EMC TEST REPORT For FCC

Test Report No.	:	KES-E1-16T0638-R2
Date of Issue	:	Feb. 24, 2023
Product name	:	NETWORK CAMERA
Model/Type No.	:	XNB-6000
Variant Model	:	-
Applicant	:	Hanwha Vision Co., Ltd
Applicant Address	:	6, Pangyo-ro 319 Beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, 13488, 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	:	☐ **Declaration of Conformity** ☒ **Verification** ☐ **Certification**
Date of Receipt	:	Nov, 23, 2016
Test date	:	Dec. 05, 2016 ~ Dec. 07, 2016
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.

REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Dec. 12, 2016	KES-E1-16T0638	Issued
May. 28, 2021	KES-E1-16T0638-R1	Reissue due to model name modification & Delete Manufacturer on Customer Request
Feb. 24, 2023	KES-E1-16T0638-R2	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:

Imaging Device	1/2.8" 2M CMOS
Total Pixels	1945(H) x 1109(V) 2.16M
Effective Pixels	1945(H) x 1097(V) 2.13M
Scanning System	Progressive Scan
Min. Illumination	Color : 0.1 lux(F1.2, 1/30sec) B/W : 0 Lux (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, 1920 x 1080 for installation
Lens	
Focal Length (Zoom Ratio)	-
Max. Aperture Ratio	-
Angular Field of View	-
Min. Object Distance	-
Focus Control	Simple focus / Manual, Remote control via network, Button control (Manual, Simple focus)
Lens Type	Manual / DC Auto Iris, P-iris
Mount Type	C/CS
Pan / Tilt / Rotate	
Pan / Tilt / Rotate range	-
Operational	
IR LED	-
Viewable Length	-
Camera Title	Off / On (Displayed up to 85 characters) - W/W : English/Numeric/Special Characters - China : English/Numeric/Special/Chinese Characters - Common : Multi-line (Max 5), Color (Grey/Green/Red/Blue/Black/White), Transparency, Auto Scale by Resolution
Day & Night	Auto (ICR) / Color / B/W / External / Schedule
Backlight Compensation	Off / BLC / HLC(Masking/Dimming), WDR
Wide Dynamic Range	150dB
Contrast Enhancement	SSDR (Off / On)
Digital Noise Reduction	SSNR5 (2D+3D Noise Filter) (Off / On)
Digital Image Stabilization	Off / On (Built-in Gyro sensor)
Defog	Auto(input from fog detection) / Manual / Off
Motion Detection	Off/ On(8ea, 8point Polygonal zones), Hand over
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, Motion Detection, Digital Auto Tracking, Sound Classification
Alarm I/O	Input 1ea / Output 1ea
Remote Control Interface	-

RS-485 Protocol	-
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
Audio In	Selectable (Mic IN/Line IN), Built-in MIC. Max output level : 1Vrms Supply voltage: 2.5VDC(4mA), Input impedance: approx. 2K Ohm
Audio out	Line out, Max output level: 1 Vrms
Fan / Heater	Off / On / Auto / Schedule via web viewer
Pixel Counter	Support
Network	
Ethernet	RJ-45 (10/100BASE-T)
Video Compression Format	H.265/H.264 (MPEG-4 Part 10/AVC) : Main/Baseline/High , Motion JPEG
Resolution	1920x1080, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x450, 720x576, 640x480, 640x360, 320x240, 320x180
Max. Framerate	H.265/H.264 : Max. 60fps at all resolutions Motion JPEG : Max. 30fps
Smart Codec	Manual Mode (area-based : 5EA)
WiseStream	Support
Video Quality Adjustment	H.264/H.265 : Target Bitrate Level Control MJPEG : Target Bitrate Level Control
Bitrate Control Method	H.264/H.265 : CBR or VBR MJPEG : VBR
Streaming Capability	Multiple Streaming (Up to 10 Profiles)
Audio Compression Format	G.711 u-law /G.726 Selectable G.726 (ADPCM) 8KHz, G.711 8KHz G.726 : 16Kbps, 24Kbps, 32Kbps, 40Kbps AAC-LC : 48Kbps at 8/16/32/48KHz
Audio Communication	Bi-dierctional (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 Interface	ONVIF Profile S/G SUNAPI(HTTP API) Open Platform

Webpage Language	English, Korean, Chinese, French, Italian, Spanish, German, Japanese, Russian, Swedish, Denish, Portuguese, Czech, Polish, Turkish, Rumanian, Serbian, Dutch, Croatia, Hungary, Greek, Norsk, Finnish
Web Viewer	Supported OS: Windows 7, 8, 10, Mac OS X 10.10. 10.11 10.12 **Non-plugin Webviewer** Supported Browser: Google Chrome 54, MS Edge 38, Mozilla Firefox 49 , Apple Safari 9 (Mac OS X only) **Plug-in Webviewer** Supported Browser : MS Explore 11, Apple Safari 9 (Mac OS X only)
Central Management Software	SmartViewer, SSM
Environmental	
Operating Temperature / Humidity	-10°C ~ +55°C (-14°F ~ +131°F) / Less than 90% RH
Storage Temperature / Humidity	-50°C ~ +60°C (-22°F ~ +140°F) / Less than 90% RH
Ingress Protection	-
Vandal Resistance	-
Electrical	
Input Voltage / Current	24VAC ± 10%, 12VDC ± 10%, PoE(IEEE802.3af)
Power Consumption	TBD
Mechanical	
Color / Material	Black, Ivory / Plastic
Dimension (WxHxD)	TBD
Weight	TBD

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 ☐ 100 Vac ☐ 120 Vac ☒ 24 Vac ☒ 12 Vdc ☒ PoE

Frequency ☒ 50 Hz ☐ 60 Hz ☐ Hz

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	XNB-6000	-	HANWHA VISION VIETNAM COMPANY LIMITED	E.U.T

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
PoE Adapter	ANY4805C-LT1	10H300002	ANY ELECTRONICS CO., LTD	-
Speaker	BR10000A CUVE	-	BEIJING EDIFIER HI-TECH GROUP.	-
Mobile Phone	A1688	-	Apple Inc.	-
Micro SD Card	-	-	-	-
Notebook	RT3290LE	5CD242B043	HP	-
Notebook Adapter	Series PPP009L-E	WCNWVOA3U3G31S	LITE-ON TECHNOLOGY (CHANGZHOU) Co., Ltd.	-
Alarm Jig	-	-	-	-

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(LAN)	Notebook	RJ-45(LAN)	3.0	U
	Alarm	Alarm Jig	Alarm	3.0	U
	Audio In	Mobile Phone	Audio Out	1.3	U
	Audio Out	Speaker	Audio In	1.6	U
	Micro SD Card Slot	Micro SD Card	Micro SD Card Slot	-	-

- PoE Mode

Start		END		Cable Spec.	
Description	**I/O Port**	**Description**	**I/O Port**	**Length**	**Shield**
NETWORK CAMERA (E.U.T)	Alarm	Alarm Jig	Alarm	3.0	U
	Audio In	Mobile Phone	Audio Out	1.3	U
	Audio Out	Speaker	Audio In	1.6	U
	Micro SD Card Slot	Micro SD Card	Micro SD Card Slot	-	-
	RJ-45(PoE)	PoE Adapter	RJ-45(PoE)	3.0	U
PoE Adapter	RJ-45(LAN)	Notebook	RJ-45(LAN)	2.0	U

* Unshielded = U, Shielded = S

1.7 EUT Operating Mode(s)

Test mode	Normal operating
AC 24 V	E.U.T Monitoring , Ping test
DC 12 V	
PoE	

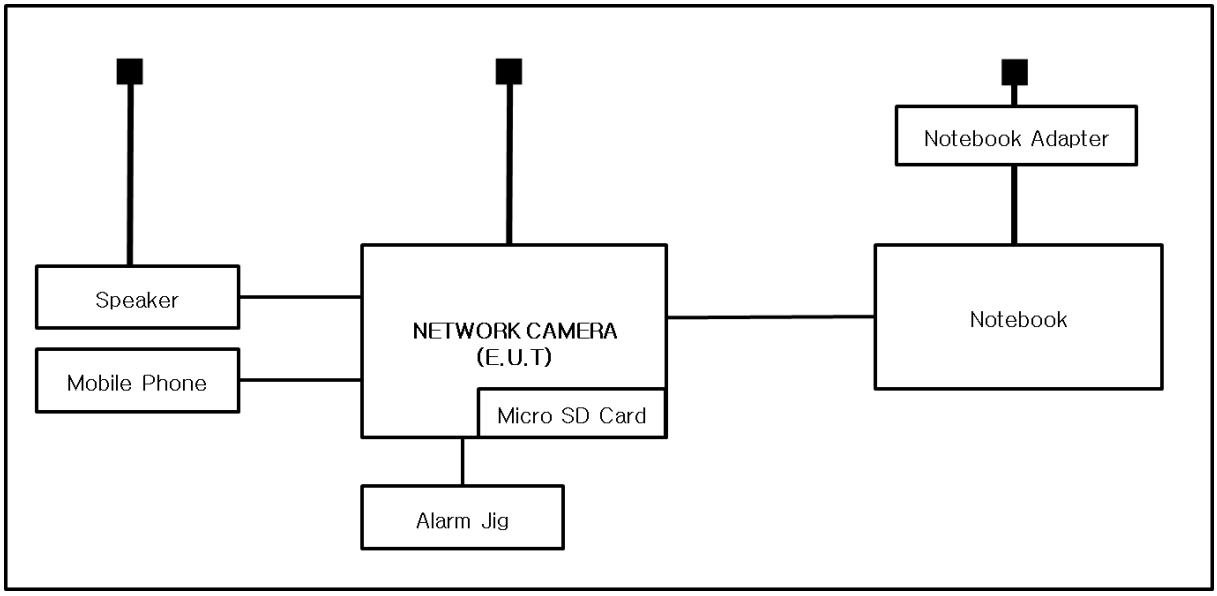
E.U.T Test operating S/W		
Name	Version	Manufacture Company
WebViewer	-	Hanwha Vision Co., Ltd

- Input power condition during the measurements was 24 v (ac) , 12 v (dc) , PoE.

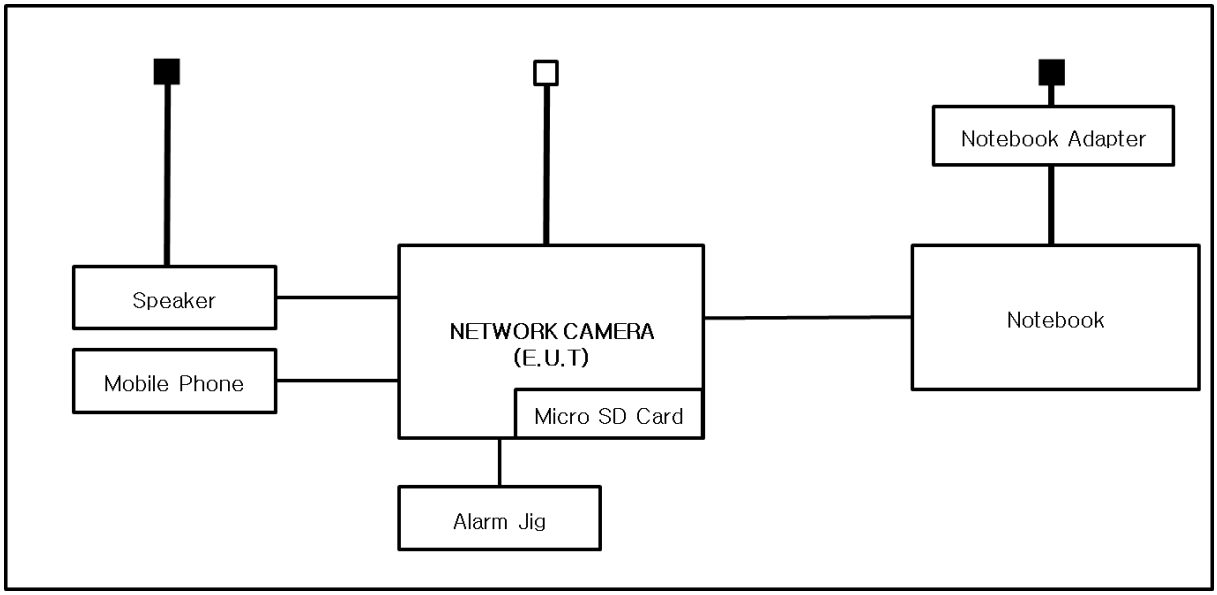
1.8 Configuration

■ AC Main
□ DC Main

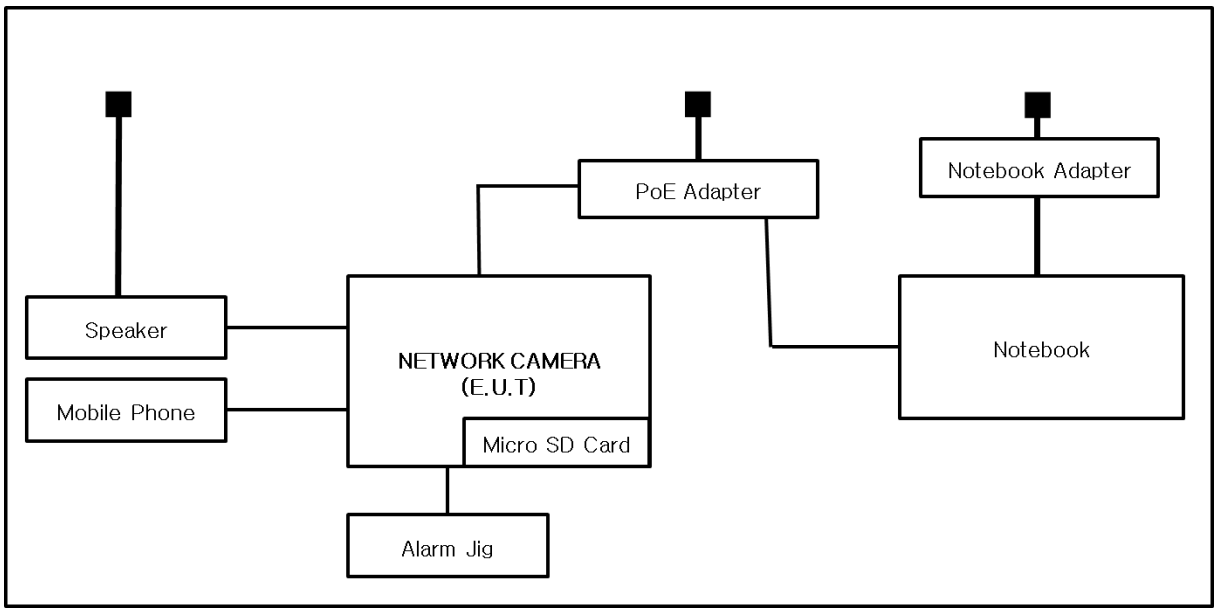
- AC 24 V Mode



- DC 12 V Mode



- PoE Mode



1.9 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.

1.10 Test Facility

The measurement facility is located at 473-21, Gayeo-ro, Yeoju-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

1.11 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
KOREA	**RRA**	EMI (3 m & 10 m Semi-Anechoic Chamber and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	KR0100
International	**KOLAS**	EMI (3 m & 10 m Semi-Anechoic Chamber and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	KT489
USA	**FCC**	3 m & 10 m Semi-Anechoic Chamber Conducted test site to perform FCC Part 15/18 measurements.	KR0100
Canada	**ISED**	3 m & 10 m Semi-Anechoic Chamber and Conducted test site	23298
JAPAN	**VCCI**	EMI (3 m & 10 m Semi-Anechoic Chamber and conducted test site)	C-20136, T-20137, R-20181, G-20176
Europe	**TÜV SÜD**	EMI (3 m & 10 m Semi-Anechoic Chamber and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	CARAT 001633 0004

2.0 Test Regulations

The emissions tests were performed according to following regulations:

☐ **EMC – Directive 2014/30/EU**

☐ EN 61000-6-3:2011

☐ EN 61000-6-1:2007

☐ EN 61000-6-4:2007 +A1:2011

☐ EN 61000-6-2:2005

☐ EN 55011:2007 +A1:2010 ☐ Group 1 ☐ Class A ☐ Group 2 ☐ Class B

☐ EN 55014-1:2006 +A2:2011

☐ EN 55014-2:1997 +A2:2008

☐ EN 55015:2013

☐ EN 55022:2010 ☐ Class A ☐ Class B

☐ EN 55024:2010

☐ EN 50130-4:2011 +A1:2014

☐ EN 61000-3-2:2014

☐ EN 61000-3-3:2013

☐ EN 61326-1:2013

☐ **VCCI V-3 / 2015.04** ☐ Class A ☐ Class B

☐ **AS/NZS CISPR22:2009 +A1:2010** ☐ Class A ☐ Class B

☒ **47 CFR Part 15, Subpart B**

- ☐ CISPR 22:2009 +A1:2010 ☐ Class A ☐ Class B
- ☒ ANSI C63.4-2014 ☒ Class A ☐ Class B

☐ **IC Regulation ICES-003 : 2016**

- ☐ CAN/CSA CISPR 22-10 ☐ Class A ☐ Class B
- ☐ ANSI C63.4-2014

☐ **MEDICAL – Directive 93/42/EEC**

- ☐ EN 60601-1-2 :2007

☐ **RE– Directive 2014/53/EU**

☐ EN 301 489-1 V1.9.2

- ☐ Equipment for fixed use
- ☐ Equipment for vehicular use
- ☐ Equipment for portable use

☐ EN 301 489-3 V1.6.1

☐ EN 301 489-17 V2.2.1

☐ EN 60945:2002

2.1 Conducted Emissions at Mains Power Ports

Test Date
Dec, 06, 2016

Test Location
Electro wave Shieldroom

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test Receiver	ESR3	R & S	101783	05, 03, 2017
☒	LISN	ENV216	R & S	101137	02, 04, 2017
☒	LISN	ENV216	R & S	101786	05, 02, 2017
☒	Electro wave Shieldroom	-	SEMITEC	-	-
☒	EMI Test S/W	EMC32	R & S	9.12.00	-

Test Conditions
Temperature: 16,9 ℃
Relative Humidity: 45,3 %

Frequency Range of Measurement
150 ㎑ to 30 ㎒

Instrument Settings
IF Band Width: 9 ㎑

Test Results
The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks
DC 12 V , PoE Mode N/A :
E.U.T power is 12 v (dc) power and PoE, limits are not specified

2.2 Radiated Electric Field Emissions(Below 1 ㎓)

Test Date
Dec, 05, 2016

Test Location
☐ Open Area Test Site #1 ☒ Open Area Test Site #2

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI TEST Receiver	ESR3	R&S	101781	05, 03, 2017
☒	Trilog-Broadband ANT	VULB 9163	Schwarzbeck	9163-713	05, 15, 2017
☒	OATS	-	KES	-	-
☒	Antenna Mast	-	DAEIL EMC	-	-
☒	Turn Table	-	DAEIL EMC	-	-
☒	EMI Test S/W	-	-	-	-

Test Conditions
Temperature: 5,1 ℃
Relative Humidity: 58,0 %

Frequency Range of Measurement
30 ㎒ to 1 ㎓

Instrument Settings
IF Band Width: 120 ㎑

Test Results
The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks
See Appendix A for test data.

2.3 Radiated Electric Field Emissions(Above 1 ㎓)

Test Date
Dec, 07, 2016

Test Location
Semi Anechoic Chamber #1

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	Log-Periodic Antenna	STLP 9149	SCHWARZBECK	9149-255	05, 17, 2018
☒	EMI TEST Receiver	ESU26	R&S	100551	04, 18, 2017
☒	Preamplifier	EMI TEST Receiver	R&S	102232	06, 29, 2017
☒	Semi Anechoic Chamber #1	-	KES	-	-
☒	Tilt Antenna Mast	TAM 4.0-E	maturo	18100116	-
☒	Turn Table	DT 2000-1,5T	INN-CO	-	-
☒	EMI Test S/W	-	-	-	-

Test Conditions
Temperature: 19,4 ℃
Relative Humidity: 47,1 %

Frequency Range of Measurement
1 ㎓ to 5 ㎓

Instrument Settings
IF Band Width: 1 ㎒

Test Results
The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks
See Appendix A for test data.

APPENDIX A – TEST DATA

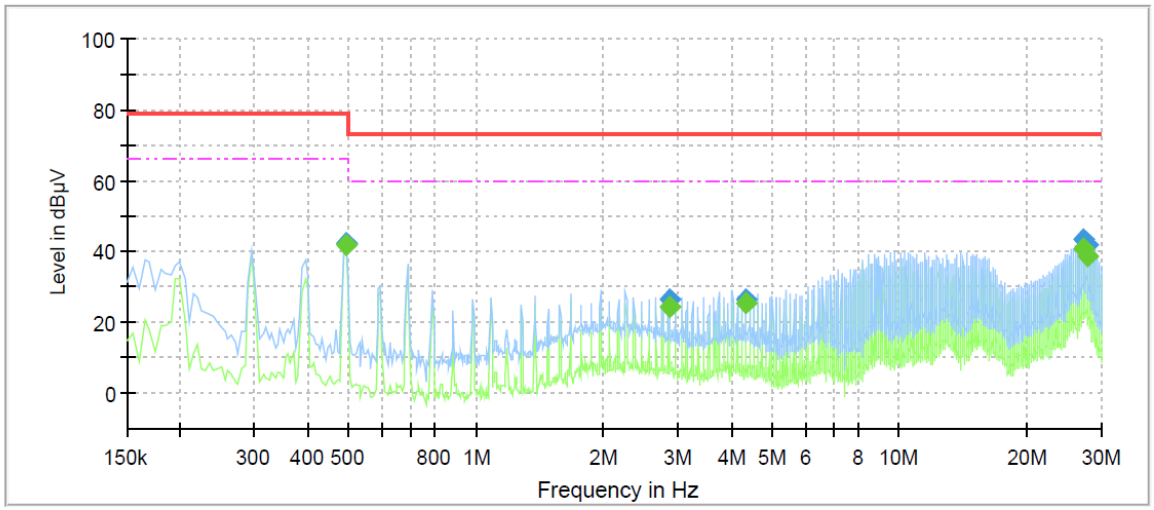
Conducted Emissions at Mains Power Ports

- AC 24 V Mode

[HOT]

Common Information

Test Description:	Conducted Emission
Model No.:	XNB-6000N
Mode	AC 24 V
Operator Name:	KES



Final_Result

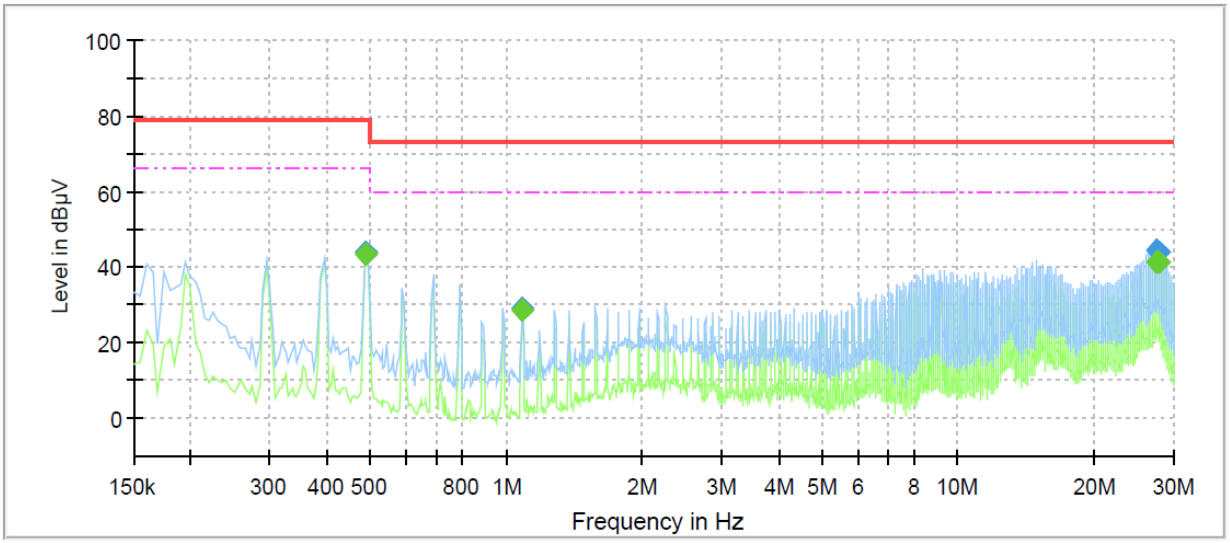
Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.495000	---	41.92	66.00	24.08	1000.0	9.000	L1	9.8
0.495000	42.55	---	79.00	36.45	1000.0	9.000	L1	9.8
2.860000	---	24.35	60.00	35.65	1000.0	9.000	L1	10.2
2.860000	26.47	---	73.00	46.53	1000.0	9.000	L1	10.2
4.335000	---	25.27	60.00	34.73	1000.0	9.000	L1	10.1
4.335000	26.74	---	73.00	46.26	1000.0	9.000	L1	10.1
27.295000	---	40.75	60.00	19.25	1000.0	9.000	L1	10.3
27.295000	43.49	---	73.00	29.51	1000.0	9.000	L1	10.3
27.785000	---	38.47	60.00	21.53	1000.0	9.000	L1	10.3
27.785000	41.67	---	73.00	31.33	1000.0	9.000	L1	10.3

♦ Calculation
QuasiPeak[㏈uV] / CAverage [㏈uV] = Reading Value[㏈uV] + Corr. [㏈]
QuasiPeak / CAverage : The Final Value
Reading Value : Not shown in the table.
Corr. : Correction values (LISN FACTOR+ Cable Loss)

[NEUTRAL]

Common Information

Test Description:	Conducted Emission
Model No.:	XNB-6000N
Mode	AC 24 V
Operator Name:	KES



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.490000	---	43.53	66.00	22.47	1000.0	9.000	N	9.8
0.490000	44.17	---	79.00	34.83	1000.0	9.000	N	9.8
1.085000	---	28.66	60.00	31.34	1000.0	9.000	N	10.0
1.085000	29.18	---	73.00	43.82	1000.0	9.000	N	10.0
27.395000	---	41.37	60.00	18.63	1000.0	9.000	N	10.4
27.395000	44.46	---	73.00	28.54	1000.0	9.000	N	10.4
27.885000	---	41.19	60.00	18.81	1000.0	9.000	N	10.4
27.885000	43.76	---	73.00	29.24	1000.0	9.000	N	10.4

♦ 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)

Radiated Electric Field Emissions(Below 1 ㎓)

- AC 24 V Mode

Frequency	Amplitude	ANT Polar.	ANT. Height	Correction Factor		Corrected Amplitude	Applicable Limit	Margin
[㎒]	[dBμV]	(H/V)	[m]	ANT. [dB/m]	Cable [dB]	[dBμV/m]	[dBμV/m]	[dB]
52.09	11.71	V	1.00	13.64	1.40	26.75	39.00	12.25
58.93	10.03	H	3.80	12.78	1.48	24.29	39.00	14.71
60.13	11.13	V	1.10	12.61	1.49	25.23	39.00	13.77
131.59	15.19	H	4.00	8.66	2.33	26.18	43.50	17.32
138.63	12.90	H	3.90	8.05	2.41	23.36	43.50	20.14
154.09	16.68	V	1.10	8.32	2.57	27.57	43.50	15.93
334.12	17.08	H	4.00	14.14	3.82	35.04	46.40	11.36

* H : Horizontal, V : Vertical

♦ Calculation
Corrected Amplitude [㏈uV] = Amplitude[㏈uV] + Correction Factor [㏈]
Corrected Amplitude : The Final Value, Amplitude : Reading Value,
Correction Factor : ANT FACTOR + Cable loss

- DC 12 V Mode

Frequency	Amplitude	ANT Polar.	ANT. Height	Correction Factor		Corrected Amplitude	Applicable Limit	Margin
[㎒]	[dBμV]	(H/V)	[m]	ANT. [dB/m]	Cable [dB]	[dBμV/m]	[dBμV/m]	[dB]
52.18	10.82	V	1.00	13.63	1.40	25.85	39.00	13.15
138.50	13.00	H	4.00	8.06	2.41	23.47	43.50	20.03
149.21	11.99	H	4.00	8.19	2.52	22.70	43.50	20.80
151.21	12.89	V	1.00	8.24	2.54	23.67	43.50	19.83
259.69	14.70	H	4.00	12.71	3.40	30.81	46.40	15.59
334.10	17.15	H	4.00	14.14	3.82	35.11	46.40	11.29

* H : Horizontal, V : Vertical

♦ Calculation
Corrected Amplitude [㏈uV] = Amplitude[㏈uV] + Correction Factor [㏈]
Corrected Amplitude : The Final Value, Amplitude : Reading Value,
Correction Factor : ANT FACTOR + Cable loss

- PoE Mode

Frequency	Amplitude	ANT Polar. (H/V)	ANT. Height	Correction Factor		Corrected Amplitude	Applicable Limit	Margin
[㎒]	[dBμV]		[m]	ANT. [dB/m]	Cable [dB]	[dBμV/m]	[dBμV/m]	[dB]
40.52	13.19	V	1.00	12.56	1.23	26.98	39.00	12.02
50.24	10.10	V	1.10	13.87	1.37	25.34	39.00	13.66
71.48	16.31	H	4.00	9.27	1.64	27.22	39.00	11.78
80.15	17.39	V	1.00	6.91	1.78	26.08	43.50	17.42
154.99	16.40	V	1.00	8.35	2.58	27.33	43.50	16.17
334.11	17.11	H	4.00	14.14	3.82	35.07	46.40	11.33

* H : Horizontal, V : Vertical

♦ Calculation
Corrected Amplitude [㏈uV] = Amplitude[㏈uV] + Correction Factor [㏈]
Corrected Amplitude : The Final Value, Amplitude : Reading Value,
Correction Factor : ANT FACTOR + Cable loss

Radiated Electric Field Emissions(Above 1 ㎓)

- AC 24 V Mode

- PK

	Frequency [㎒]	Amplitude [dBμV]	ANT Polar. (H/V)	ANT. Height [m]	Correction Factor			Corrected Amplitude [dBμV/m]	Applicable Limit [dBμV/m]	Margin [dB]
					ANT. [dB /m]	Cable [dB]	AMP [dB]			
1	136.000	73.710	H	1.000	21.180	3.290	43.640	54.540	80.000	25.460
1	136.000	68.830	V	1.000	21.180	3.290	43.640	49.660	80.000	30.340
1	224.000	58.510	H	1.000	21.630	3.410	43.640	39.910	80.000	40.090
1	600.000	55.250	V	1.000	23.560	3.860	43.660	39.010	80.000	40.990
1	793.000	55.930	H	1.000	24.540	4.280	43.720	41.030	80.000	38.970
2	057.000	61.270	H	1.000	25.840	4.510	43.810	47.810	80.000	32.190
2	057.000	64.470	V	1.000	25.840	4.510	43.810	51.010	80.000	28.990
2	201.000	66.170	V	1.000	26.440	4.790	43.870	53.530	80.000	26.470
2	282.000	63.720	H	1.000	26.780	4.840	43.910	51.430	80.000	28.570
2	802.000	58.460	V	1.000	28.960	5.270	44.120	48.570	80.000	31.430

- AV

	Frequency	Amplitude	ANT Polar. (H/V)	ANT. Height	Correction Factor			Corrected Amplitude	Applicable Limit	Margin [dB]
	[㎒]	[dBμV]		[m]	ANT. [dB /m]	Cable [dB]	AMP [dB]	[dBμV/m]	[dBμV/m]	
1	136.000	58.020	H	1.000	21.180	3.290	43.640	38.850	60.000	21.150
1	144.000	59.080	V	1.000	21.230	3.300	43.640	39.970	60.000	20.030
1	224.000	45.370	H	1.000	21.630	3.410	43.640	26.770	60.000	33.230
1	520.000	40.380	V	1.000	23.150	3.780	43.640	23.670	60.000	36.330
2	049.000	46.250	H	1.000	25.810	4.500	43.800	32.760	60.000	27.240
2	065.000	51.260	V	1.000	25.870	4.530	43.810	37.850	60.000	22.150
2	282.000	50.500	H	1.000	26.780	4.840	43.910	38.210	60.000	21.790
2	298.000	52.850	V	1.000	26.850	4.840	43.920	40.620	60.000	19.380
2	746.000	47.980	V	1.000	28.730	5.250	44.100	37.860	60.000	22.140
4	806.000	39.960	V	1.000	32.870	7.000	44.300	35.530	60.000	24.470

♦ Calculation
Over Limit [㏈] = (Read Level[㏈uV] + Ant Factor[㏈/m] + Cable Loss [㏈] – Preamp Factor [㏈]) – Limit Line[㏈uV]
Over Limit : Margin Value, Read Level : Reading Value, Ant Factor : Ant Factor,
Cable Loss : Cable loss, Preamp Factor : Preamp Factor

- DC 12 V Mode

- PK

	Frequency [㎒]	Amplitude [dB㎶]	ANT Polar. (H/V)	ANT. Height [m]	Correction Factor			Corrected Amplitude [dB㎶/m]	Applicable Limit [dB㎶/m]	Margin [dB]
					ANT. [dB/m]	Cable [dB]	AMP [dB]			
1	144.000	71.600	H	1.000	21.230	3.300	43.640	52.490	80.000	27.510
1	144.000	71.150	V	1.000	21.230	3.300	43.640	52.040	80.000	27.960
1	200.000	60.200	H	1.000	21.510	3.380	43.640	41.450	80.000	38.550
1	600.000	53.920	V	1.000	23.560	3.860	43.660	37.680	80.000	42.320
1	793.000	57.070	H	1.000	24.540	4.280	43.720	42.170	80.000	37.830
1	985.000	59.680	H	1.000	25.520	4.390	43.780	45.810	80.000	34.190
2	217.000	67.020	V	1.000	26.510	4.800	43.880	54.450	80.000	25.550
2	282.000	60.690	H	1.000	26.780	4.840	43.910	48.400	80.000	31.600
2	746.000	59.660	V	1.000	28.730	5.250	44.100	49.540	80.000	30.460

- AV

	Frequency	Amplitude	ANT Polar. (H/V)	ANT. Height	Correction Factor			Corrected Amplitude	Applicable Limit	Margin [dB]
	[㎒]	[dBμV]		[m]	ANT. [dB /m]	Cable [dB]	AMP [dB]	[dBμV/m]	[dBμV/m]	
1	136.000	55.880	H	1.000	21.180	3.290	43.640	36.710	60.000	23.290
1	136.000	60.140	V	1.000	21.180	3.290	43.640	40.970	60.000	19.030
1	993.000	44.160	H	1.000	25.560	4.400	43.780	30.340	60.000	29.660
2	049.000	52.790	V	1.000	25.810	4.500	43.800	39.300	60.000	20.700
2	057.000	45.290	H	1.000	25.840	4.510	43.810	31.830	60.000	28.170
2	282.000	56.370	V	1.000	26.780	4.840	43.910	44.080	60.000	15.920
2	290.000	46.810	H	1.000	26.820	4.840	43.910	34.560	60.000	25.440
2	746.000	47.980	V	1.000	28.730	5.250	44.100	37.860	60.000	22.140
3	203.000	42.300	V	1.000	30.110	5.680	44.220	33.870	60.000	26.130
4	798.000	40.280	V	1.000	32.860	7.000	44.300	35.840	60.000	24.160

♦ Calculation

Over Limit [㏈] = (Read Level[㏈uV] + Ant Factor[㏈/m] + Cable Loss [㏈] – Preamp Factor [㏈]) – Limit Line[㏈uV]

Over Limit : Margin Value, Read Level : Reading Value, Ant Factor : Ant Factor,
Cable Loss : Cable loss, Preamp Factor : Preamp Factor

- PoE Mode

- PK

	Frequency [㎒]	Amplitude [dB㎶]	ANT Polar. (H/V)	ANT. Height [m]	Correction Factor			Corrected Amplitude [dB㎶/m]	Applicable Limit [dB㎶/m]	Margin [dB]
					ANT. [dB /m]	Cable [dB]	AMP [dB]			
1	136.000	72.720	V	1.000	21.180	3.290	43.640	53.550	80.000	26.450
1	144.000	65.840	H	1.000	21.230	3.300	43.640	46.730	80.000	33.270
1	520.000	53.740	H	1.000	23.150	3.780	43.640	37.030	80.000	42.970
1	592.000	54.020	H	1.000	23.520	3.850	43.660	37.730	80.000	42.270
1	793.000	57.290	H	1.000	24.540	4.280	43.720	42.390	80.000	37.610
2	057.000	65.380	V	1.000	25.840	4.510	43.810	51.920	80.000	28.080
2	217.000	65.260	V	1.000	26.510	4.800	43.880	52.690	80.000	27.310
2	282.000	62.750	H	1.000	26.780	4.840	43.910	50.460	80.000	29.540
2	602.000	58.100	V	1.000	28.120	5.200	44.050	47.370	80.000	32.630
2	738.000	58.810	V	1.000	28.690	5.250	44.100	48.650	80.000	31.350
4	004.000	53.180	V	1.000	31.400	6.620	44.210	46.990	80.000	33.010

- AV

	Frequency	Amplitude	ANT Polar. (H/V)	ANT. Height	Correction Factor			Corrected Amplitude	Applicable Limit	Margin [dB]
	[㎒]	[dBμV]		[m]	ANT. [dB /m]	Cable [dB]	AMP [dB]	[dBμV/m]	[dBμV/m]	
1	136.000	58.950	H	1.000	21.180	3.290	43.640	39.780	60.000	20.220
1	136.000	62.400	V	1.000	21.180	3.290	43.640	43.230	60.000	16.770
2	057.000	49.210	H	1.000	25.840	4.510	43.810	35.750	60.000	24.250
2	057.000	54.850	V	1.000	25.840	4.510	43.810	41.390	60.000	18.610
2	282.000	50.870	H	1.000	26.780	4.840	43.910	38.580	60.000	21.420
2	282.000	57.500	V	1.000	26.780	4.840	43.910	45.210	60.000	14.790
2	746.000	48.710	V	1.000	28.730	5.250	44.100	38.590	60.000	21.410
3	203.000	42.320	V	1.000	30.110	5.680	44.220	33.890	60.000	26.110
4	004.000	41.560	V	1.000	31.400	6.620	44.210	35.370	60.000	24.630

♦ Calculation

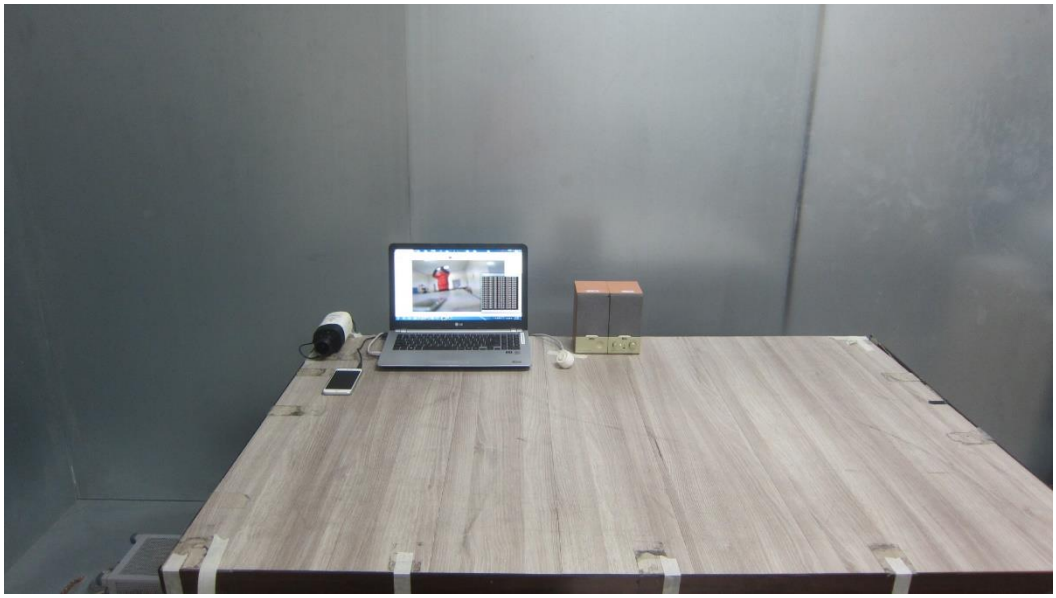
Over Limit [㏈] = (Read Level[㏈uV] + Ant Factor[㏈/m] + Cable Loss [㏈] – Preamp Factor [㏈]) – Limit Line[㏈uV]

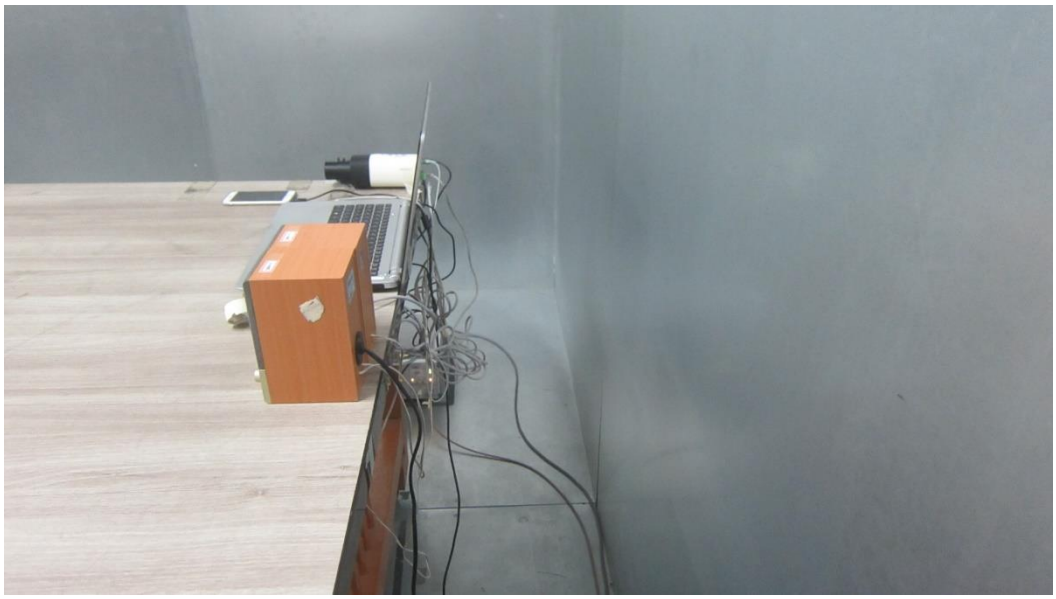
Over Limit : Margin Value, Read Level : Reading Value, Ant Factor : Ant Factor,
Cable Loss : Cable loss, Preamp Factor : Preamp Factor

Test Setup Photos and Configuration

Conducted Voltage Emissions

- AC 24 V Mode

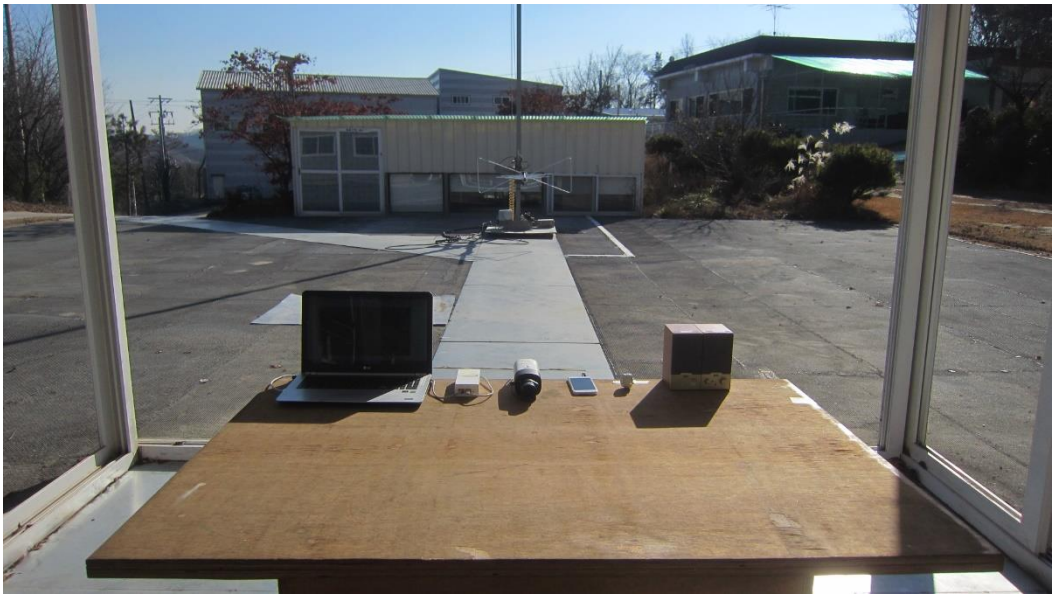




Radiated Electric Field Emissions(Below 1 ㎓)

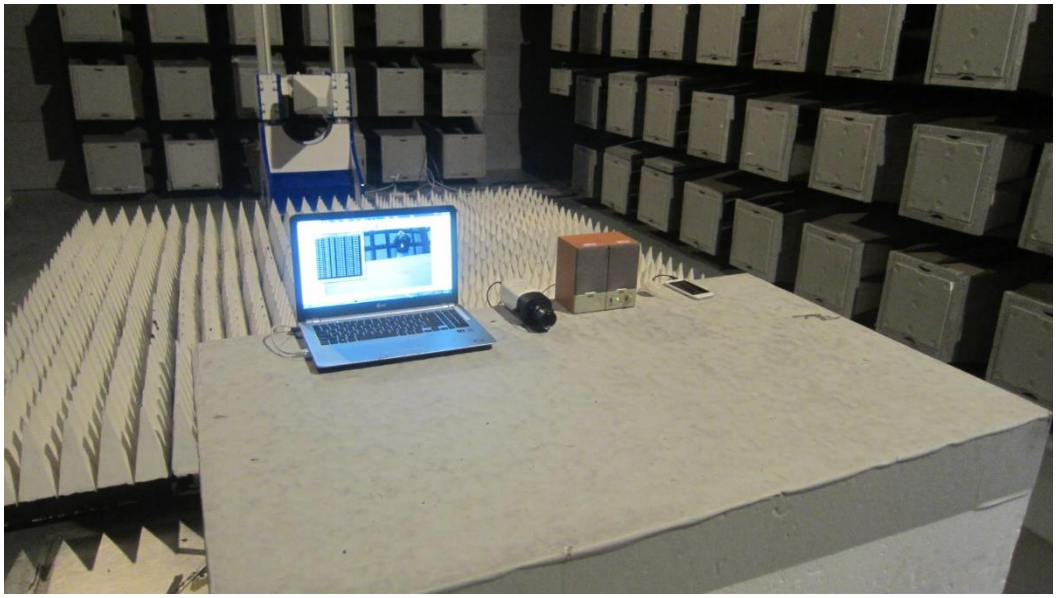
- AC 24 V, DC 12 V Mode

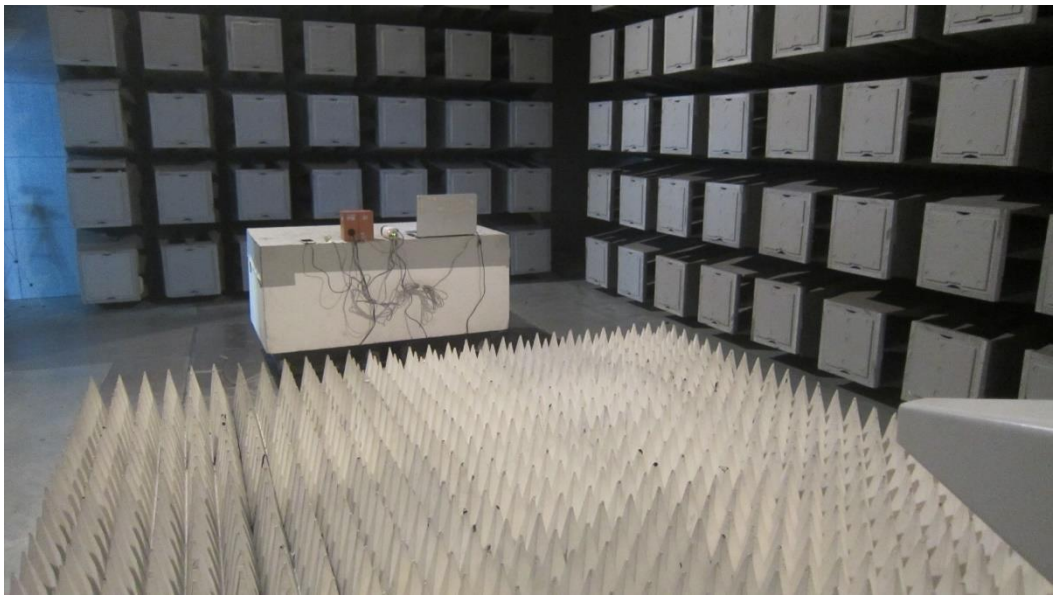
- PoE Mode



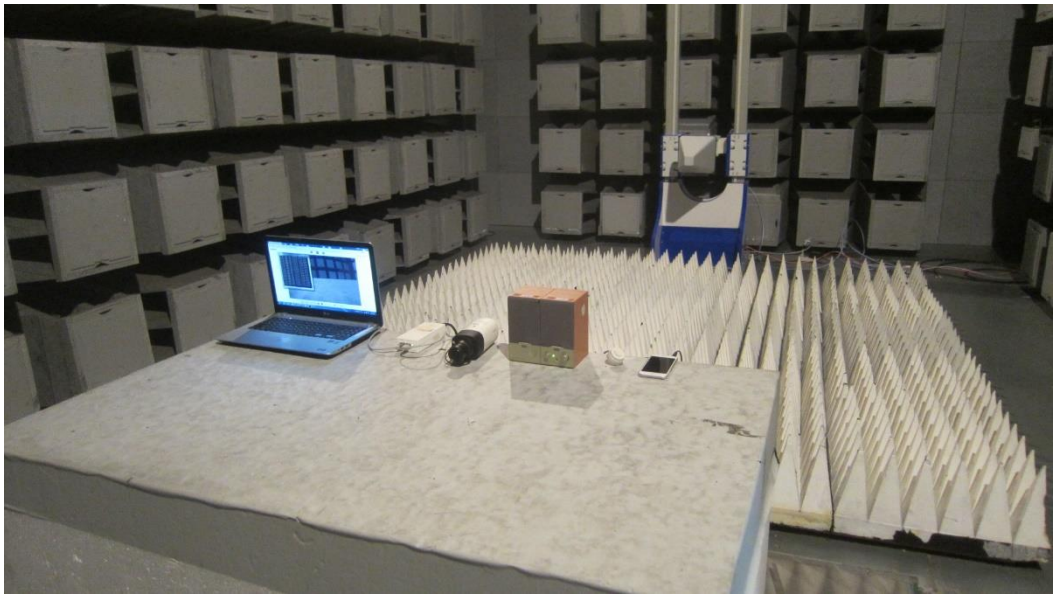
Radiated Electric Field Emissions(Above 1 ㎓)

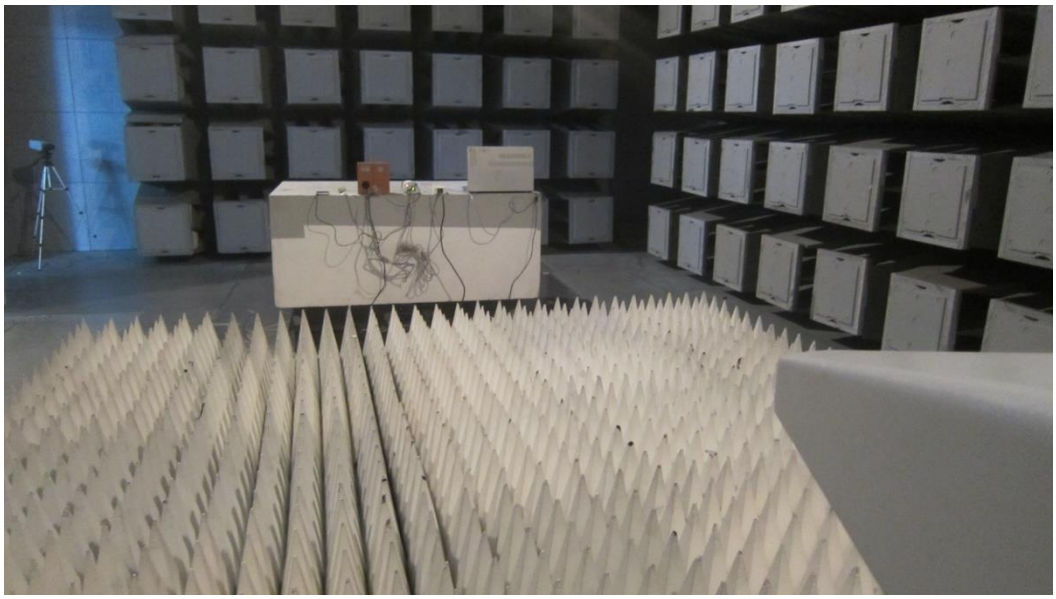
- AC 24 V, DC 12 V Mode





- PoE Mode





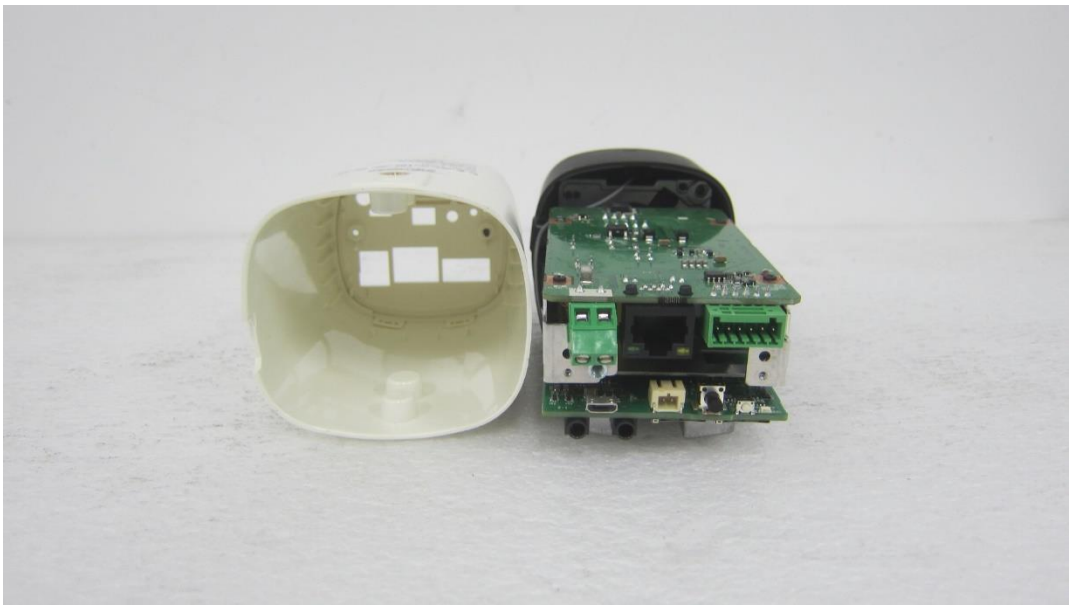
EUT External Photographs

(Top)

(Bottom)

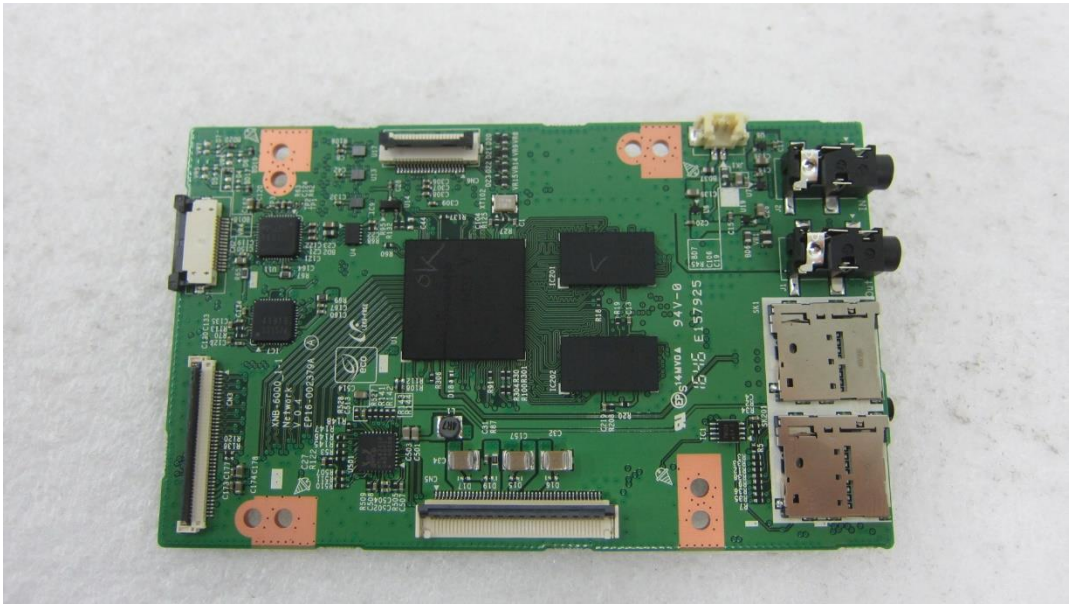
EUT Internal Photographs

(Internal View)



EUT Internal View – Main board

(Top)



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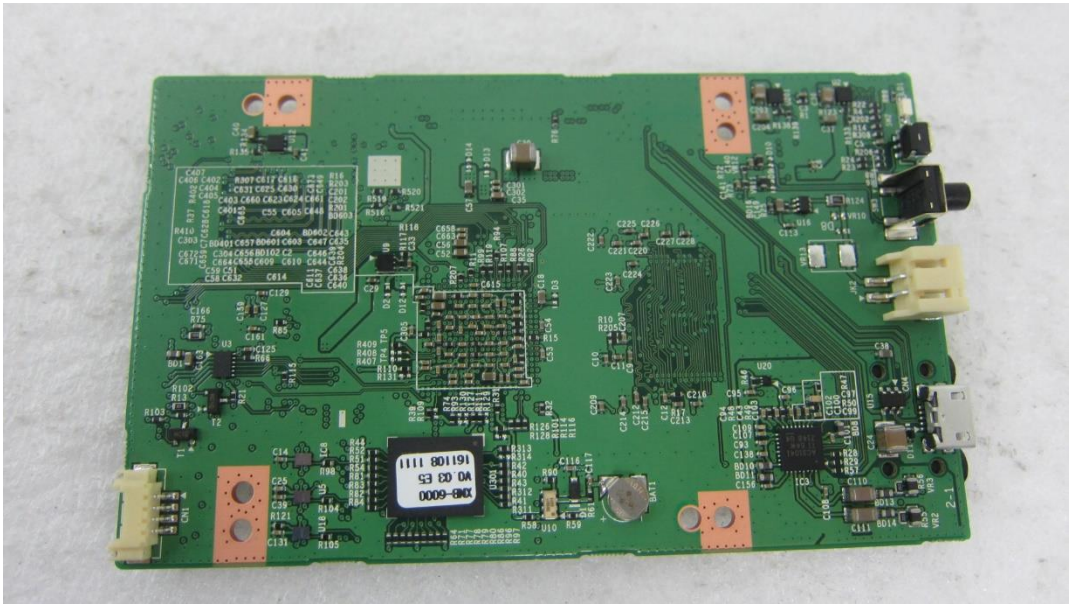
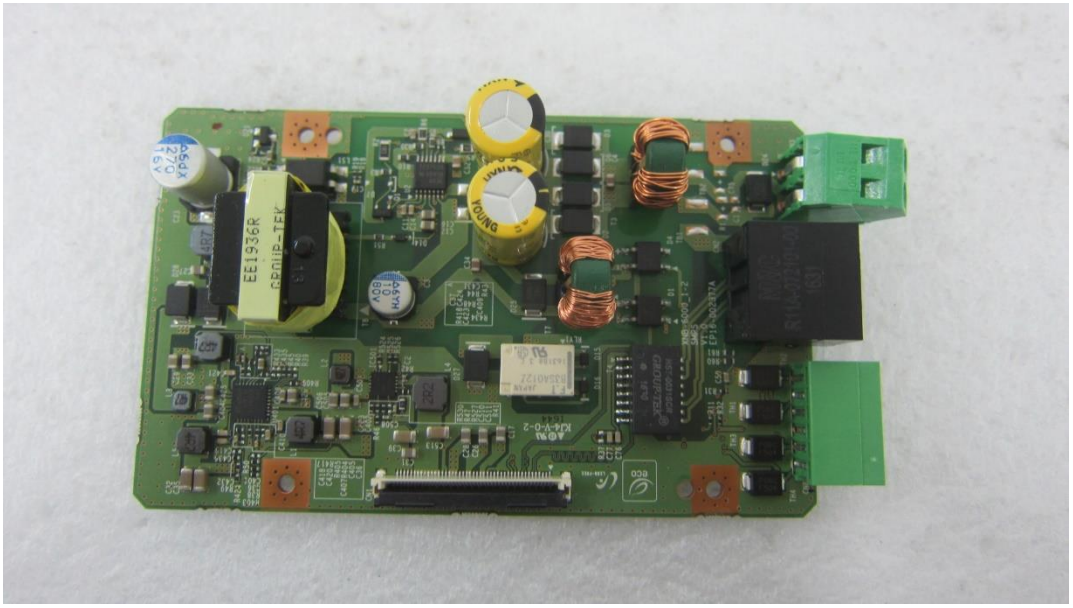


EUT Internal View – Sub board

(Top)



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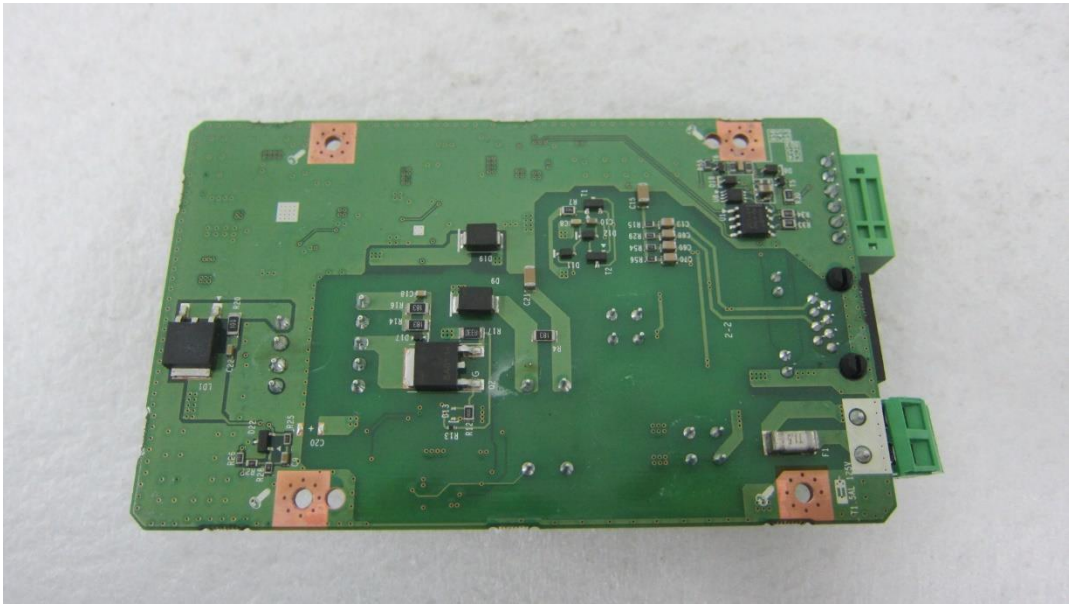
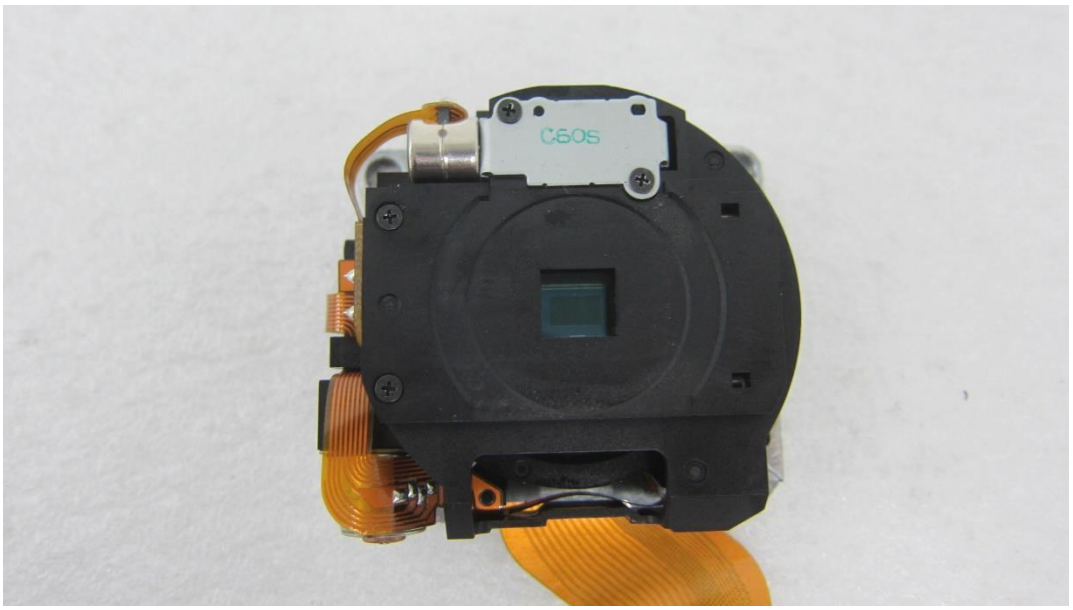


EUT Internal View – Lens Board

(Top)



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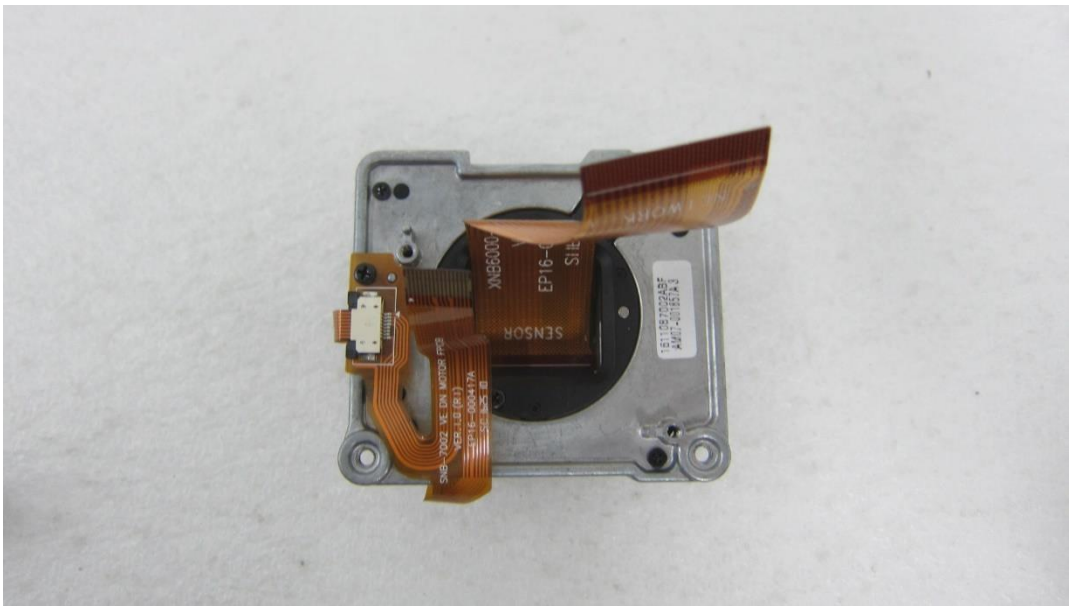
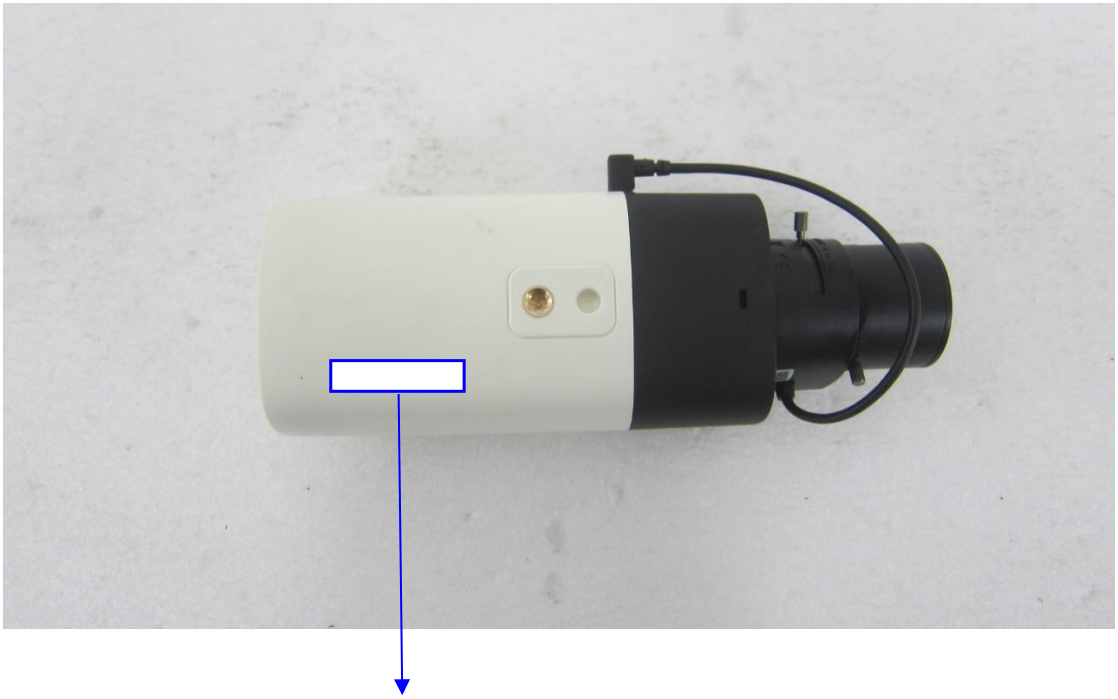


Label Photographs



This device complies with part 15 of the FCC Rules. Operation in subject to the following two conditions: (1) This device Sep not cause harmful interference, and (2) this device must accept any interference received, including interference that Sep cause undesired operation.