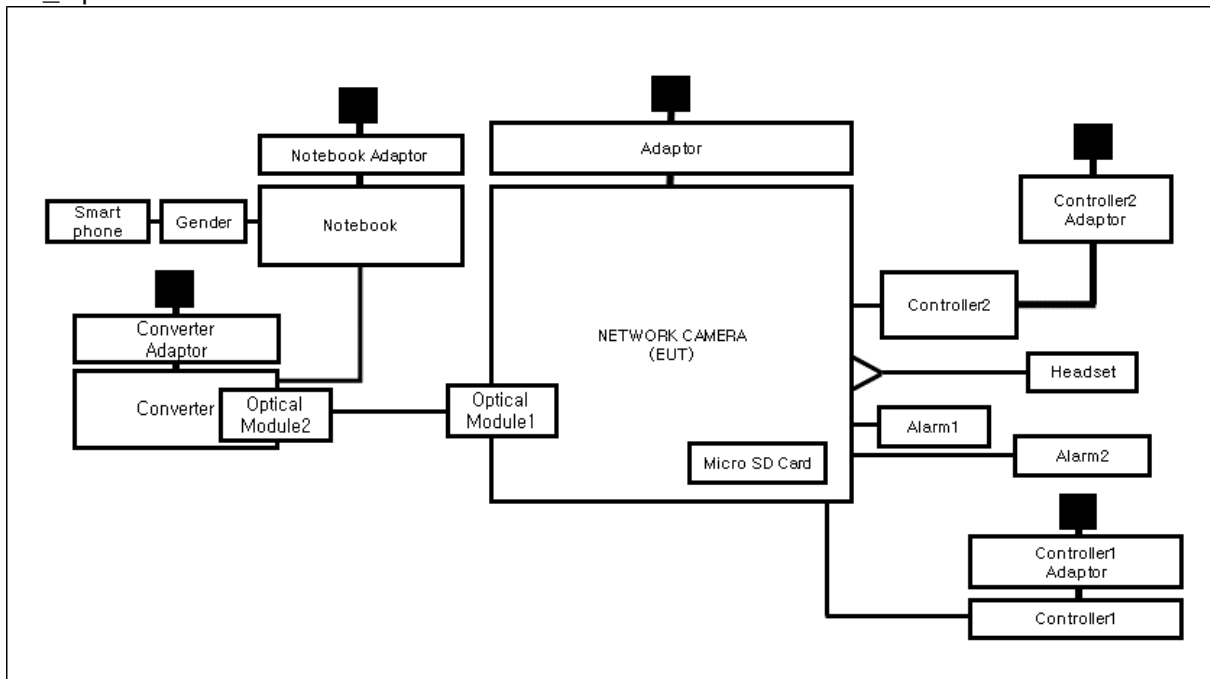
1.8 Configuration

■ AC Main
 □ DC Main

■ DC Mode

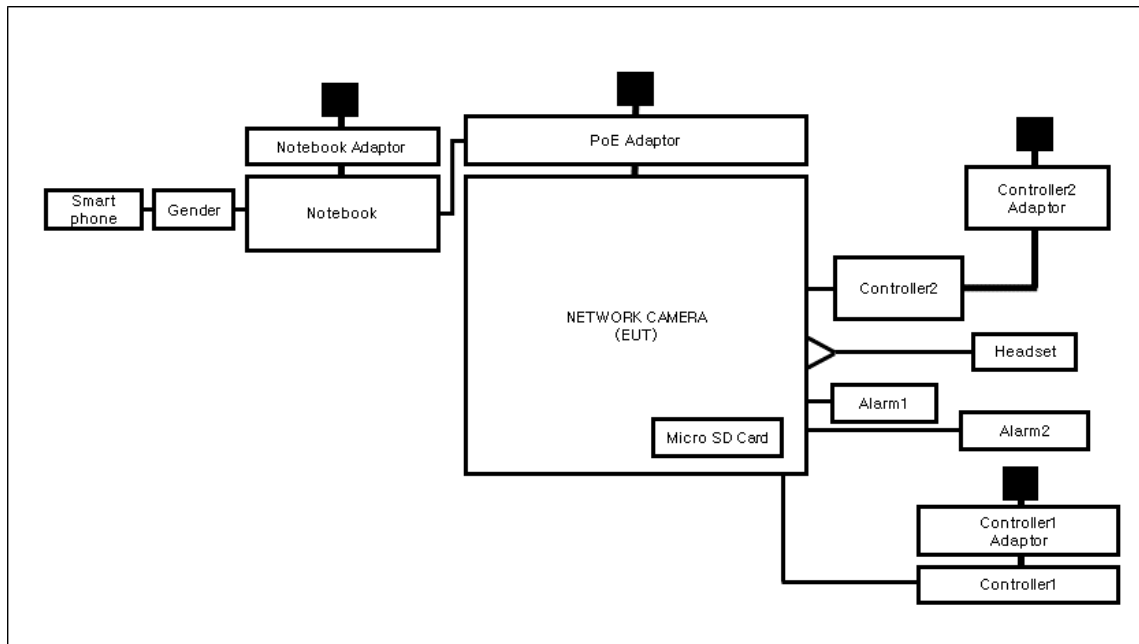


■ DC_Optical Mode

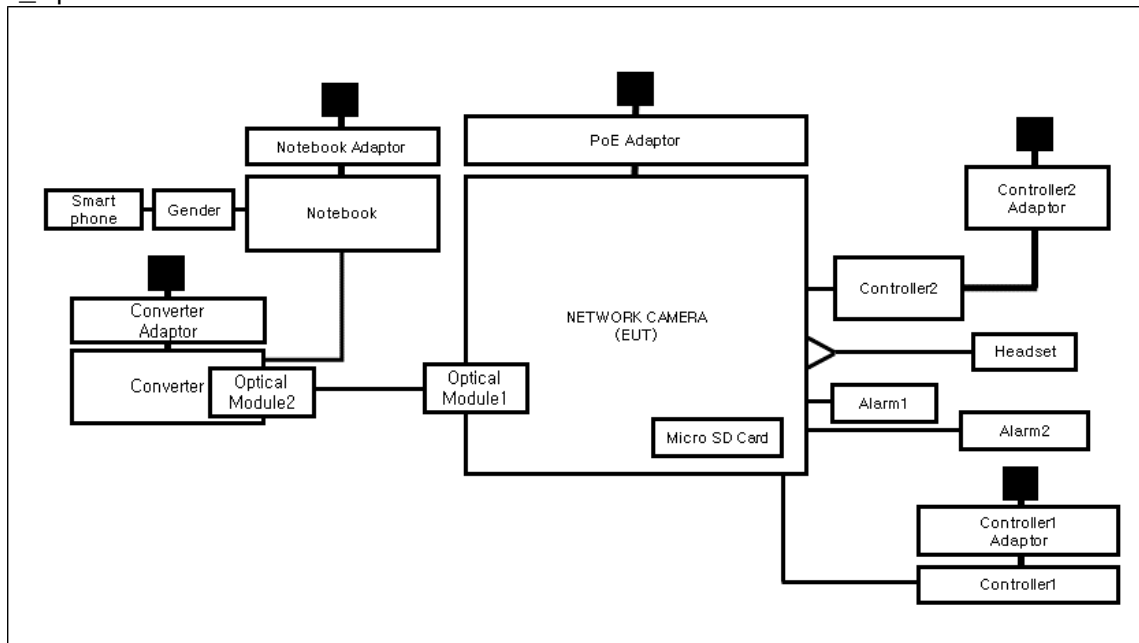


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■ PoE Mode



■ PoE_Optical Mode



1.9 Remarks when standards applied

- When connecting optical ports, RJ-45 ports were tested by mode as they did not communicate data.
- USB, VIDEO port is not tested because it is an unused port.
- Power-related ports are not tested because power and data communication are used together in PoE mode.
- Power-related ports were tested because only power was used in PoE_optical mode.

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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Report No.:
KES-EM-21T1201-R1
Page (16) of (55)

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

Nov. 25, 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: (22,8 ± 0,2) °C

Relative Humidity: (43,7 ± 0,4) % 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

Nov. 25, 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
☐	8-WIRE ISN CAT3,5	ENY81	R & S	100174	12, 30, 2021
☒	ISN	ISN S8	SCHWARZBECK	ISN-S8-0019	03, 10, 2022
☐	CDN	CDNS502A	TESEQ	40431	12, 29, 2021

Test Conditions

Temperature: (22,8 ± 0,1) °C

Relative Humidity: (43,7 ± 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.
- 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

Nov. 24, 2021 / Nov. 25, 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, 24, 2022
☒	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	715	12, 08, 2022
☒	ATTENUATOR	8491A	HP	32173	03, 10, 2022

Test Conditions

Test Date: Nov. 24, 2021 Nov. 25, 2021
Temperature: (23,1 ± 0,2) °C (22,6 ± 0,3) °C
Relative Humidity: (44,0 ± 0,2)% R.H. (44,0 ± 0,4)% 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

Nov. 26, 2021

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: (23,2 ± 0,4) °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

Remarks

See Appendix A for test data.

APPENDIX A – TEST DATA

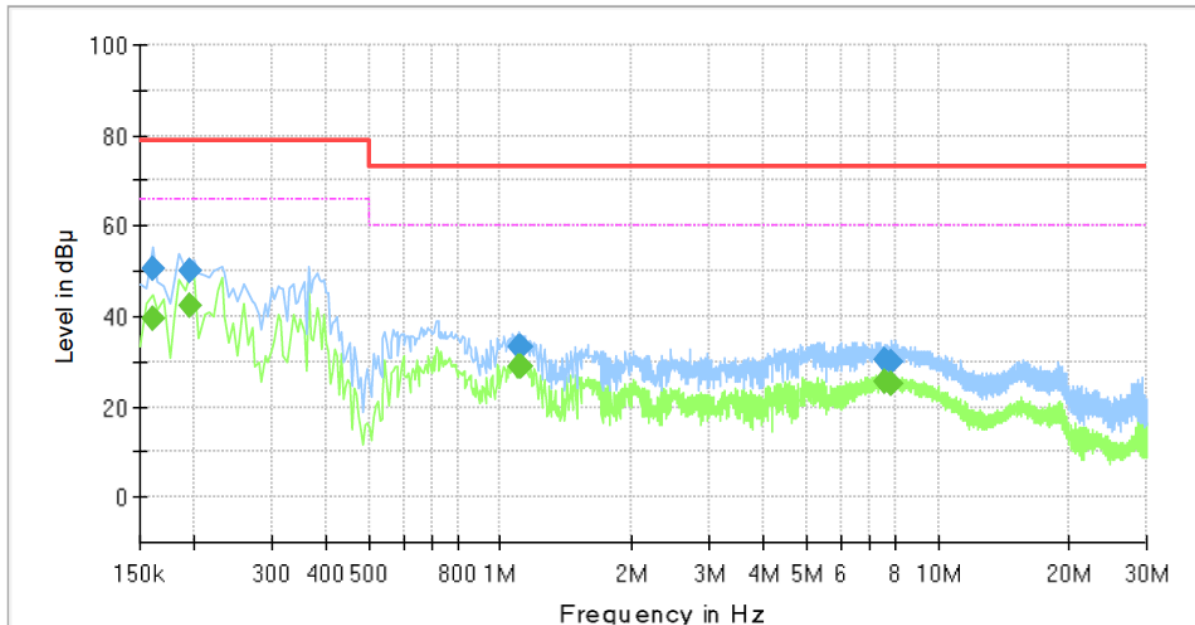
Conducted Emissions at Mains Power Ports

■ DC Mode

HOT LINE

Common Information

Test Description:	Conducted Emission
Model No.:	XNZ-6320A
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)
0.160000	---	39.66	66.00	26.34	1000.0	9.000	L1	19.5
0.160000	50.53	---	79.00	28.47	1000.0	9.000	L1	19.5
0.195000	---	42.24	66.00	23.76	1000.0	9.000	L1	19.5
0.195000	50.20	---	79.00	28.80	1000.0	9.000	L1	19.5
1.105000	---	28.77	60.00	31.23	1000.0	9.000	L1	20.1
1.105000	33.39	---	73.00	39.61	1000.0	9.000	L1	20.1
1.110000	---	28.84	60.00	31.16	1000.0	9.000	L1	20.1
1.110000	33.20	---	73.00	39.80	1000.0	9.000	L1	20.1
7.540000	---	25.32	60.00	34.68	1000.0	9.000	L1	19.6
7.540000	30.20	---	73.00	42.80	1000.0	9.000	L1	19.6
7.810000	---	25.24	60.00	34.76	1000.0	9.000	L1	19.6
7.810000	30.08	---	73.00	42.92	1000.0	9.000	L1	19.6



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www.kes.co.kr

Report No.:

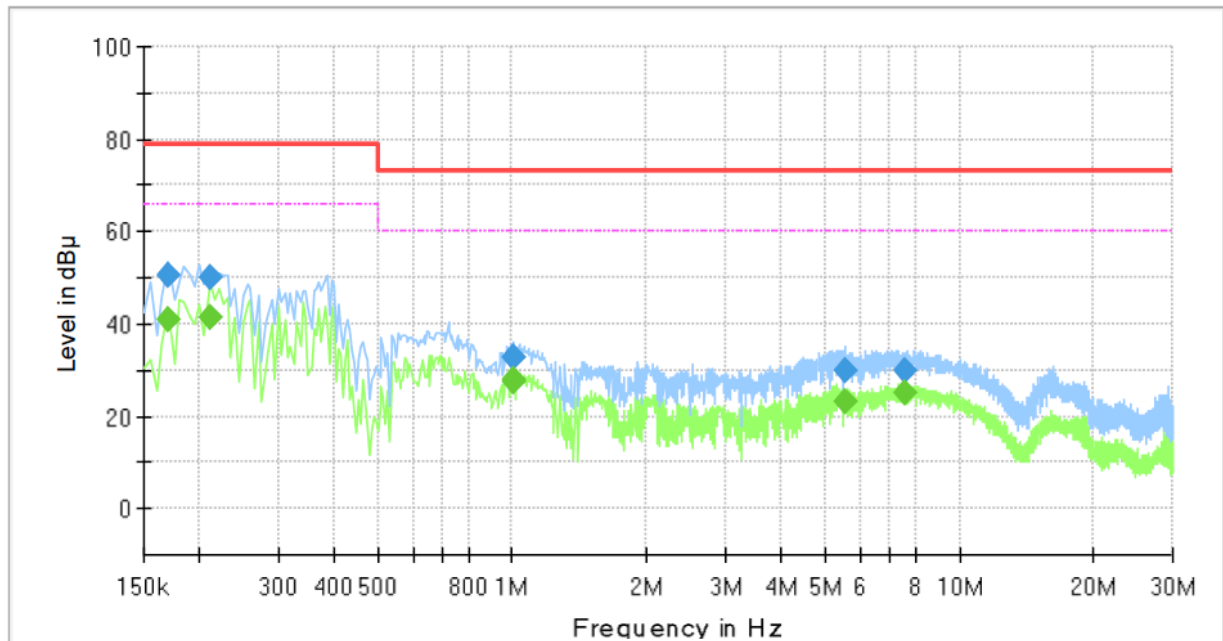
KES-EM-21T1201-R1

Page (22) of (55)

NEUTRAL LINE

Common Information

Test Description: Conducted Emission
Model No.: XNZ-6320A
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)
0.170000	---	40.78	66.00	25.22	1000.0	9.000	N	19.4
0.170000	50.61	---	79.00	28.39	1000.0	9.000	N	19.4
0.210000	---	41.50	66.00	24.50	1000.0	9.000	N	19.5
0.210000	49.91	---	79.00	29.09	1000.0	9.000	N	19.5
1.005000	---	27.49	60.00	32.51	1000.0	9.000	N	20.1
1.005000	32.73	---	73.00	40.27	1000.0	9.000	N	20.1
1.010000	---	27.96	60.00	32.04	1000.0	9.000	N	20.1
1.010000	32.67	---	73.00	40.33	1000.0	9.000	N	20.1
5.540000	---	23.34	60.00	36.66	1000.0	9.000	N	19.6
5.540000	29.86	---	73.00	43.14	1000.0	9.000	N	19.6
7.600000	---	25.09	60.00	34.91	1000.0	9.000	N	19.6
7.600000	29.97	---	73.00	43.03	1000.0	9.000	N	19.6

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■ DC_Optical Mode

HOT LINE

Common Information

Test Description:

Model No.:

Phase:

Mode:

Operator Name:

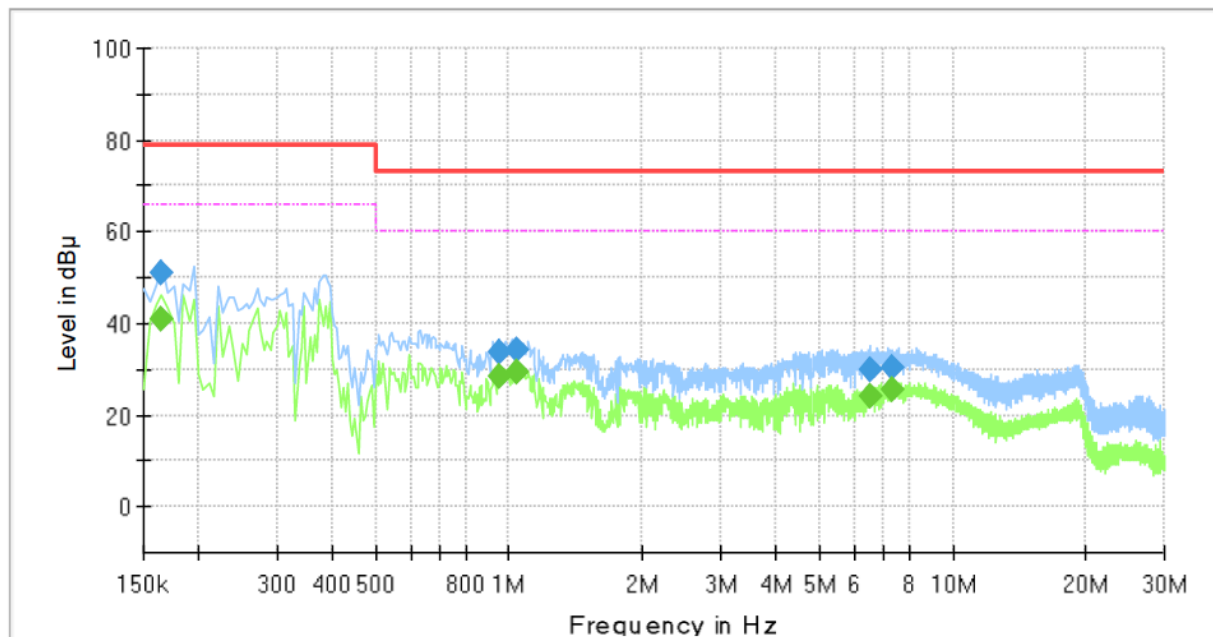
Conducted Emission

XNZ-6320A

DC_Optical

L1

KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.165000	---	40.71	66.00	25.29	1000.0	9.000	L1	19.5
0.165000	51.06	---	79.00	27.94	1000.0	9.000	L1	19.5
0.950000	---	28.39	60.00	31.61	1000.0	9.000	L1	20.1
0.950000	33.48	---	73.00	39.52	1000.0	9.000	L1	20.1
1.045000	---	29.58	60.00	30.42	1000.0	9.000	L1	20.1
1.045000	34.21	---	73.00	38.79	1000.0	9.000	L1	20.1
6.515000	---	24.13	60.00	35.87	1000.0	9.000	L1	19.6
6.515000	29.95	---	73.00	43.05	1000.0	9.000	L1	19.6
7.340000	---	25.36	60.00	34.64	1000.0	9.000	L1	19.6
7.340000	30.57	---	73.00	42.43	1000.0	9.000	L1	19.6

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NEUTRAL LINE

Common Information

Test Description:

Model No.:

Phase:

Mode:

Operator Name:

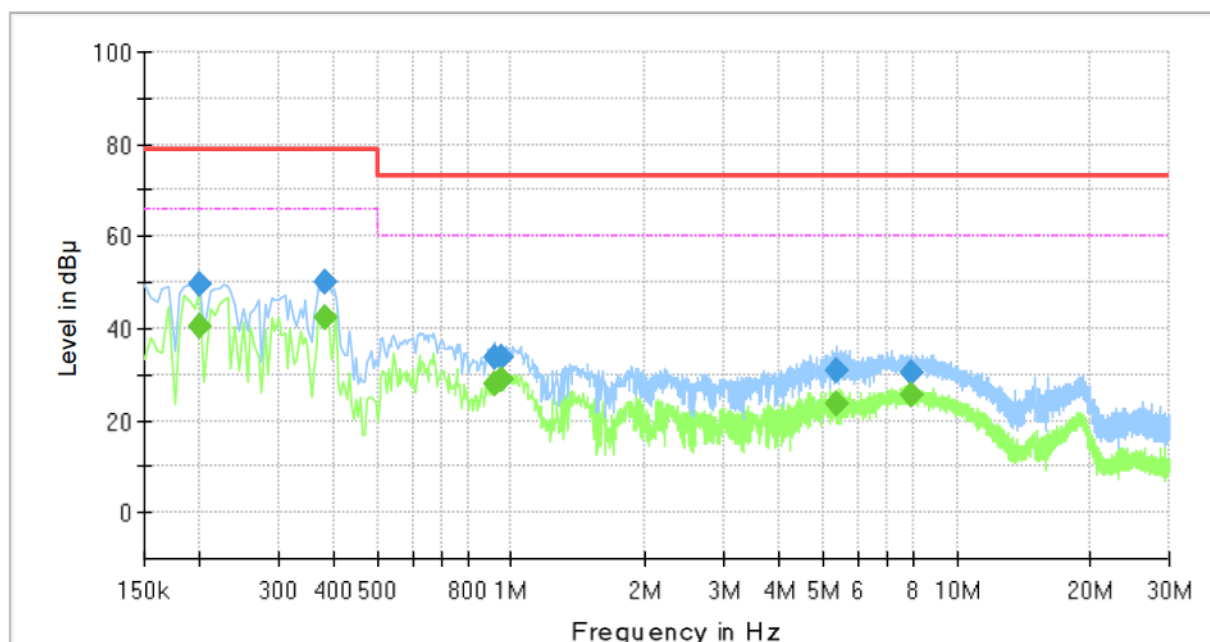
Conducted Emission

XNZ-6320A

DC_Optical

N

KES



Final_Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.200000	---	40.33	66.00	25.67	1000.0	9.000	N	19.5
0.200000	49.44	---	79.00	29.56	1000.0	9.000	N	19.5
0.380000	---	42.36	66.00	23.64	1000.0	9.000	N	19.6
0.380000	50.06	---	79.00	28.94	1000.0	9.000	N	19.6
0.915000	---	27.99	60.00	32.01	1000.0	9.000	N	20.1
0.915000	33.65	---	73.00	39.35	1000.0	9.000	N	20.1
0.945000	---	28.77	60.00	31.23	1000.0	9.000	N	20.1
0.945000	33.95	---	73.00	39.05	1000.0	9.000	N	20.1
5.380000	---	23.81	60.00	36.19	1000.0	9.000	N	19.6
5.380000	30.79	---	73.00	42.21	1000.0	9.000	N	19.6
7.910000	---	25.31	60.00	34.69	1000.0	9.000	N	19.6
7.910000	30.23	---	73.00	42.77	1000.0	9.000	N	19.6

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PoE_Optical Mode

HOT LINE

Common Information

Test Description:

Model No.:

Phase:

Mode:

Operator Name:

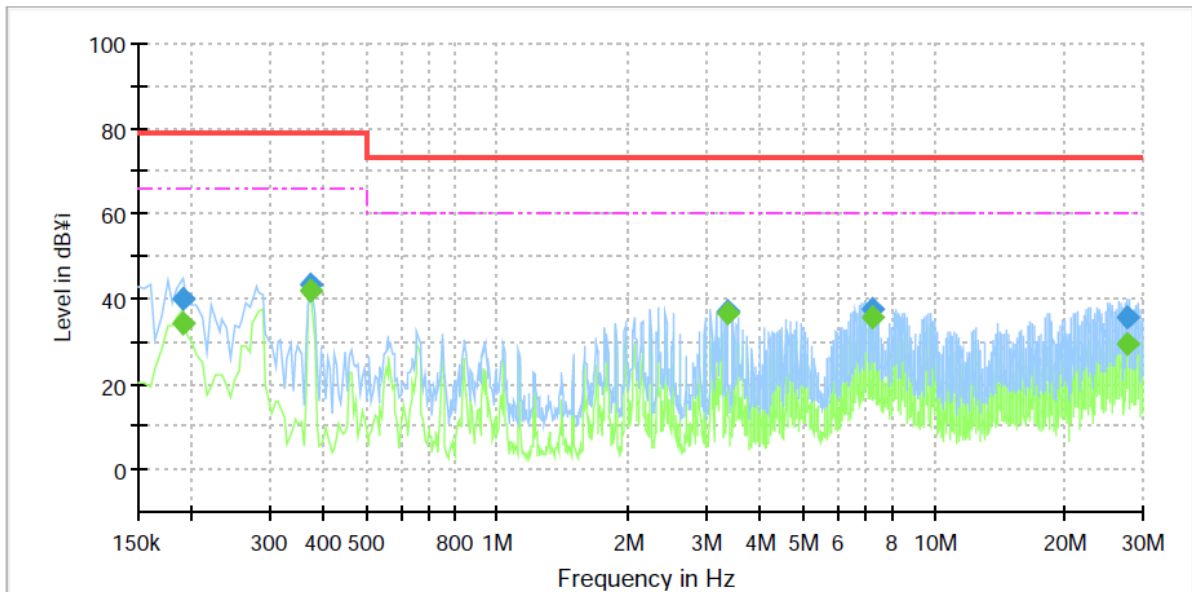
Conducted Emission

XNZ-6320A

L1

PoE_Optical

KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.190000	---	34.33	66.00	31.67	1000.0	9.000	L1	19.5
0.190000	39.83	---	79.00	39.17	1000.0	9.000	L1	19.5
0.375000	---	41.80	66.00	24.20	1000.0	9.000	L1	19.6
0.375000	43.37	---	79.00	35.63	1000.0	9.000	L1	19.6
3.365000	---	36.46	60.00	23.54	1000.0	9.000	L1	20.1
3.365000	37.19	---	73.00	35.81	1000.0	9.000	L1	20.1
7.195000	---	35.48	60.00	24.52	1000.0	9.000	L1	19.6
7.195000	37.46	---	73.00	35.54	1000.0	9.000	L1	19.6
27.670000	---	29.38	60.00	30.62	1000.0	9.000	L1	20.3
27.670000	35.77	---	73.00	37.23	1000.0	9.000	L1	20.3

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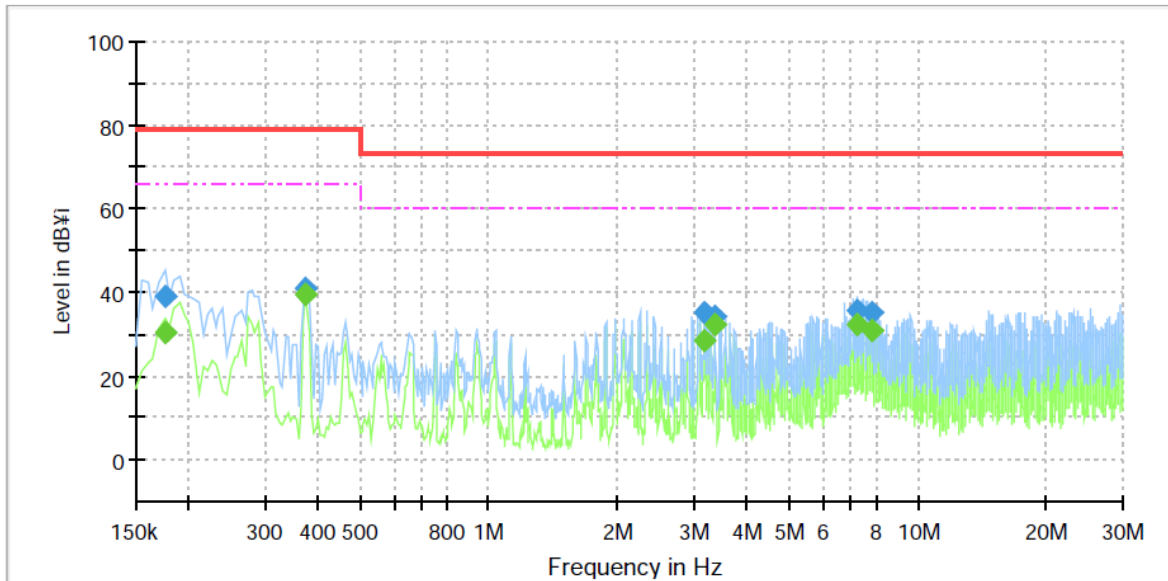
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NEUTRAL LINE

Common Information

Test Description: Conducted Emission
 Model No.: XNZ-6320A
 Phase: N
 Mode: PoE_Optical
 Operator Name: KES



Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.175000	---	30.21	66.00	35.79	1000.0	9.000	N	19.4
0.175000	38.91	---	79.00	40.09	1000.0	9.000	N	19.4
0.375000	---	39.35	66.00	26.65	1000.0	9.000	N	19.6
0.375000	41.02	---	79.00	37.98	1000.0	9.000	N	19.6
3.185000	---	28.32	60.00	31.68	1000.0	9.000	N	20.1
3.185000	35.25	---	73.00	37.75	1000.0	9.000	N	20.1
3.375000	---	32.49	60.00	27.51	1000.0	9.000	N	20.1
3.375000	34.15	---	73.00	38.85	1000.0	9.000	N	20.1
7.205000	---	32.28	60.00	27.72	1000.0	9.000	N	19.6
7.205000	35.68	---	73.00	37.32	1000.0	9.000	N	19.6
7.780000	---	30.84	60.00	29.16	1000.0	9.000	N	19.6
7.780000	34.93	---	73.00	38.07	1000.0	9.000	N	19.6

◆ 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))

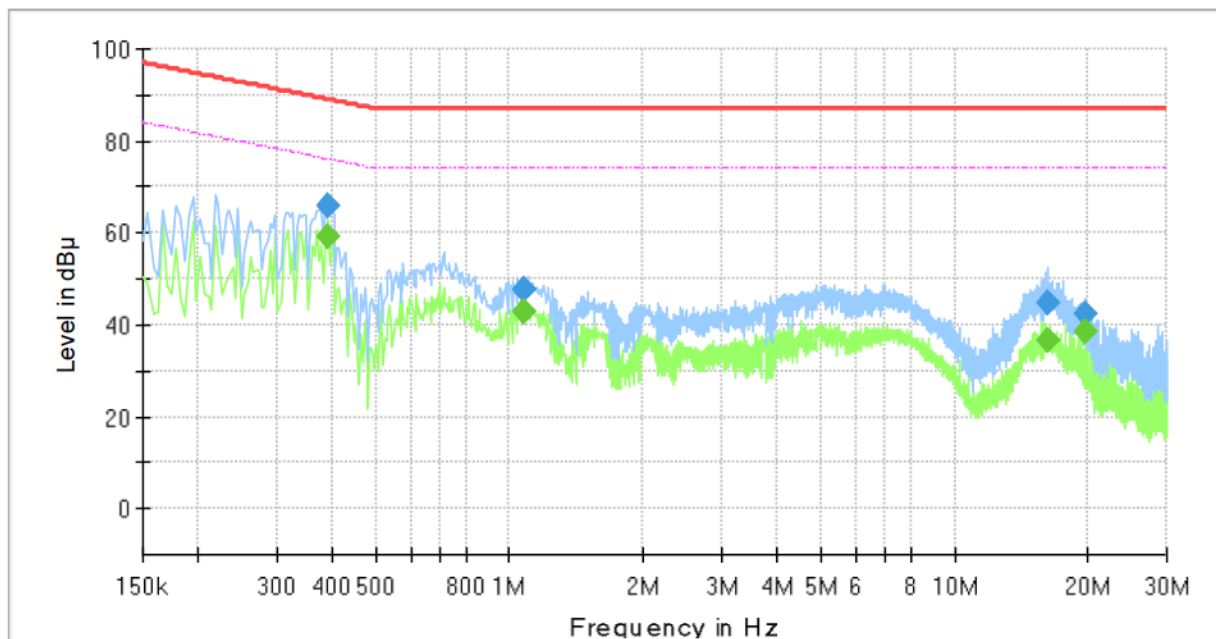
Conducted Emissions at Telecommunication Ports

■ DC Mode

[100 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	XNZ-6320A
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)
0.390000	---	59.20	76.06	16.86	1000.0	9.000	Single Line	19.6
0.390000	65.78	---	89.06	23.28	1000.0	9.000	Single Line	19.6
1.074000	---	42.97	74.00	31.03	1000.0	9.000	Single Line	20.0
1.074000	47.86	---	87.00	39.14	1000.0	9.000	Single Line	20.0
1.078000	---	42.95	74.00	31.05	1000.0	9.000	Single Line	20.0
1.078000	47.65	---	87.00	39.35	1000.0	9.000	Single Line	20.0
16.178000	---	36.53	74.00	37.47	1000.0	9.000	Single Line	19.9
16.178000	44.61	---	87.00	42.39	1000.0	9.000	Single Line	19.9
19.710000	---	38.57	74.00	35.43	1000.0	9.000	Single Line	20.2
19.710000	42.47	---	87.00	44.53	1000.0	9.000	Single Line	20.2

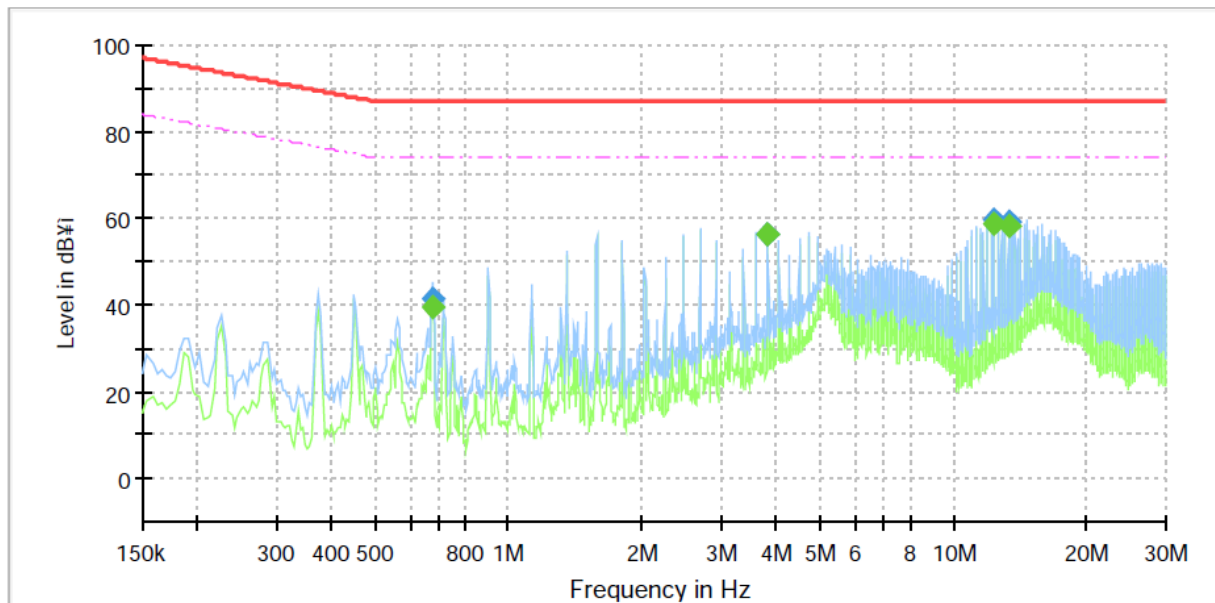
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PoE Mode
[100 Mbps]
Common Information

Test Description: Telecommunication Emission
Model No.: XNZ-6320A
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)
0.674000	---	39.63	74.00	34.37	1000.0	9.000	Single Line	19.8
0.674000	41.47	---	87.00	45.53	1000.0	9.000	Single Line	19.8
3.830000	---	56.28	74.00	17.72	1000.0	9.000	Single Line	19.8
3.830000	56.51	---	87.00	30.49	1000.0	9.000	Single Line	19.8
12.390000	---	58.83	74.00	15.17	1000.0	9.000	Single Line	19.9
12.390000	59.42	---	87.00	27.58	1000.0	9.000	Single Line	19.9
13.290000	---	58.42	74.00	15.58	1000.0	9.000	Single Line	19.9
13.290000	59.13	---	87.00	27.87	1000.0	9.000	Single Line	19.9

◆ 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))



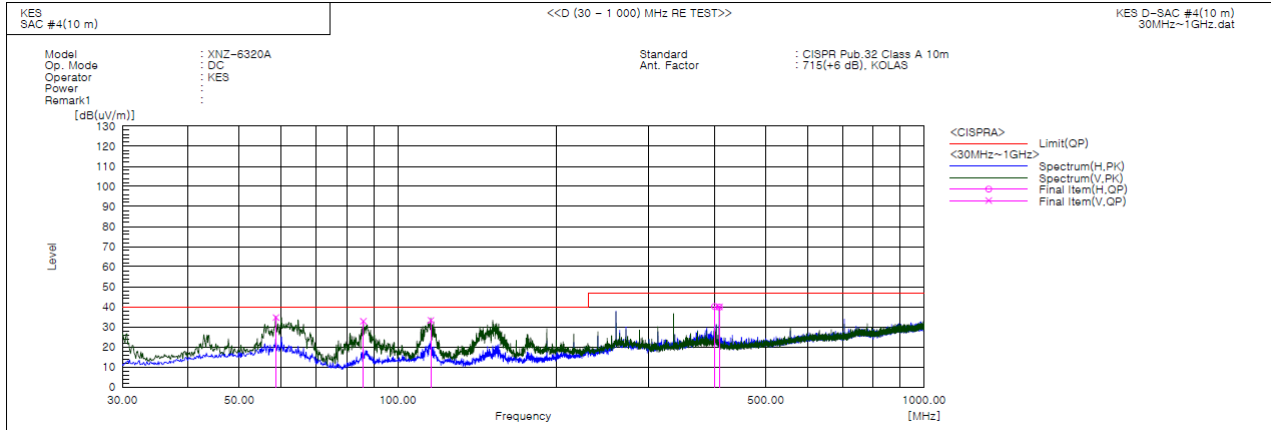
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Page (29) of (55)

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	58.736	V	56.5	-21.8	34.7	40.0	5.3	112.0	74.0	
2	86.018	V	58.6	-25.8	32.8	40.0	7.2	131.0	111.0	
3	115.603	V	56.4	-23.1	33.3	40.0	6.7	100.0	247.0	
4	400.055	H	54.4	-14.3	40.1	47.0	6.9	246.0	88.0	
5	408.421	V	54.1	-14.1	40.0	47.0	7.0	400.0	149.0	
6	408.421	H	53.9	-14.1	39.8	47.0	7.2	231.0	170.0	

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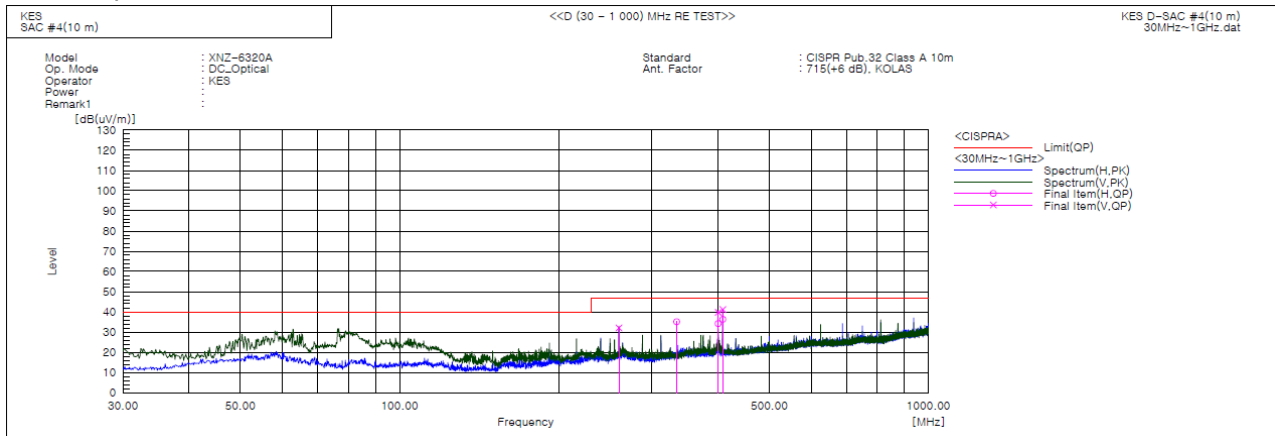


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Page (30) of (55)

DC_Optical 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	259.890	V	51.0	-18.9	32.1	47.0	14.9	164.0	179.0	
2	334.095	H	50.9	-15.8	35.1	47.0	11.9	234.0	88.0	
3	400.102	H	48.2	-14.0	34.2	47.0	12.8	234.0	111.0	
4	400.164	V	53.8	-14.0	39.8	47.0	7.2	102.0	194.0	
5	408.421	H	50.2	-13.9	36.3	47.0	10.7	198.0	119.0	
6	408.437	V	55.1	-13.9	41.2	47.0	5.8	100.0	194.0	

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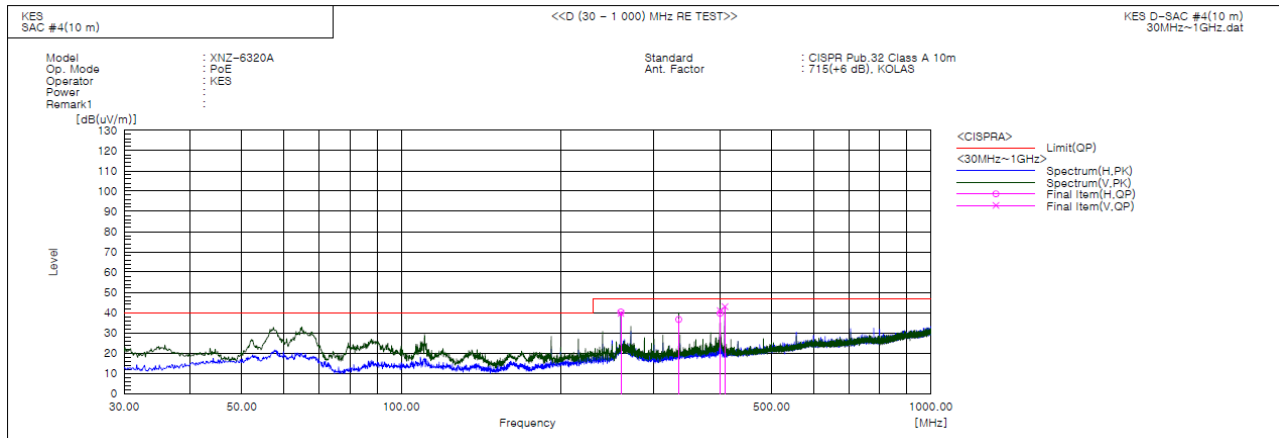


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Page (31) of (55)

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	408.421	V	56.8	-13.9	42.9	47.0	4.1	100.0	152.0	
2	400.055	V	55.0	-14.0	41.0	47.0	6.0	108.0	167.0	
3	400.047	H	53.6	-14.0	39.6	47.0	7.4	266.0	331.0	
4	334.095	H	52.4	-15.8	36.6	47.0	10.4	398.0	316.0	
5	259.890	V	58.5	-18.9	39.6	47.0	7.4	100.0	319.0	
6	259.889	H	59.2	-18.9	40.3	47.0	6.7	189.0	44.0	

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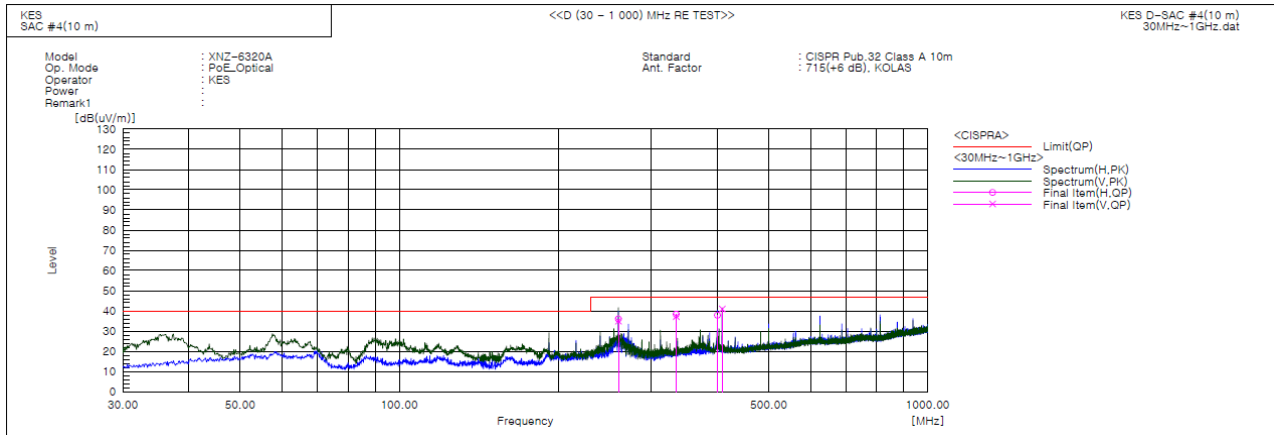


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Page (32) of (55)

■ PoE_Optical 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	259.889	V	53.8	-18.9	34.9	47.0	12.1	112.0	273.0	
2	259.890	H	54.9	-18.9	36.0	47.0	11.0	400.0	19.0	
3	334.095	H	54.1	-15.8	38.3	47.0	8.7	234.0	133.0	
4	334.098	V	53.0	-15.8	37.2	47.0	9.8	100.0	340.0	
5	400.055	H	51.9	-14.0	37.9	47.0	9.1	268.0	272.0	
6	408.421	V	54.9	-13.9	41.0	47.0	6.0	104.0	149.0	

◆ 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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Tel: +82-31-425-6200 / Fax: +82-31-424-0450
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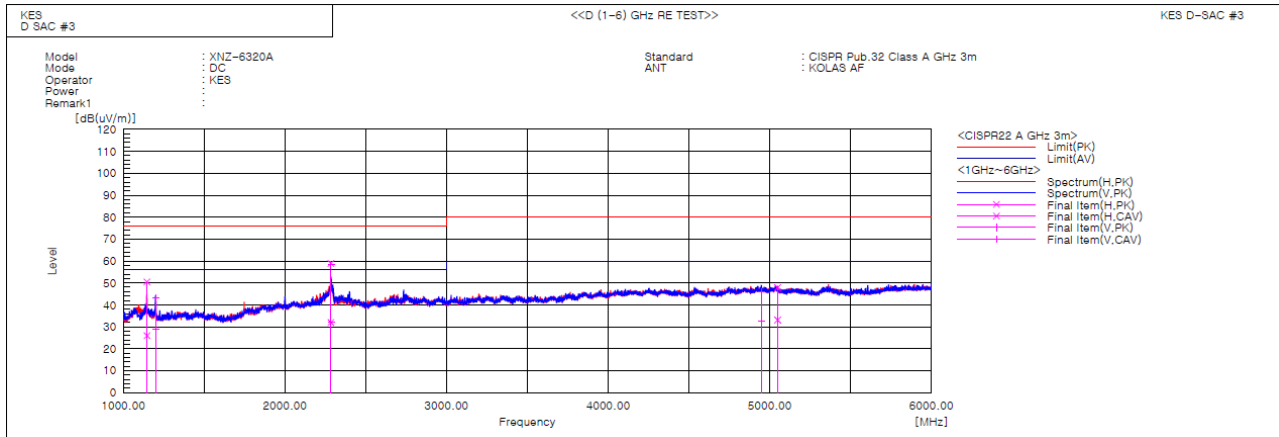
Report No.:

KES-EM-21T1201-R1

Page (33) of (55)

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	1146.251	H	59.4	34.9	-8.9	50.5	26.0	76.0	56.0	25.5	30.0	100.0	357.1	
2	1199.000	V	51.7	37.4	-8.5	43.2	28.9	76.0	56.0	32.8	27.1	100.0	3.8	
3	2283.510	H	59.1	32.2	-0.2	58.9	32.0	76.0	56.0	17.1	24.0	100.0	42.0	
4	2285.470	V	58.7	32.4	-0.2	58.5	32.2	76.0	56.0	17.5	23.8	100.0	201.2	
5	4947.000	V	37.4	23.6	8.8	46.2	32.4	80.0	60.0	33.8	27.6	100.0	85.2	
6	5048.000	H	39.1	24.3	8.8	47.9	33.1	80.0	60.0	32.1	26.9	100.0	307.0	

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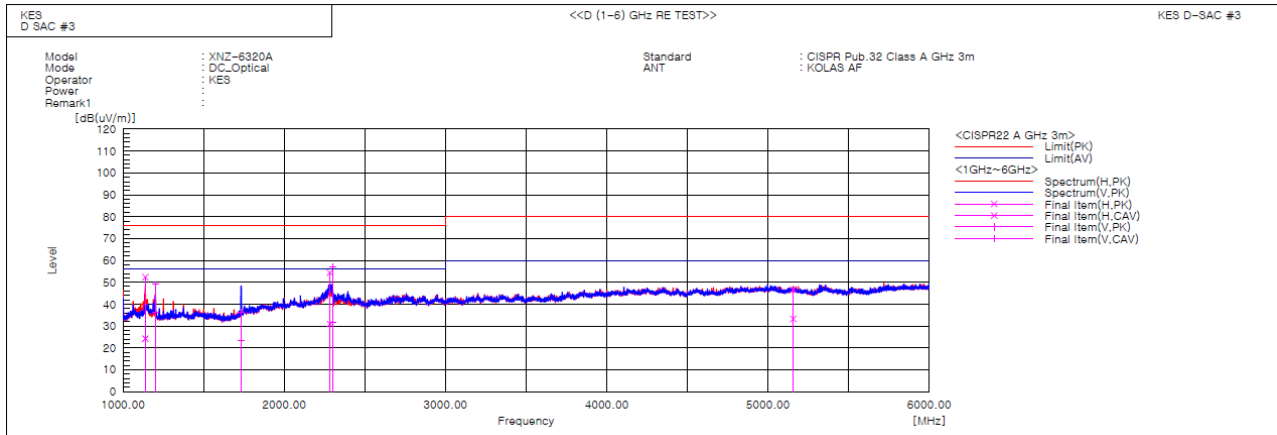


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Report No.:
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Page (34) of (55)

DC_Optical Mode



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	1138.252	H	61.4	33.3	-9.0	52.4	24.3	76.0	56.0	23.6	31.7	100.0	58.5	
2	1199.261	V	57.5	44.7	-8.5	49.0	36.2	76.0	56.0	27.0	19.8	100.0	240.0	
3	1732.050	V	40.1	27.1	-3.9	36.2	23.2	76.0	56.0	39.8	32.8	100.0	82.6	
4	2282.261	H	54.6	31.2	-0.2	54.4	31.0	76.0	56.0	21.6	25.0	100.0	74.4	
5	2299.000	V	57.1	31.9	-0.1	57.0	31.8	76.0	56.0	19.0	24.2	100.0	260.3	
6	5156.000	H	38.4	25.0	8.3	46.7	33.3	80.0	60.0	33.3	26.7	100.0	177.3	

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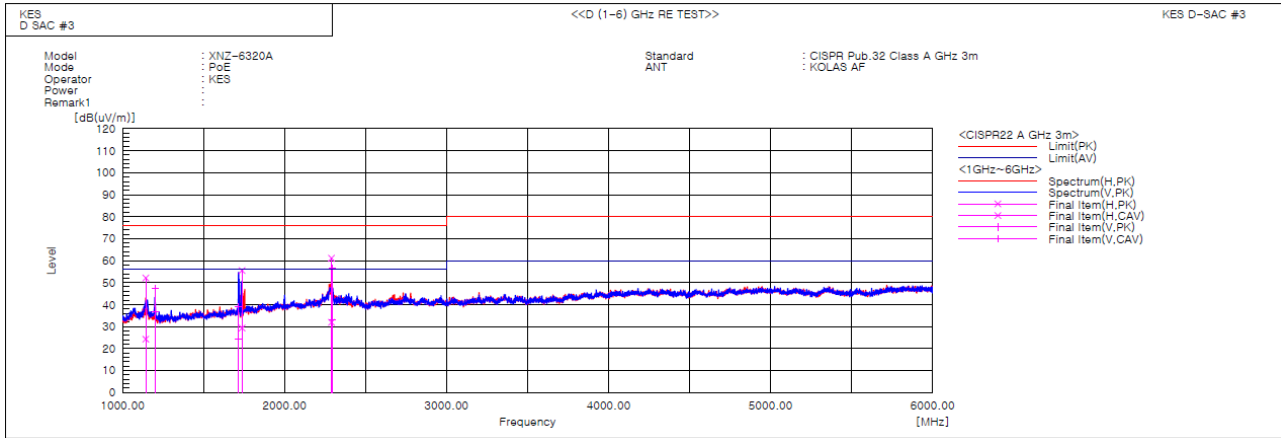


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Report No.:
KES-EM-21T1201-R1
Page (35) of (55)

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	1143.020	H	61.1	33.3	-9.0	52.1	24.3	76.0	56.0	23.9	31.7	100.0	353.3	
2	1200.150	V	55.9	45.3	-8.5	47.4	36.8	76.0	56.0	28.6	19.2	100.0	15.1	
3	1716.050	V	43.0	28.4	-4.1	38.9	24.3	76.0	56.0	37.1	31.7	100.0	77.4	
4	1737.002	H	59.3	33.2	-3.8	55.5	29.4	76.0	56.0	20.5	26.6	100.0	354.2	
5	2289.031	H	61.2	32.0	-0.1	61.1	31.9	76.0	56.0	14.9	24.1	100.0	58.0	
6	2295.000	V	56.5	33.2	-0.1	56.4	33.1	76.0	56.0	19.6	22.9	100.0	341.8	

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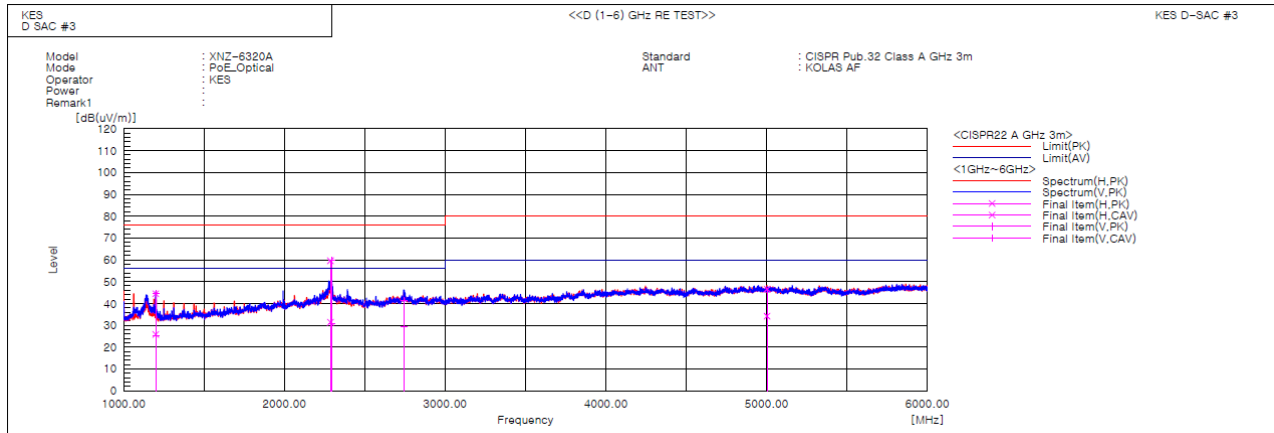
3701, 40, Simin-daero 365beon-gil,
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Report No.:

KES-EM-21T1201-R1

Page (36) of (55)

PoE_Optical Mode



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(μV)]	Reading CAV [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Result CAV [dB(μV/m)]	Limit PK [dB(μV/m)]	Limit AV [dB(μV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]	Remark
1	1199.056	H	53.0	34.3	-8.5	44.5	25.8	76.0	56.0	31.5	30.2	100.0	355.0	
2	1199.211	V	53.1	33.9	-8.5	44.6	25.4	76.0	56.0	31.4	30.6	100.0	26.6	
3	2286.351	H	59.8	31.6	-0.2	59.6	31.4	76.0	56.0	16.4	24.6	100.0	63.9	
4	2294.026	V	59.8	30.9	-0.1	59.7	30.8	76.0	56.0	16.3	25.2	100.0	335.1	
5	2742.000	V	39.8	28.0	1.4	41.2	29.4	76.0	56.0	34.8	26.6	100.0	174.4	
6	5002.057	H	37.7	25.3	8.9	46.6	34.2	80.0	60.0	33.4	25.8	100.0	350.3	

◆ 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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■ DC_Optical Mode

■ PoE_Optical Mode

Conducted Emissions at Telecommunication Ports

■ DC Mode



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■ PoE Mode



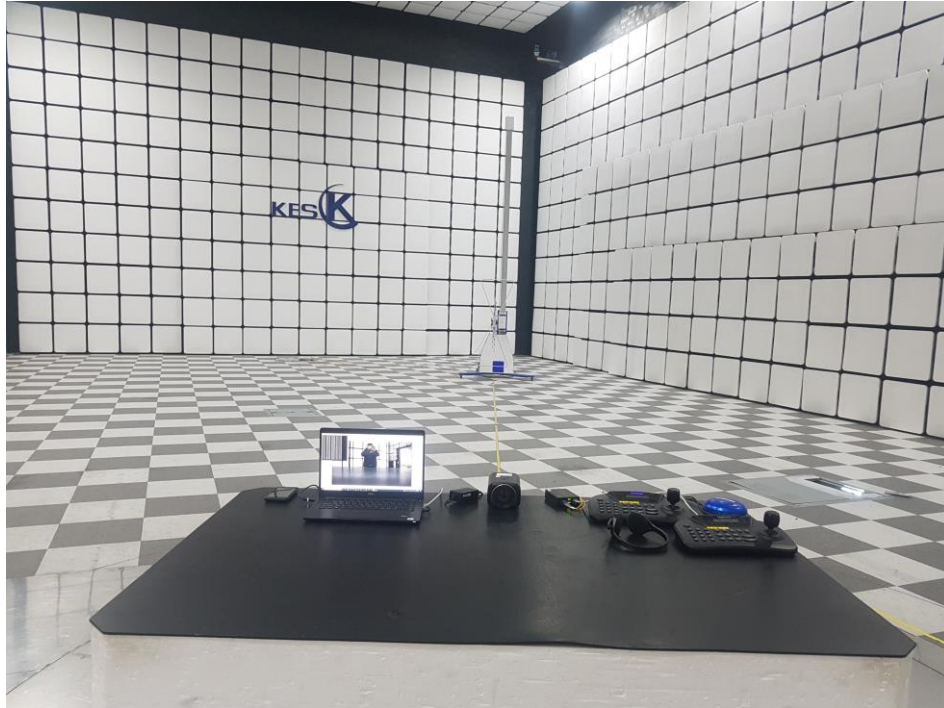
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Radiated Electric Field Emissions(Below 1 GHz)

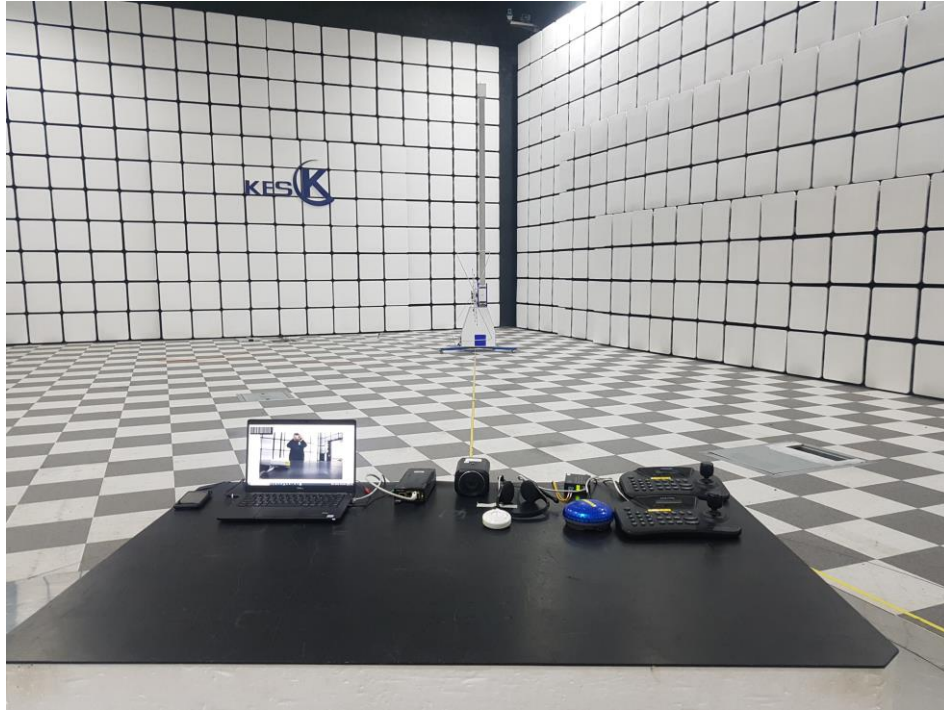
■ DC Mode



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■ DC_Optical Mode

■ PoE Mode

■ PoE_Optical Mode

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Radiated Electric Field Emissions(Above 1 GHz)

■ DC Mode



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■ DC_Optical Mode

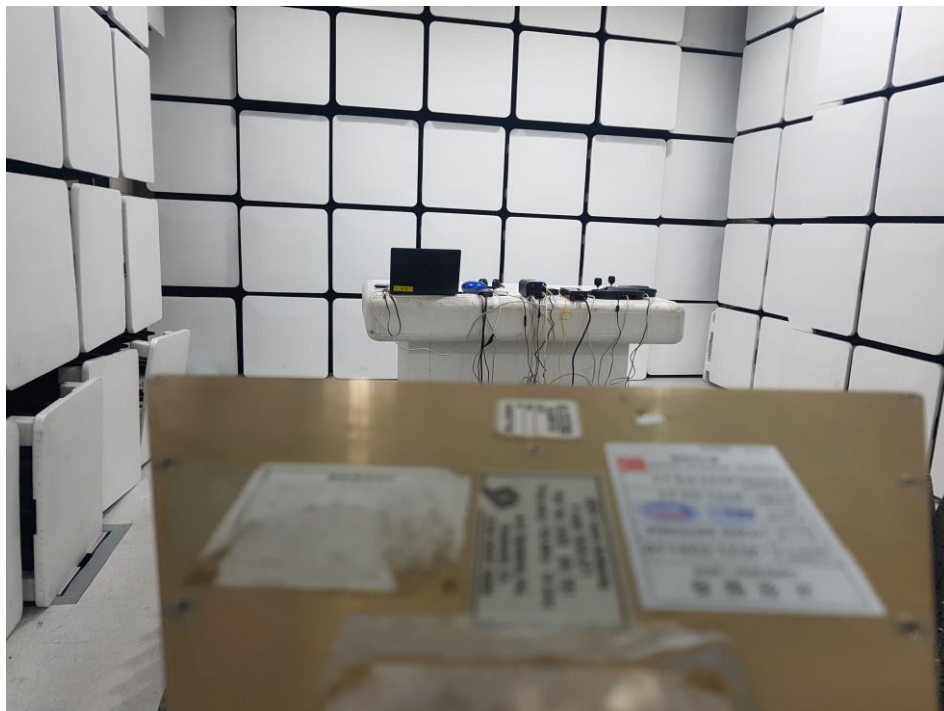


■ PoE Mode



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■ PoE_Optical Mode



EUT External Photographs

(Top)



(Bottom)



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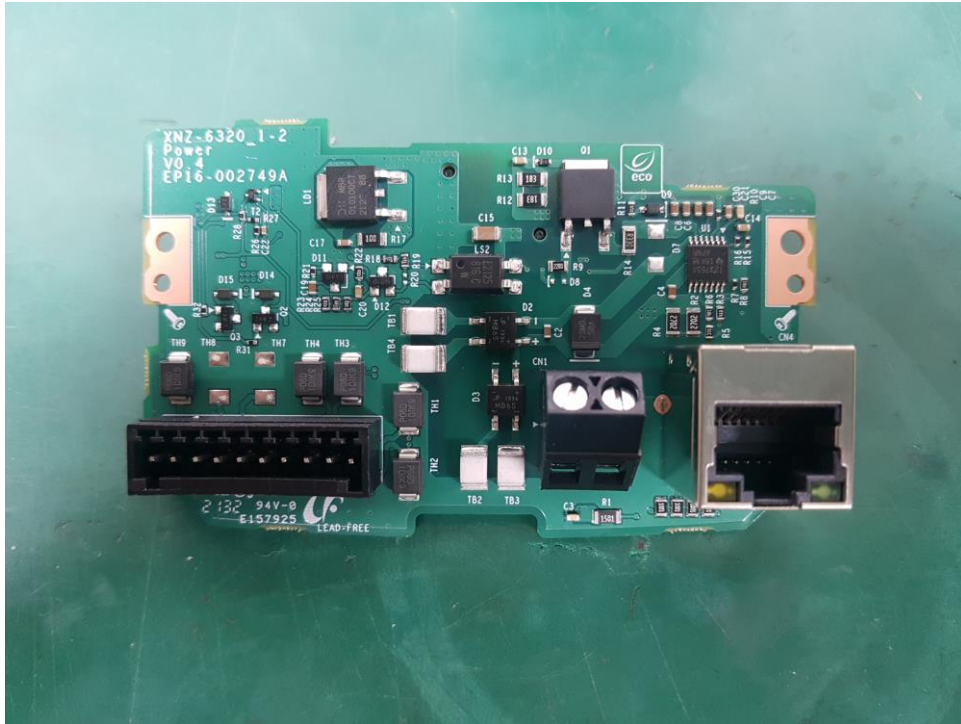
EUT Internal Photographs

(Internal View)

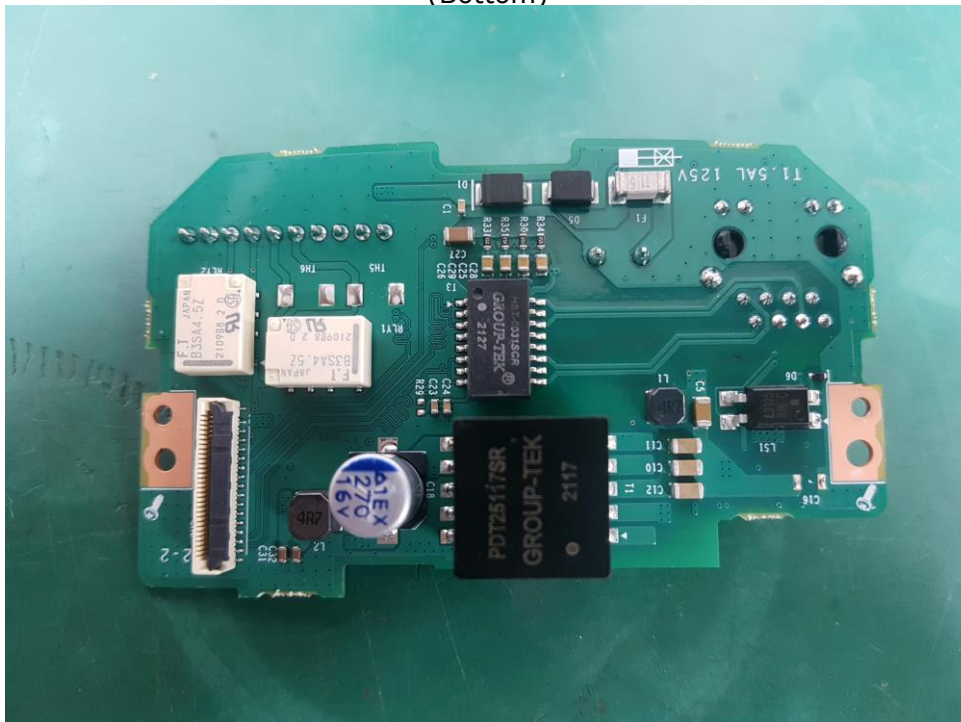


EUT Internal View – Board 1

(Top)



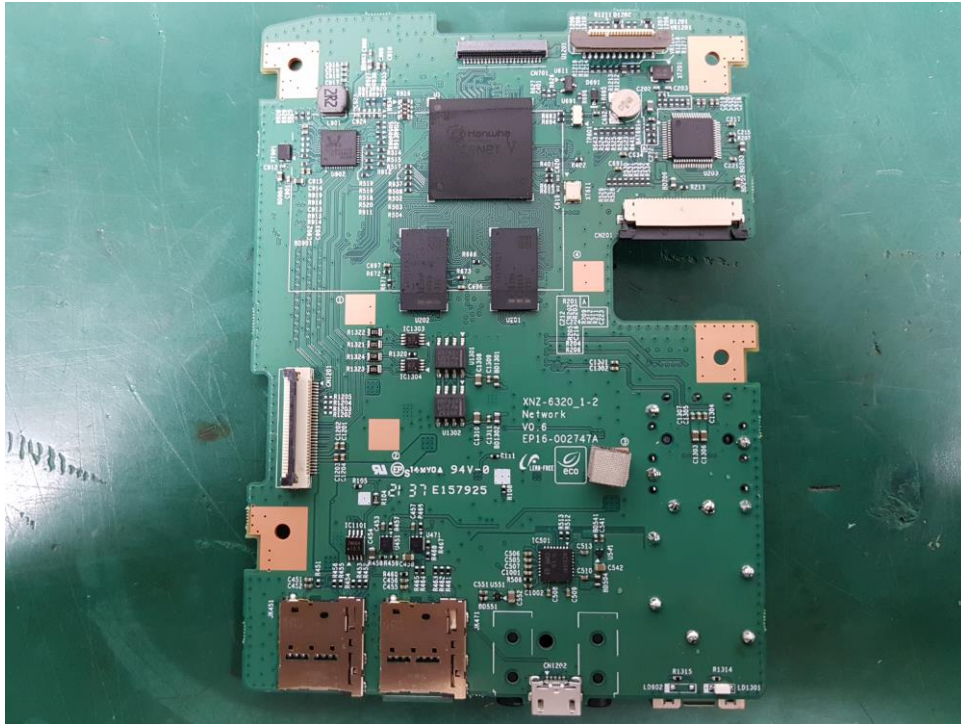
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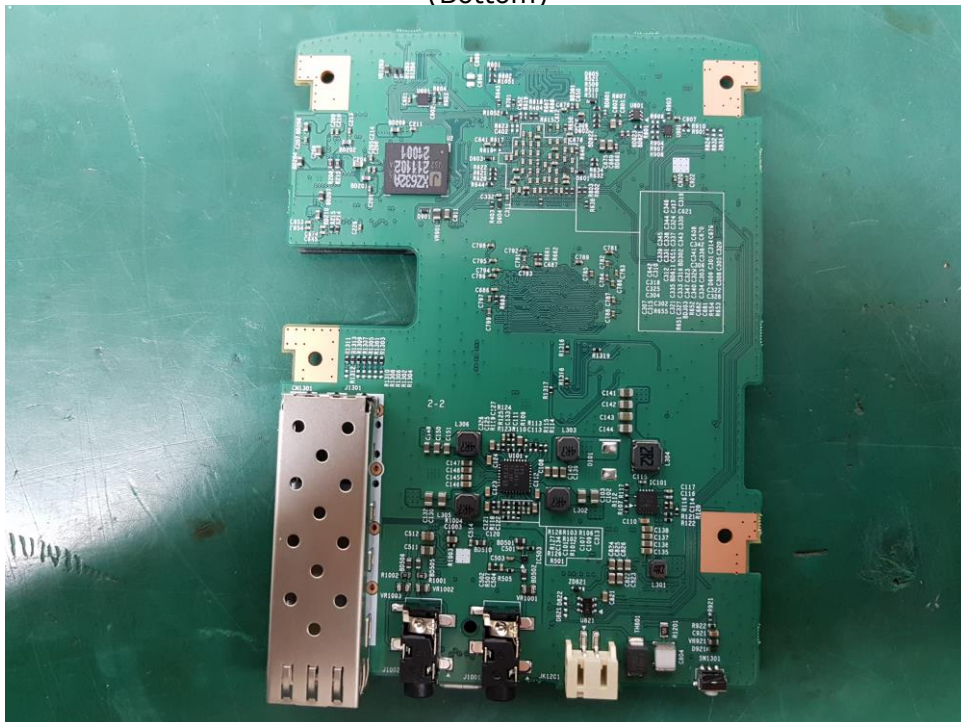
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EUT Internal View – Board 2

(Top)



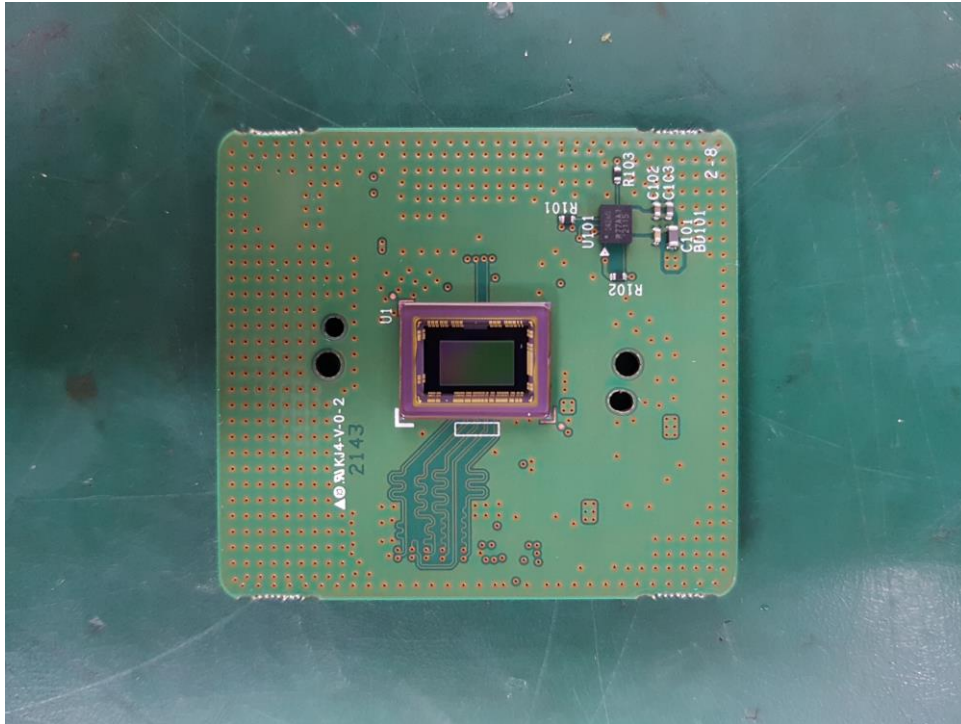
(Bottom)



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EUT Internal View – Camera Board

(Top)

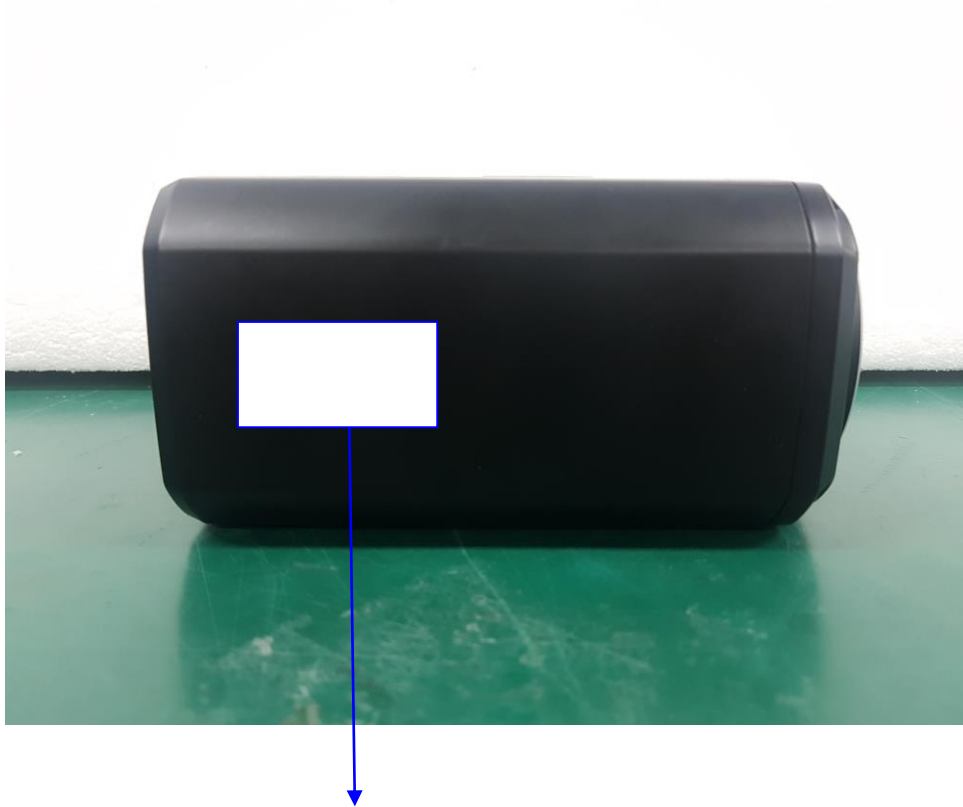


(Bottom)



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Label Photographs



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