



EMC TEST REPORT For VCCI

Test Report No. : KES-EM-21T1126
Date of Issue : Nov. 25, 2021
Product name : NETWORK CAMERA
Model/Type No. : XNZ-L6320A
Variant Model : -
Applicant : Hanwha Techwin Co., Ltd.
Applicant Address : 6, Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si,
Gyeonggi-do, Republic of Korea
Manufacturer : 1. HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.
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. 14, 2021 ~ Nov. 15, 2021
Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Dae Hyun, Kim
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
Nov. 25, 2021	KES-EM-21T1126	Issued

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1.0 General Product Description

Main Specifications of EUT are:

XNZ-L6320A	
Video	
Imaging Device	1/2.8" CMOS
Resolution	1920x1080, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240
Max. Framerate	H.265/H.264: Max. 60fps/50fps(60Hz/50Hz) MPEG: Max. 30fps/25fps(60Hz/50Hz)
Min. Illumination	Color: 0.05Lux(1/30sec, F1.6) BW: 0.005Lux(1/30sec, F1.6)
Video Out	CVBS: 1.0 Vp-p / 75Ω composite, 720x480(N), 720x576(P), for installation
Lens	
Focal Length (Zoom Ratio)	4.44~142.6mm(32x) motorized varifocal
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	1.5m(4.92ft)
Focus Control	Auto, One shot AF
Lens Type	DC auto iris
Pan / Tilt / Rotate	
Camera Title	Displayed up to 85 characters
Direction Indicator	Support
Day & Night	Auto(ICR)
Backlight Compensation	BLC, HLC, WDR, SSOR
Wide Dynamic Range	120dB
Digital Noise Reduction	SSNR V
Digital Image Stabilization	Support
Defog	Support
Motion Detection	Bea, 8point polygonal zones
Privacy Masking	32ea, rectangular Support - 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, Digital auto tracking, Appear/Disappear, Enter/Exit, Loitering, Tampering, Virtual line, Audio detection, Sound classification
Alarm I/O	Input 1ea / Output 1ea
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 Handover
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	Metal shielded RJ-45(10/100BASE-T)
Video Compression	H.265/H.264: Main/Baseline/High, MJPEG
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
Smart Codec	Manual(Sea area), WiseStreamII
Bitrate Control	H.264/H.265: CBR or VBR MJPEG: VBR
Streaming	Unicast(20 users) / Multicast Multiple streaming(Up to 10 profiles)
Protocol	IPv4, IPv6, TCP/IP, UDP/IP, RTP/UDP, RTSP/RTCP, RTSP, RTP, HTTP, HTTPS, SSL/TLS, DHCP, FTP, SFTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, PIM-SM, UPnP, Bonjour, LLDP, SRT
Security	HTTPS(SSL) Login Authentication Digest Login Authentication IP Address Filtering User access log 802.1X Authentication(EAP-TLS, EAP-LEAP) Device certificate(Hanwha Techwin Root CA)
Application Programming Interface	ONVIF Profile S/G/T SUNAPI(HTTP API) Wisenet open platform
General	
Webpage Language	English, Korean, Chinese, French, Italian, Spanish, German, Japanese, Russian, Swedish, Portuguese, Czech, Polish, Turkish, Dutch, Hungarian, Greek
Edge Storage	Micro SD/SDHC/SDXC 1slot 256GB
Memory	1024MB RAM, 256MB Flash
Environmental & Electrical	
Operating Temperature / Humidity	-10°C ~ +55°C(-14°F ~ +131°F) / Less than 90% RH
Storage Temperature / Humidity	-50°C ~ +60°C(-58°F ~ +140°F) / Less than 90% RH
Input Voltage	PoE(IEEE802.3af, Class3), 12VDC
Power Consumption	PoE: Max 7.5W, Typ 5.0W 12VDC: Max 5.7W, Typ 3.7W
Mechanical	
Color / Material	Black / Metal
Product Dimensions / Weight	72x63.9x135.4mm(2.83x2.52x5.33"), 480g(1.06 lb)
DORI (EN62676-4 standard)	
Detect (25PPM/ 8PPF)	Wide: 64.2m(199.1ft) / Tele: 1921.3m(6303.4ft)
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, 60Hz (DC Adapter) ☒ PoE (PoE Adapter)

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-L6320A	-	HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.	EUT

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1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Notebook	P95G001	9JM8HT2	DELL INC.	-
Notebook Adapter	LA65NS2-01	-	LITE-ON TECHNOLOGY (CHANGZHOU)CO.,LTD.	
DC Adapter	2ACB022F	-	ChAnnel Well Technology (Guangzhou) Co.,Ltd.	-
PoE Adapter	PT-PSE109GBRO-AH	-	Dongguan PROCET Network Technology Co., Ltd	-
Button Alarm	-	-	-	-
LED Alarm	PRO-SL	-	SENSOR PRO	-
LED Alarm Adapter	CS-1202000	-	-	-
Controller	SPC-1010	C50E67WG10100 F	SamSung Techwin Co.,Ltd.	-
Speaker	BR1000A Cuve Black 2	-	DONGGUAN EDIFIER TECHNOLOGY Co., Ltd	-
SmartPhone	A1429	-	Apple	-
Micro SD Card	-	-	Sandisk	-

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1.6 External I/O Cabling

■ DC Adapter Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (EUT)	DC Jack (2 Pin)	DC Adapter	DC Jack (2 Pin)	1.2	U
	RJ-45 (LAN)	Notebook	RJ-45	3.0	U
	Alarm In (2 Pin)	Button Alarm	2 Pin	3.0	U
	Alarm Out (2 Pin)	LED Alarm	2 Pin	3.0	U
	RS-485 (2 Pin)	Controller	2 Pin	3.0	U
	Audio In (3.5 mm)	SmartPhone	3.5 mm	1.3	U
	Audio Out (3.5 mm)	Speaker	3.5 mm	1.8	U
	Micro SD Card Slot	Micro SD Card	Micro SD Card Slot	-	-
Notebook	DC Jack	Notebook Adapter	DC Jack	2.3	S
LED Alarm	DC Jack	LED Alarm Adapter	DC Jack	1.5	U

* Unshielded=U, Shielded=S



■ PoE Adapter 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	3.0	U
	Alarm In (2 Pin)	Button Alarm	2 Pin	3.0	U
	Alarm Out (2 Pin)	LED Alarm	2 Pin	3.0	U
	RS-485 (2 Pin)	Controller	2 Pin	3.0	U
	Audio In (3.5 mm)	SmartPhone	3.5 mm	1.3	U
	Audio Out (3.5 mm)	Speaker	3.5 mm	1.8	U
	Micro SD Card Slot	Micro SD Card	Micro SD Card Slot	-	-
PoE Adapter	RJ-45 (LAN)	Notebook	RJ-45	1.0	U
Notebook	DC Jack	Notebook Adapter	DC Jack	2.3	S
LED Alarm	DC Jack	LED Alarm Adapter	DC Jack	1.5	U

* Unshielded=U, Shielded=S

1.7 EUT Operating Mode(s)

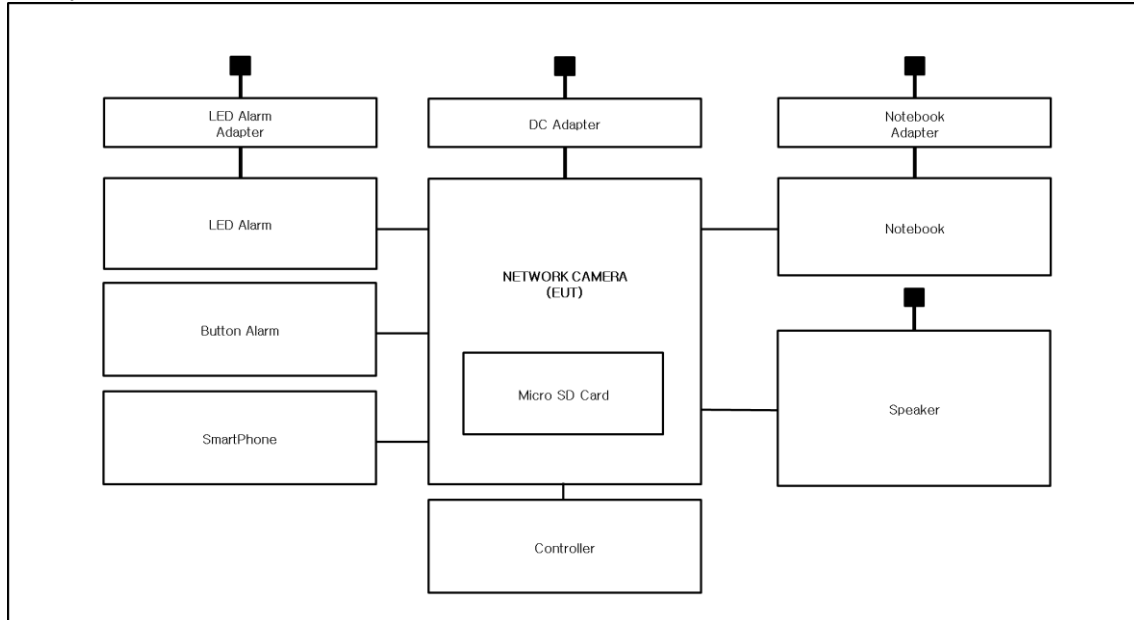
Test Mode	operating
DC Adapter / PoE Adapter	Checked that the camera video output was working properly in the web viewer and used the ping test to verify that the network behavior was working properly. Check the normal operation of Button Alarm, LED Alarm through Web Viewer, Checked whether speaker to 1 kHz Tone is output normally.

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

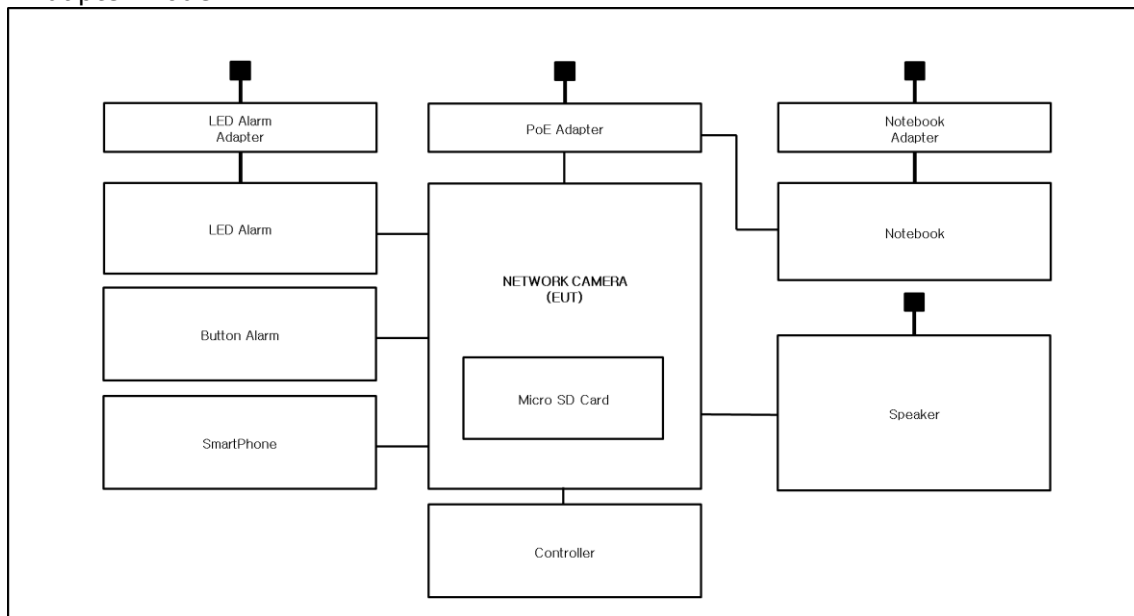
1.8 Configuration

■ AC Main
 □ DC Main

■ DC Adapter Mode



■ PoE Adapter 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. 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 , 10 m Open Area and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 KR0100
International	KOLAS	EMI (3 m & 10 m Semi-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, 10 m Open Area and Conducted test site to perform FCC Part 15/18 measurements.	 KR0100
Canada	ISED	3 m & 10 m Semi-Anechoic Chamber and Conducted test site	 23298-1
JAPAN	VCCI	Mains Ports Conducted Interference Measurement, Telecommunication Ports Conducted Disturbance Measurement and Radiation 10 meter site, Facility for measuring radiated disturbance above 1 GHz	 R-20056, C-20036, T-20040, G-20057
Europe	TÜV SÜD	EMI (3 m & 10 m Semi-Anechoic Chamber , 10 m Open Area and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 CARAT 001633 0004



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2.0 Test Regulations

The emissions tests were performed according to following regulations:

☒ **VCCI-CISPR 32:2016**

☒ Class A

☐ Class B

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2.1 Conducted Emissions Mains Power Ports

Test Date

Nov. 15, 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: (23,0 ± 0,1) °C

Relative Humidity: (44,1 ± 0,1) % R.H.

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

See Appendix A for test data.



2.2 Conducted Emissions at Telecommunication Ports

Test Date

Nov 15, 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: (23,0 ± 0,1) °C

Relative Humidity: (44,1 ± 0,1) % R.H.

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

- See Appendix A for test data.
- For Ethernet interfaces, measurements are required at the highest data rate supported by the interface.

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2.3 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Nov. 15, 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

Temperature: (22,6 ± 0,1) °C
Relative Humidity: (44,5 ± 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.



2.4 Radiated Electric Field Emissions(Above 1 GHz)

Test Date

Nov. 14, 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: (23,4 ± 0,2) °C

Relative Humidity: (45,5 ± 0,2) % 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

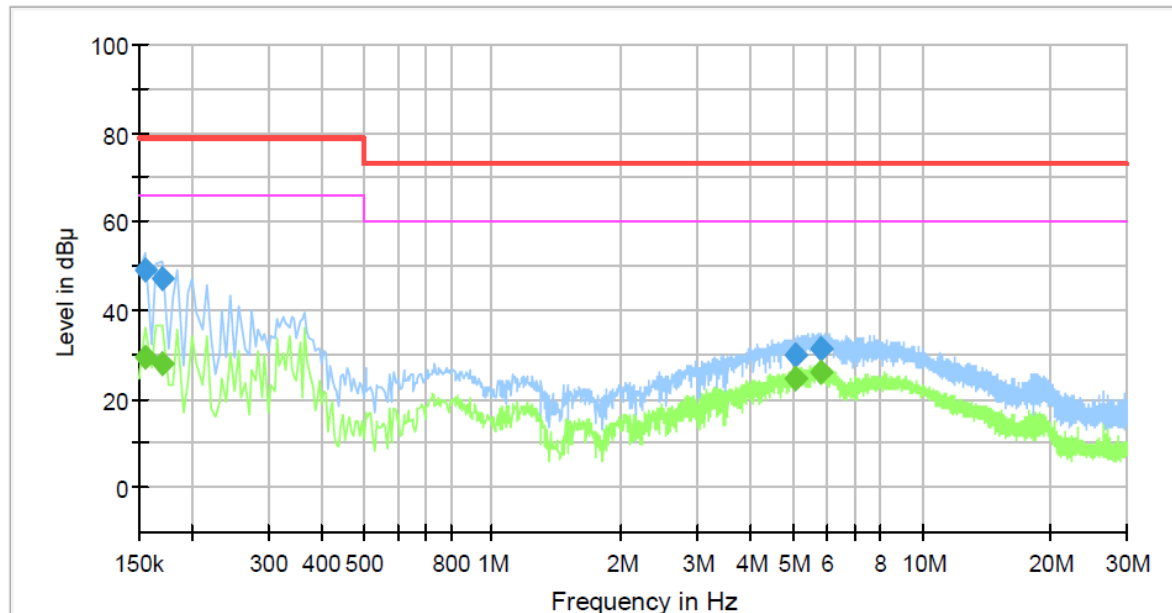
Conducted Emissions at Mains Power Ports

■ DC Adapter Mode

HOT LINE

Common Information

Test Description: Conducted Emission
Model No.: XNZ-L6320A
Phase:
Mode: DC Adapter
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	---	29.24	66.00	36.76	1000.0	9.000	L1	19.5
0.155000	49.11	---	79.00	29.89	1000.0	9.000	L1	19.5
0.170000	---	28.04	66.00	37.96	1000.0	9.000	L1	19.5
0.170000	47.12	---	79.00	31.88	1000.0	9.000	L1	19.5
5.090000	---	24.51	60.00	35.49	1000.0	9.000	L1	19.7
5.090000	29.95	---	73.00	43.05	1000.0	9.000	L1	19.7
5.100000	---	24.68	60.00	35.32	1000.0	9.000	L1	19.7
5.100000	30.01	---	73.00	42.99	1000.0	9.000	L1	19.7
5.785000	---	25.97	60.00	34.03	1000.0	9.000	L1	19.6
5.785000	31.50	---	73.00	41.50	1000.0	9.000	L1	19.6
5.825000	---	25.88	60.00	34.12	1000.0	9.000	L1	19.6
5.825000	31.33	---	73.00	41.67	1000.0	9.000	L1	19.6

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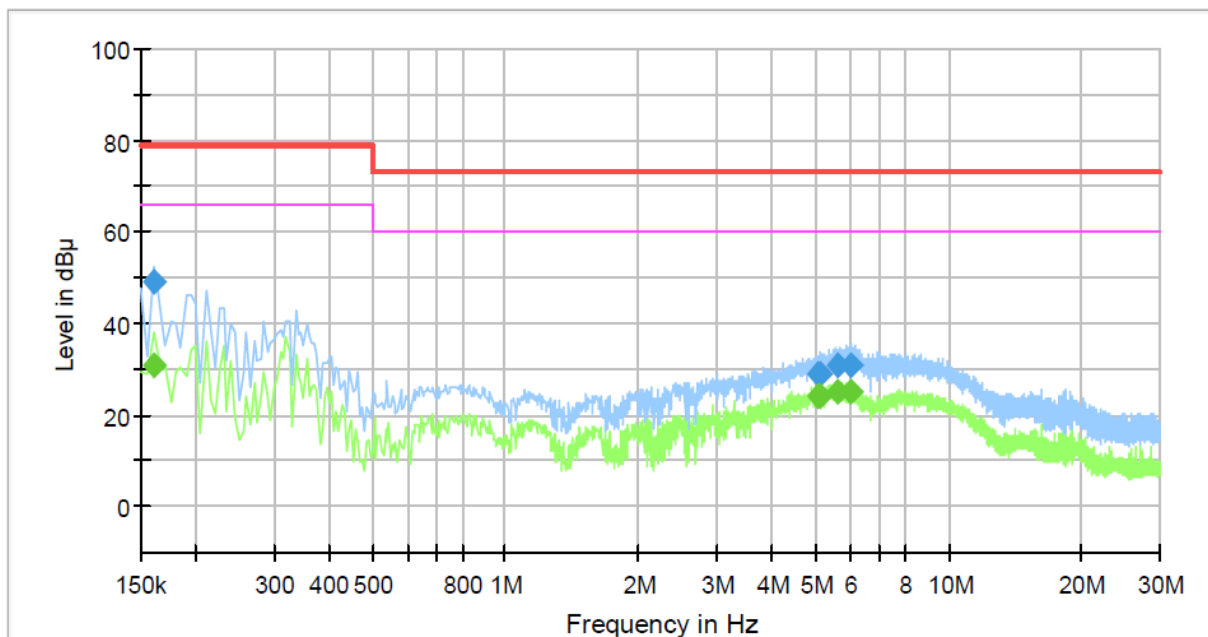
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NEUTRAL LINE

Common Information

Test Description: Conducted Emission
Model No.: XNZ-L6320A
Phase:
Mode: DC Adapter
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	---	31.00	66.00	35.00	1000.0	9.000	N	19.4
0.160000	49.14	---	79.00	29.86	1000.0	9.000	N	19.4
5.100000	---	24.14	60.00	35.86	1000.0	9.000	N	19.7
5.100000	29.10	---	73.00	43.90	1000.0	9.000	N	19.7
5.115000	---	24.04	60.00	35.96	1000.0	9.000	N	19.7
5.115000	29.11	---	73.00	43.89	1000.0	9.000	N	19.7
5.650000	---	25.27	60.00	34.73	1000.0	9.000	N	19.6
5.650000	30.60	---	73.00	42.40	1000.0	9.000	N	19.6
6.050000	---	24.95	60.00	35.05	1000.0	9.000	N	19.5
6.050000	30.76	---	73.00	42.24	1000.0	9.000	N	19.5

◆ 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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KES-EM-21T1126
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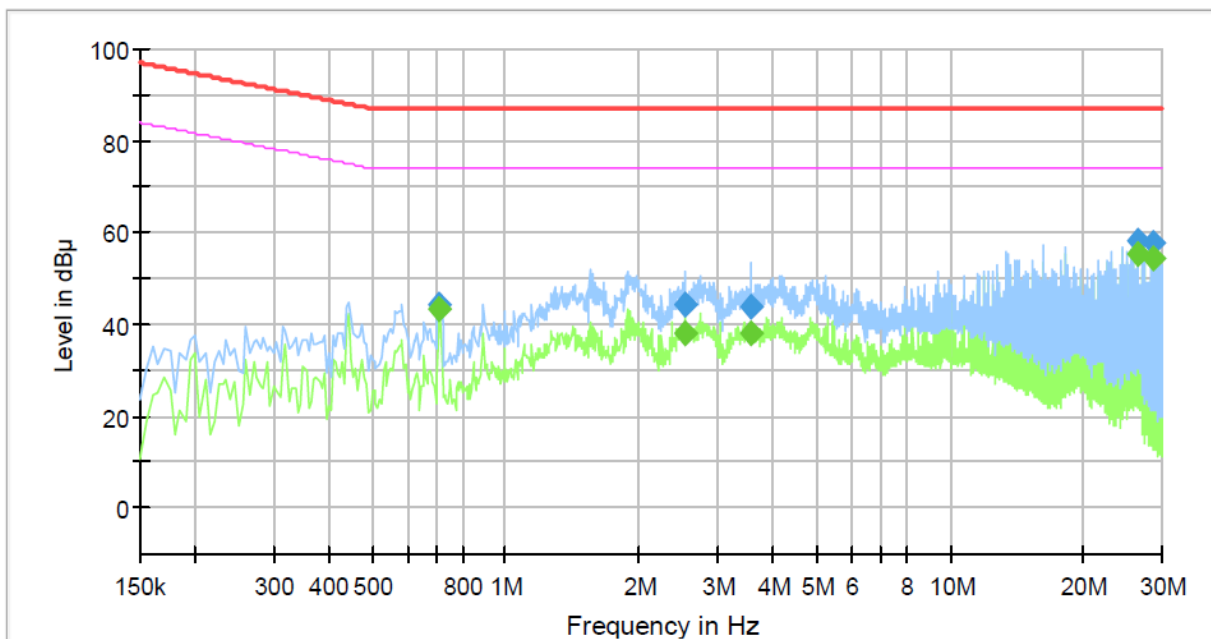
Conducted Emissions at Telecommunication Ports

■ DC Adapter Mode

[100 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	XNZ-L6320A
Mode :	DC Adapter
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)
0.710000	---	43.24	74.00	30.76	1000.0	9.000	Single Line	20.0
0.710000	44.36	---	87.00	42.64	1000.0	9.000	Single Line	20.0
2.540000	---	38.06	74.00	35.94	1000.0	9.000	Single Line	20.1
2.540000	44.08	---	87.00	42.92	1000.0	9.000	Single Line	20.1
3.565000	---	37.86	74.00	36.14	1000.0	9.000	Single Line	19.9
3.565000	43.62	---	87.00	43.38	1000.0	9.000	Single Line	19.9
26.610000	---	55.25	74.00	18.75	1000.0	9.000	Single Line	20.3
26.610000	58.27	---	87.00	28.73	1000.0	9.000	Single Line	20.3
28.685000	---	54.53	74.00	19.47	1000.0	9.000	Single Line	20.5
28.685000	57.55	---	87.00	29.45	1000.0	9.000	Single Line	20.5

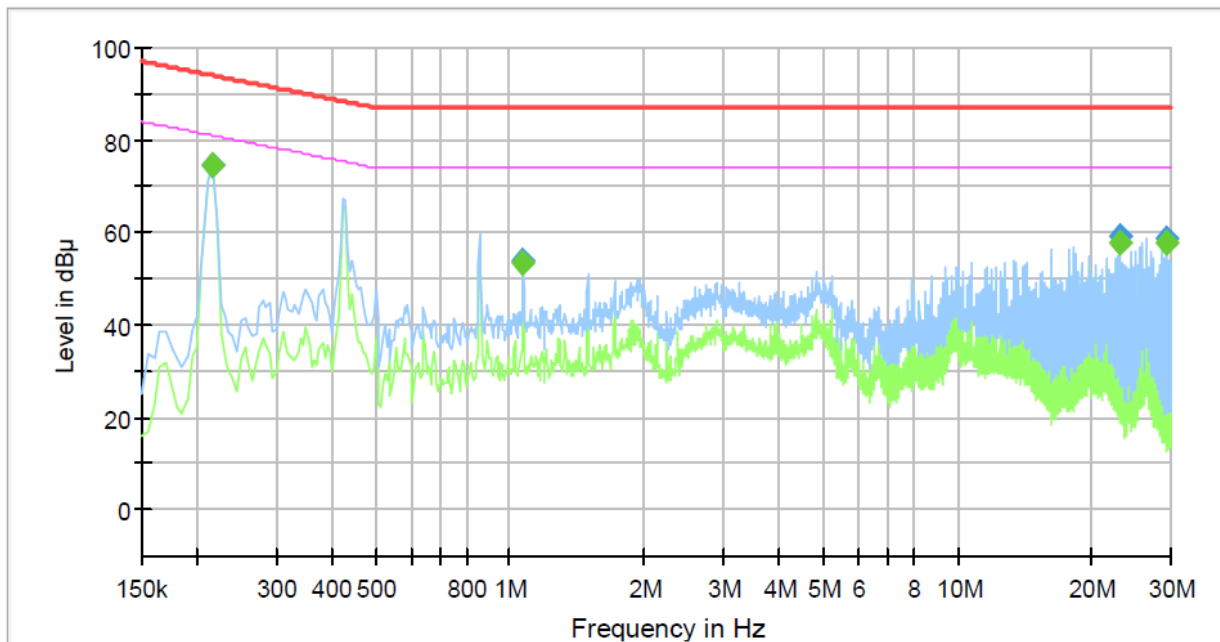
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■ PoE Adapter Mode

[100 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	XNZ-L6320A
Mode :	PoE Adapter
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)
0.215000	---	74.63	81.01	6.38	1000.0	9.000	Single Line	19.8
0.215000	74.62	---	94.01	19.39	1000.0	9.000	Single Line	19.8
1.070000	---	53.45	74.00	20.55	1000.0	9.000	Single Line	20.1
1.070000	53.96	---	87.00	33.04	1000.0	9.000	Single Line	20.1
23.130000	---	57.94	74.00	16.06	1000.0	9.000	Single Line	20.2
23.130000	59.25	---	87.00	27.75	1000.0	9.000	Single Line	20.2
29.235000	---	57.62	74.00	16.38	1000.0	9.000	Single Line	20.5
29.235000	58.56	---	87.00	28.44	1000.0	9.000	Single Line	20.5

◆ 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))



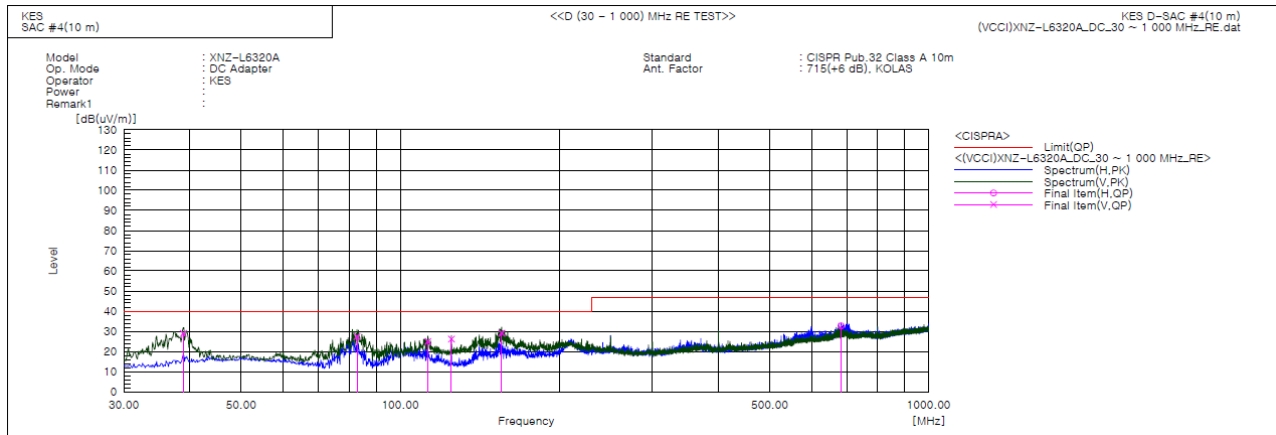
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Radiated Electric Field Emissions(Below 1 GHz)

■ DC Adapter 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	38.849	V	52.3	-23.3	29.0	40.0	11.0	113.0	1.0	
2	82.859	V	54.7	-27.2	27.5	40.0	12.5	127.0	77.0	
3	112.814	V	47.6	-22.6	25.0	40.0	15.0	100.0	122.0	
4	124.953	V	51.1	-24.9	26.2	40.0	13.8	134.0	129.0	
5	155.615	V	53.9	-24.8	29.1	40.0	10.9	100.0	144.0	
6	682.689	H	40.3	-7.6	32.7	47.0	14.3	400.0	291.0	

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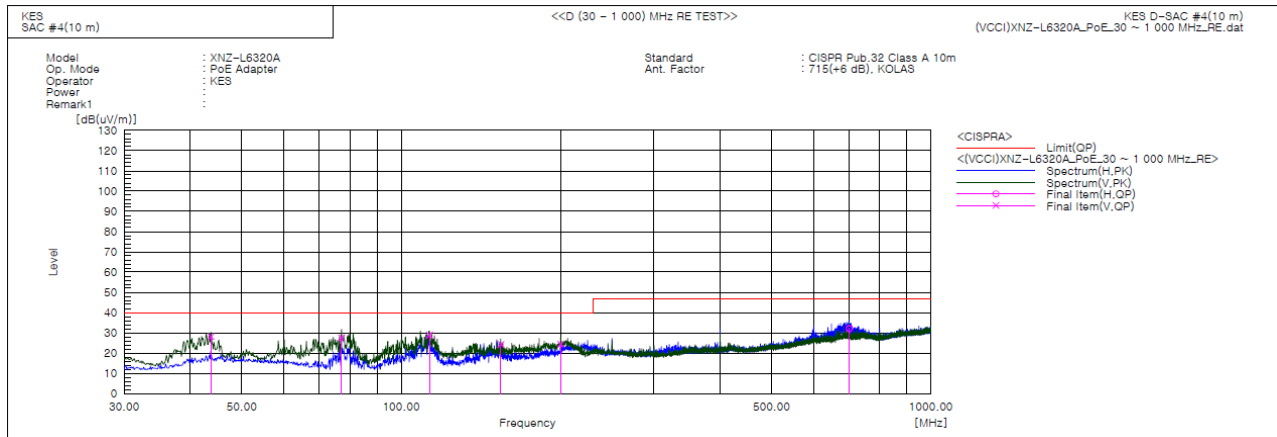


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PoE Adapter Mode



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	43.755	V	49.8	-21.7	28.1	40.0	11.9	110.0	263.0	
2	77.163	V	55.2	-27.5	27.7	40.0	12.3	116.0	97.0	
3	113.096	V	51.6	-22.6	29.0	40.0	11.0	100.0	195.0	
4	154.187	V	49.3	-24.9	24.4	40.0	15.6	141.0	195.0	
5	199.993	V	45.3	-20.8	24.5	40.0	15.5	119.0	172.0	
6	700.876	H	39.5	-7.4	32.1	47.0	14.9	400.0	287.0	

◆ Calculation

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

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

Correction Factor : ANT FACTOR + Cable loss

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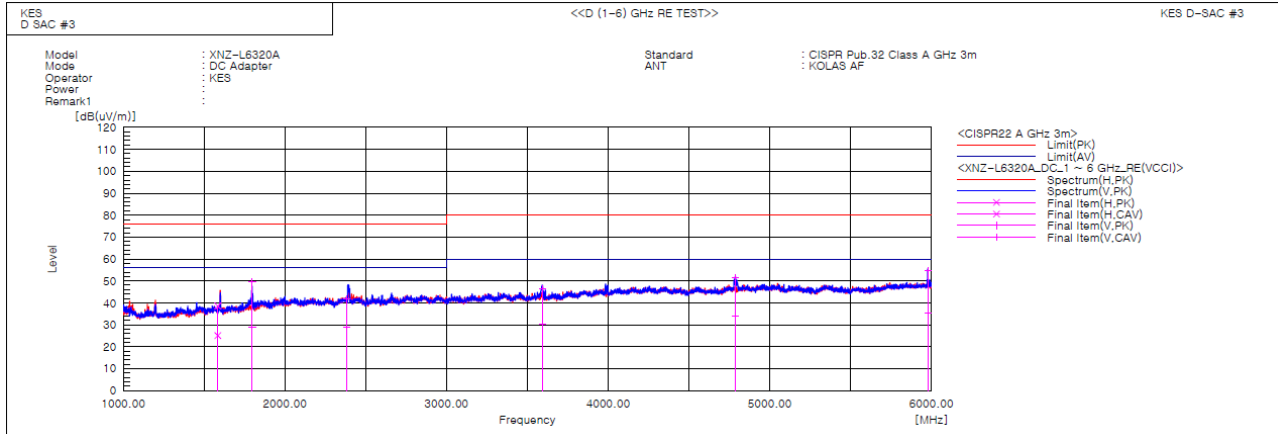
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Radiated Electric Field Emissions(Above 1 GHz)

■ DC Adapter 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	1583.463	H	44.0	30.6	-5.5	38.5	25.1	76.0	56.0	37.5	30.9	100.0	339.6	
2	1797.310	V	52.8	31.8	-3.1	49.7	28.7	76.0	56.0	26.3	27.3	100.0	166.4	
3	2380.593	V	41.5	28.5	0.2	41.7	28.7	76.0	56.0	34.3	27.3	100.0	151.4	
4	3591.591	V	43.6	27.5	3.0	46.6	30.5	80.0	60.0	33.4	29.5	100.0	143.2	
5	4787.167	V	43.5	26.1	7.9	51.4	34.0	80.0	60.0	28.6	26.0	100.0	181.7	
6	5977.936	V	44.6	25.0	10.1	54.7	35.1	80.0	60.0	25.3	24.9	100.0	231.0	

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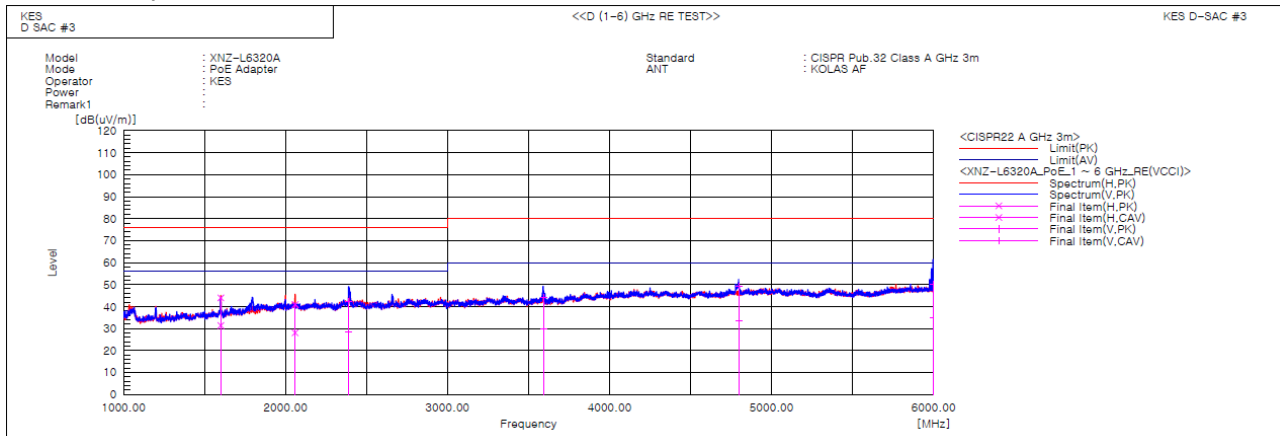


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PoE Adapter Mode



Final Result

No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]	Remark
1	1600.506	H	49.3	36.7	-5.3	44.0	31.4	76.0	56.0	32.0	24.6	100.0	341.0	
2	2059.115	H	41.7	28.9	-0.8	40.9	28.1	76.0	56.0	35.1	27.9	100.0	164.9	
3	2390.092	V	41.9	28.1	0.2	42.1	28.3	76.0	56.0	33.9	27.7	100.0	135.0	
4	3590.306	V	41.3	26.7	3.0	44.3	29.7	80.0	60.0	35.7	30.3	100.0	156.0	
5	4797.277	V	41.4	25.5	7.9	49.3	33.4	80.0	60.0	30.7	26.6	100.0	169.1	
6	5995.581	V	40.0	24.9	10.1	50.1	35.0	80.0	60.0	29.9	25.0	100.0	5.0	

◆ 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

Test Setup Photos and Configuration

Conducted Emissions at Mains Power Ports

■ DC Adapter Mode



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Conducted Emissions at Telecommunication Ports

■ DC Adapter Mode

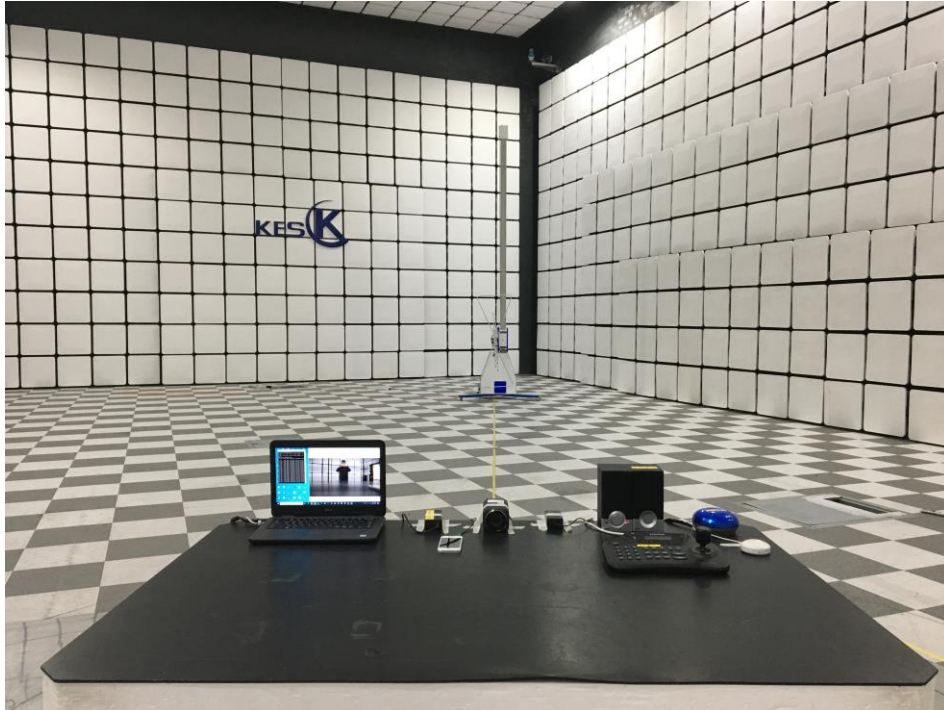


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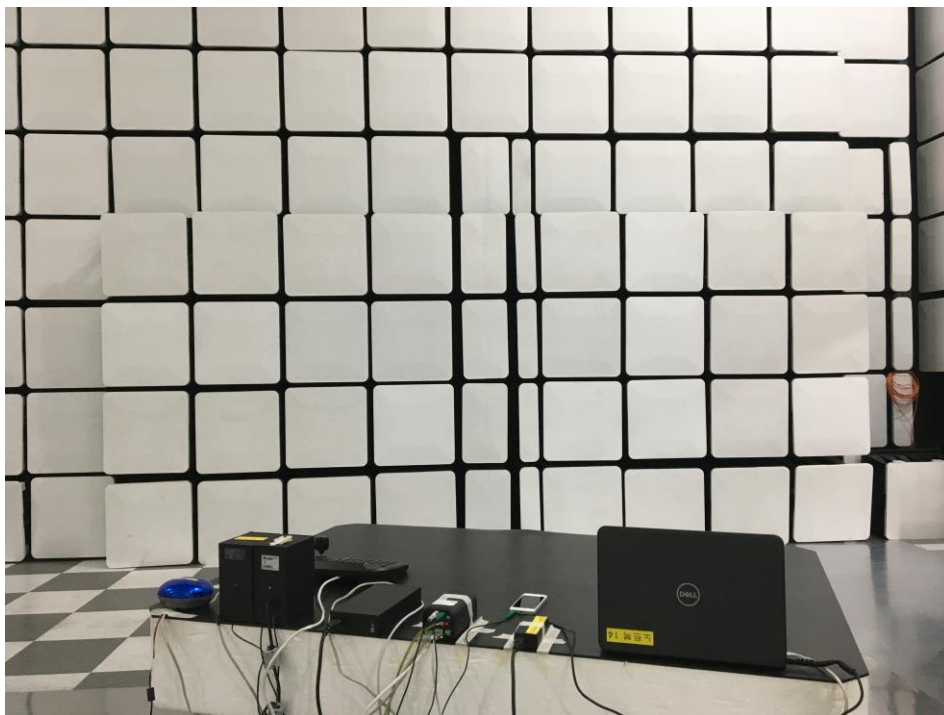
■ PoE Adapter Mode

Radiated Electric Field Emissions(Below 1 GHz)

■ DC Adapter Mode



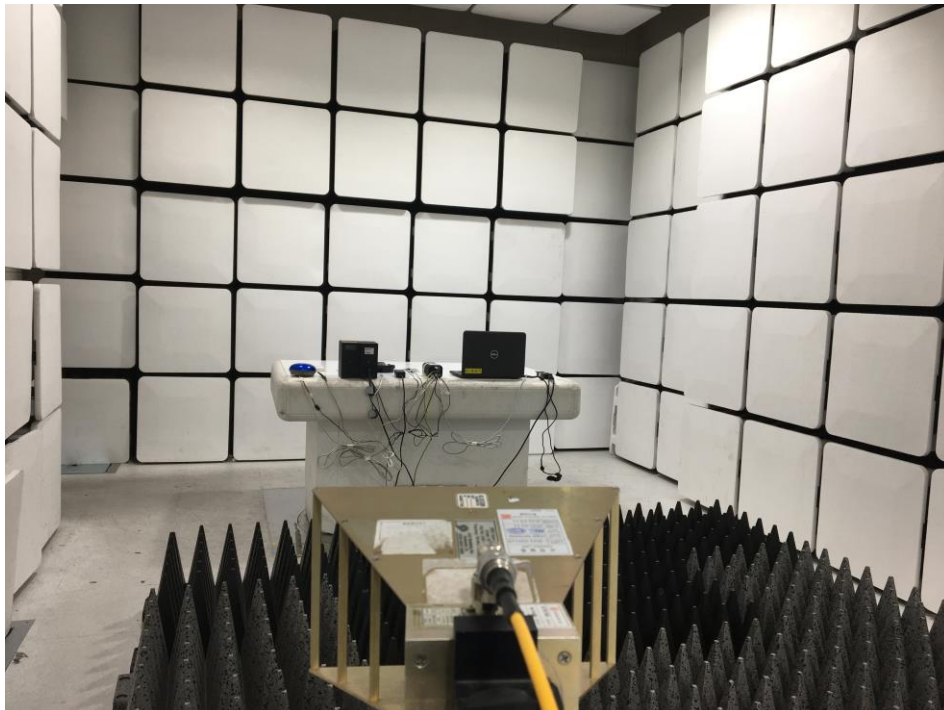
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■ PoE Adapter Mode

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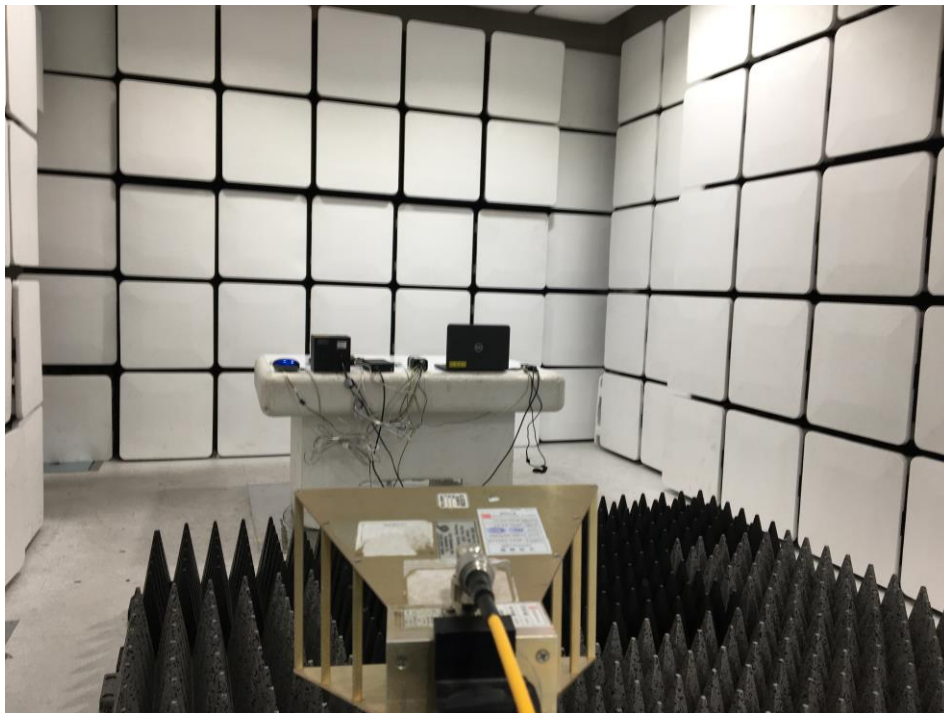
Radiated Electric Field Emissions(Above 1 GHz)

■ DC Adapter Mode



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■ PoE Adapter Mode



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EUT External Photographs

(Top)



(Bottom)



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EUT Internal Photographs

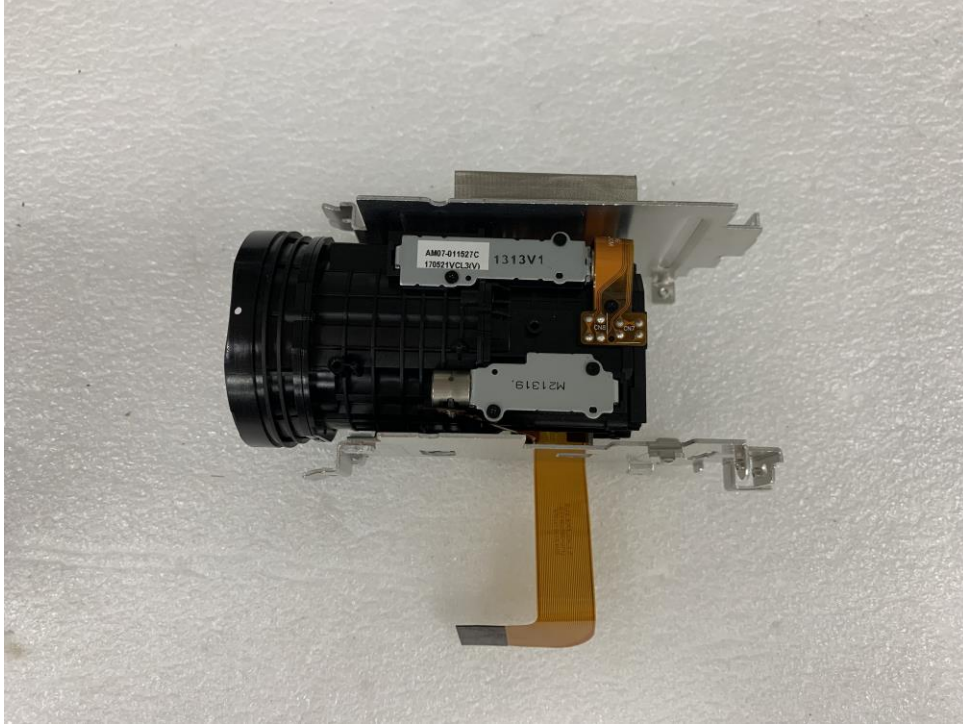
(Internal View)



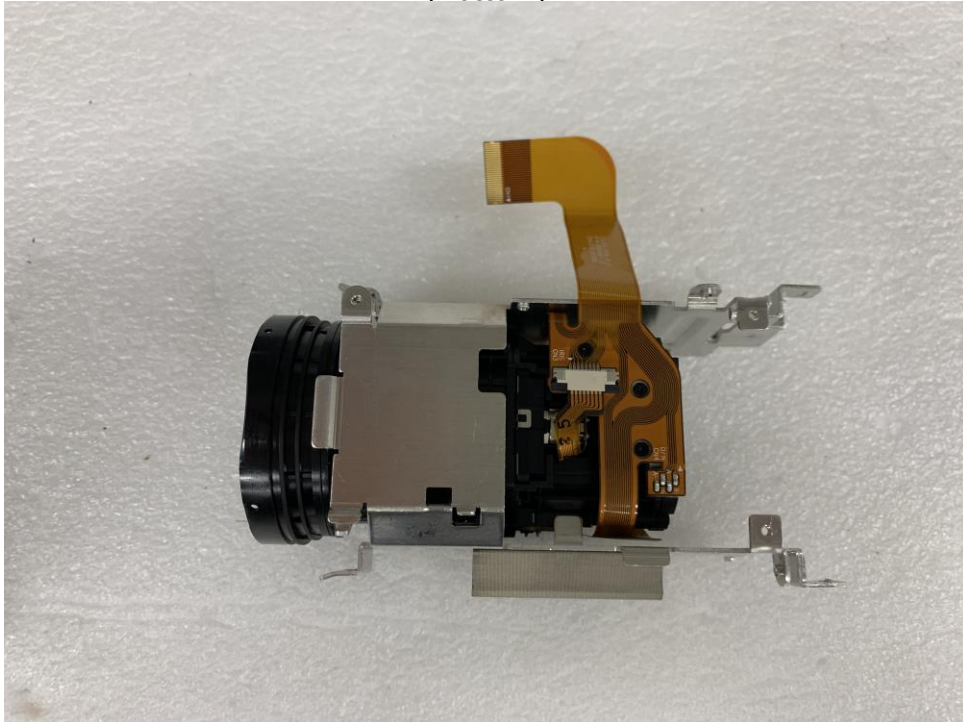
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EUT Internal View – Board 1

(Top)



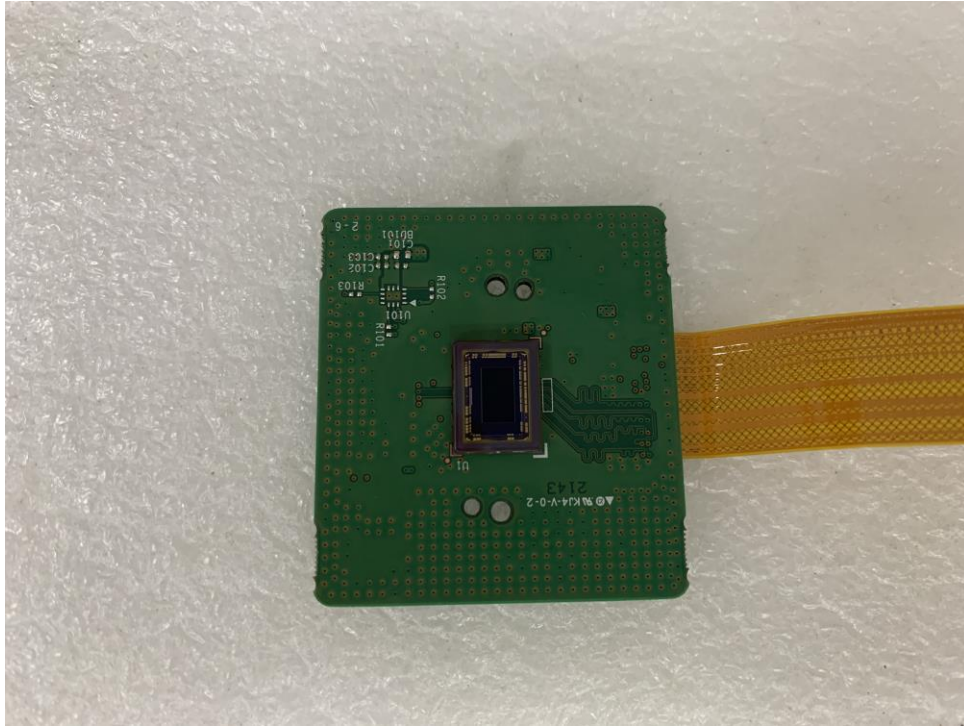
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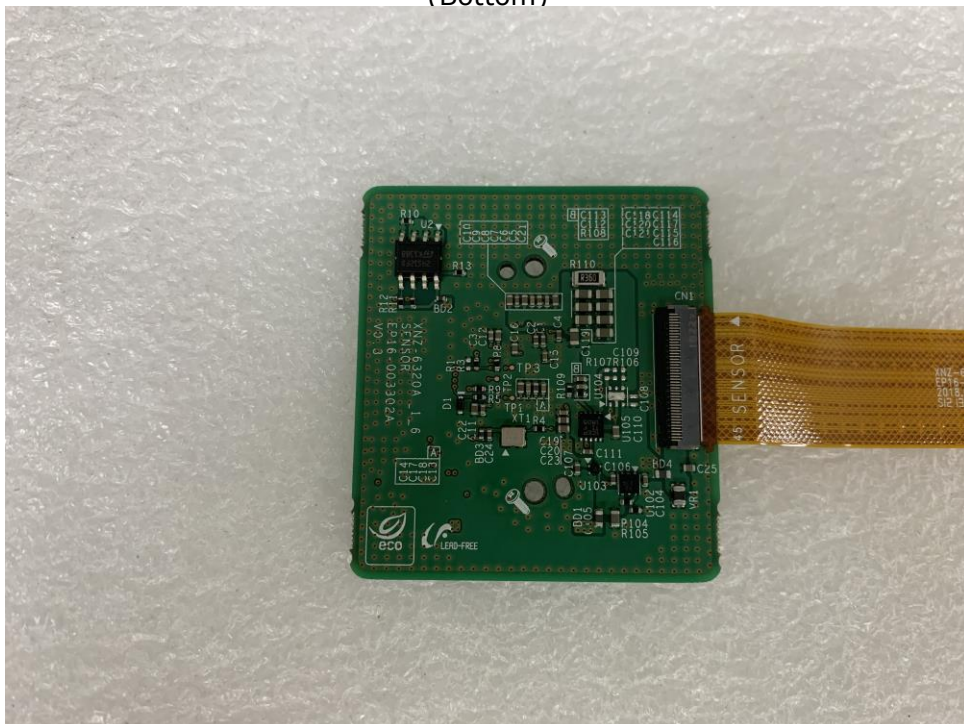
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EUT Internal View – Board 2

(Top)



(Bottom)



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EUT Internal View – Board 3

(Top)



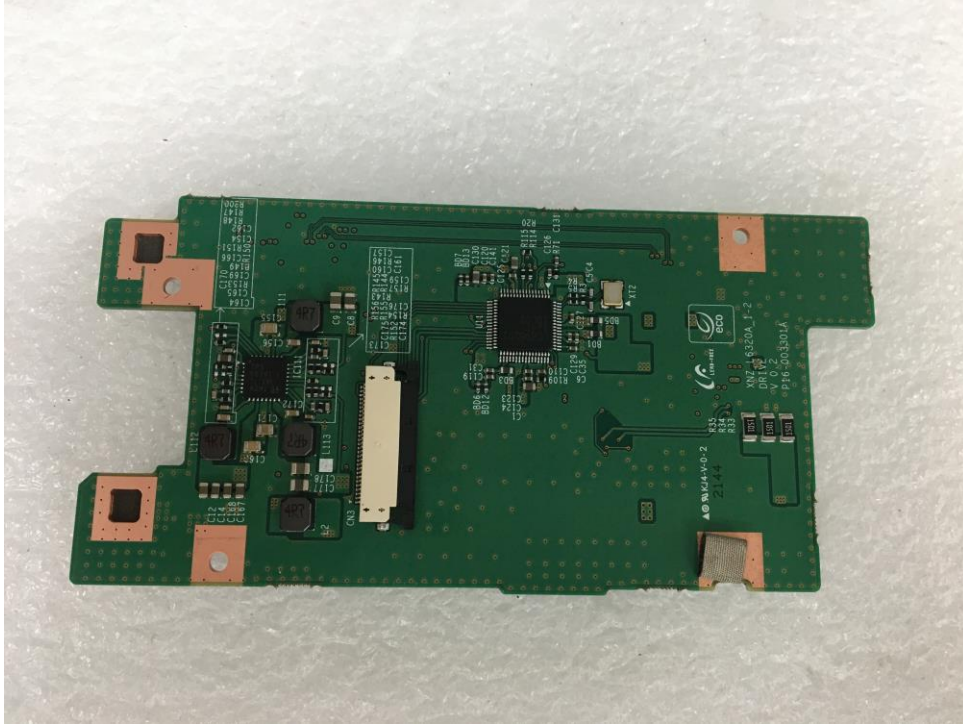
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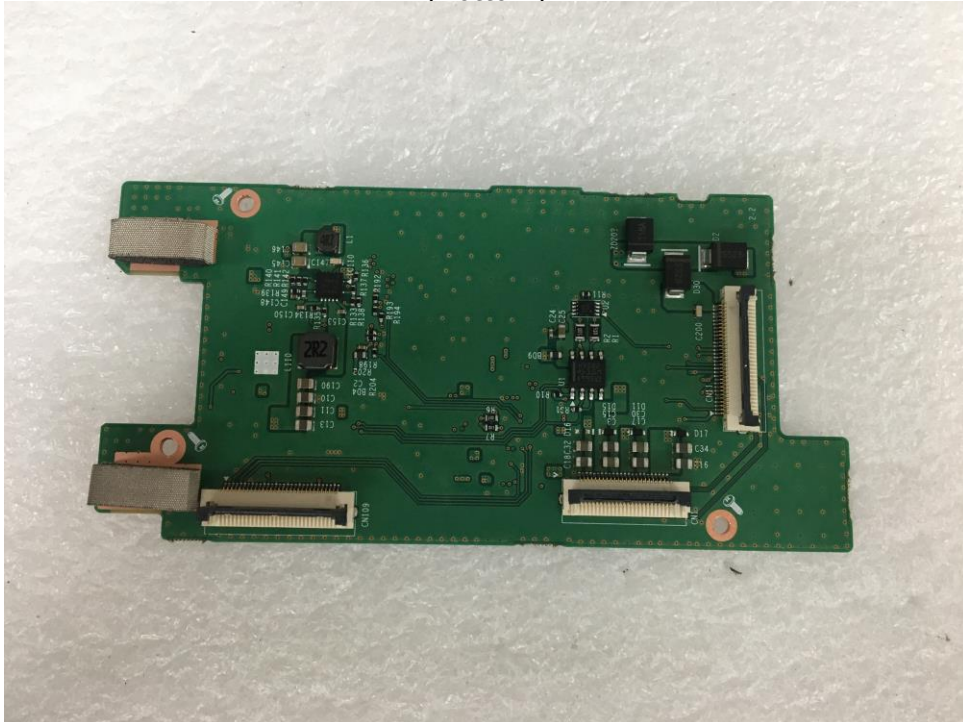
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EUT Internal View – Board 4

(Top)



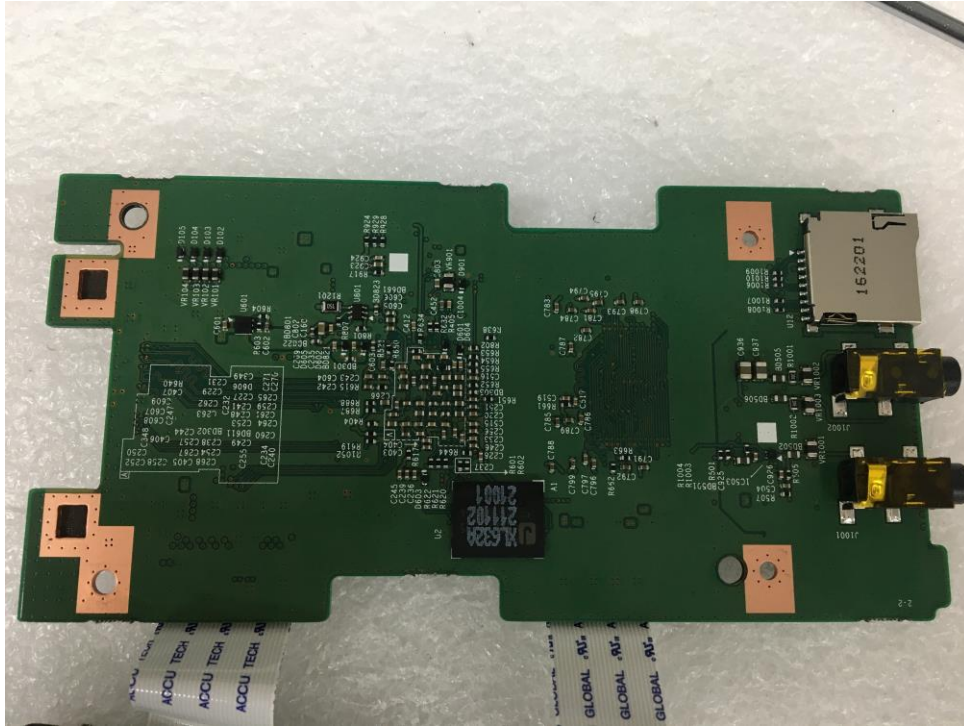
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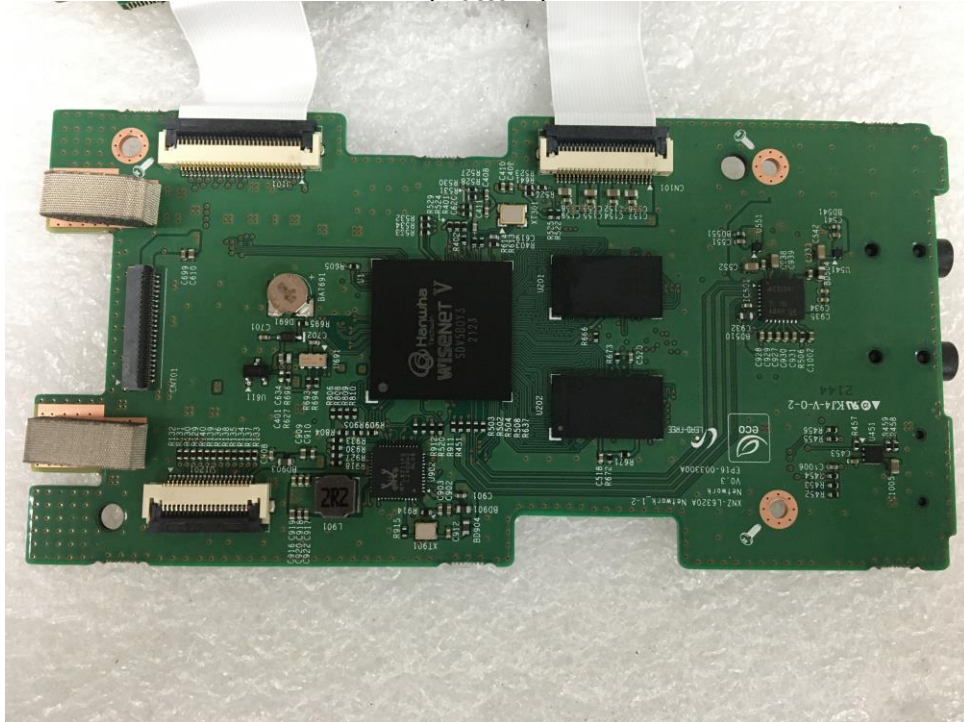
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EUT Internal View – Board 5

(Top)

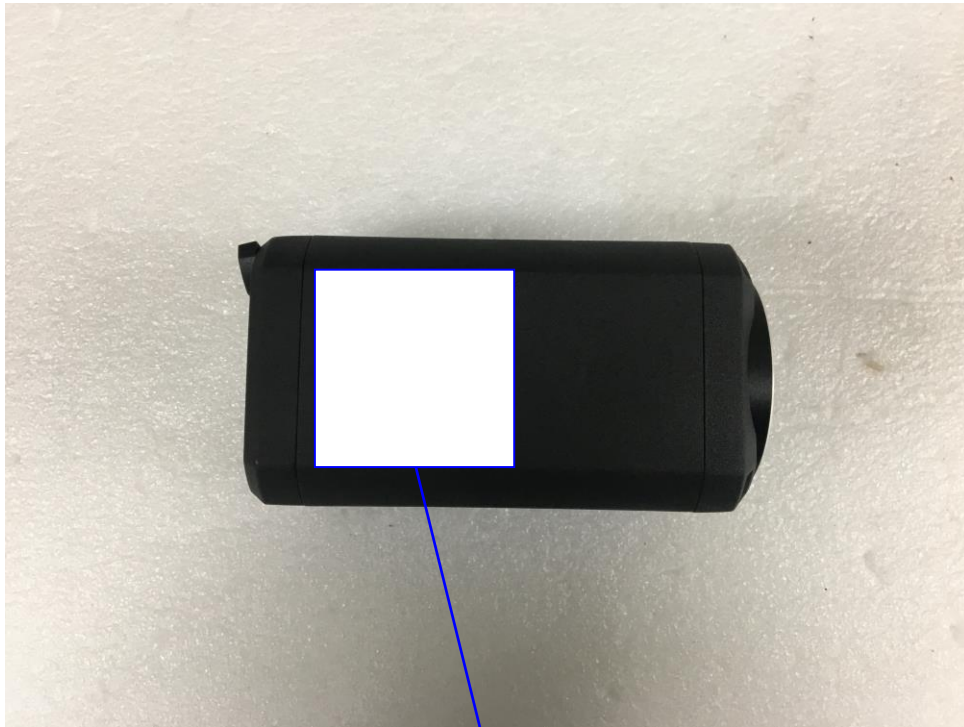


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