VERIFICATION OF FCC PART 15 COMPLIANCE

KES hereby verify *that the subject product complies with all the electromagnetic emission specified in the FCC Rule Part 15*

Product Description:	NETWORK CAMERA
Model/Brand Name:	XNB-8000N
Variant Model:	-
FCC Rule Part(s):	FCC 47CFR Part 15 Subpart B Class A Part 15.107(b) & Part 15.109(b)
FCC Procedure:	Verification
Applicant Name:	Hanwha Techwin Co., Ltd.
Applicant Address:	Changwon-dareri, Seongsan-gu Changwon-si, Gyeongsangn am-do
Manufacturer Name:	Tianjin Samsung Techwin Opto-Eletronic Co.,Ltd.
Manufacturer Address:	No.11 Weiliu Rd,Micro-Electronic Industrial Park,TEDA,Tianjin,300385,People's Republic of China
Test Report Reference No.:	KES-E1-16T0609

NETWORK CAMERA, Model **XNB-8000N** has been tested in accordance with the measurement procedures specified in FCC 47CFR Part 15 Subpart B class A and has been shown to be complied with the electromagnetic emission limits specified in FCC Rule Part 15 Subpart B class A. A testing of the sample product has been valid for the sample tested based on the reference test report, KES-E1-16T0609

Date of Issue: 12. 05, 2016

Dong Hun, Jang
Technical Manager
Signature:



KES.Co., Ltd.
C-3701, 40, Simin-daero 365beon-gil, Dongan-gu, Anyang-si, Gyeonggi-do,431-716, Korea
Tel: +82-31-425-6200 //Fax: +82-31-424-0450

EMC TEST REPORT For FCC

Test Report No.	:	KES-E1-16T0609
Date of Issue	:	Dec, 05, 2016
Product name	:	NETWORK CAMERA
Model/Type No.	:	XNB-8000N
Variant Model	:	-
Applicant	:	Hanwha Techwin Co., Ltd.
Applicant Address	:	Changwon-daero, Seongsan-gu Changwon-si, Gyeongsangnam-do
Manufacturer	:	Tianjin Samsung Techwin Opto-Eletronic Co.,Ltd.
Manufacturer Address	:	No.11 Weiliu Rd,Micro-Electronic Industrial Park,TEDA,Tianjin,300385,People's Republic of China
Equipment authorization	:	☐ **Declaration of Conformity** ☒ **Verification** ☐ **Certification**
Date of Receipt	:	Nav, 23, 2016
Test date	:	Nav, 28, 2016
Test Results	:	☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Young Suk, Song
EMC Test Engineer

Reviewed by

Dong-Hun, Jang
EMC Technical Manager

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REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Dec. 05, 2016	KES-E1-16T0609	Issued

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1.0 General Product Description

Main Specifications of EUT are:

Video	
Imaging Device	1/1.8" 6M CMOS
Total Pixels	3096(H) x 2094(V)
Effective Pixels	2616(H) x 1976(V)
Scanning System	Progressive Scan
Min. Illumination	Color : 0.03 lux (TBD) B/W : 0.003Lux(TBD)
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(TBD), 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, Butto 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 55 characters) - W/W : English/Numeric/Special Characters - China : English/Numeric/Special/Chinese Characters - Common : Multi-line (Max 6), 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(Seamless transition TBD)
Wide Dynamic Range	120dB(TBD)
Contrast Enhancement	SSDR (Off / On)
Digital Noise Reduction	SSNR5 (2D+3D Noise Filter) (Off / On)
Digital Image Stabilization	Off / On
Defog	Auto(input from fog&Dust detection) / Manual / Off
Motion Detection	Yes(8ea, 4point Polygonal zones)
Privacy Masking	Off / On (32ea, polygonal zones) - Color : Grey/Green/Red/Blue/Black/White - Mosaic ※ Zoom ratio option for mask mode (TBD)
Gain Control	Off / Low / Middle / High
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 →TBD)

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Digital PTZ	24X, 'Digital PTZ(Preset, Group)
Flip / Mirror	Flip : On/Off Mirror : On/Off Hallway view : 90°/270°
Intelligent Video & Audio A	Tampering, Loitering, Directional Detection, Defocus Detection, Fog&Dust 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, Intelligent Video 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), Supply voltage: 2.5VDC(4mA), Input impedance: approx. 2K Ohm
Audio out	Line out, Max output level: 1 Vrms
Fan / Heater	-
Pixel Counter	Support
Network	
Ethernet	RJ-45 (10/100BASE-T)
Video Compression Forma	H.265/H.264 (MPEG-4 Part 10/AVC) : Main/Baseline/High , Motion JPEG
Resolution	5M mode : 2592 x 1944, 2592 x 1464, 1920 x 1080, 1600 x 1200, 1280 x 1024, 1280 x 960 1280 x 720, 1024 x 768, 800 x 600, 720 x 576, 720 x 480, 640 x 480, 320 x 240 2M mode : 1920x1080, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x450, 720x576 640x480, 640x360, 320x240, 320x180
Max. Framerate	5M mode : H.265/H.264 : Max. 30fps at all resolutions Motion JPEG : Max. 30fps 2M mode : H.265/H.264 : Max. 60fps at all resolutions Motion JPEG : Max. 30fps
Smart Codec	Manual Mode (area-based : 5EA)
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, with WiseStream MJPEG : VBR
Streaming Capability	Multiple Streaming (Up to 10 Profiles)
Audio Compression Forma	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

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Security	HTTPS(SSL) Login Authentication Digest Login Authentication IP Address Filtering User access Log 802.1X Authentication (EAP-TLS, EAP-LEAP) - Streaming Encryption 기능구현
Streaming Method	Streaming Method
Max. User Access	20 users at Unicast Mode(TBD)
Edge Storage	SD/SDHC/SDXC 2slot (up to 512 GB) - Continuous recording(1'st slot to 2'nd slot) - (TBD) Redundant recording - Motion Images recorded in the SD/SDHC/SDXC memory card can be downloaded. NAS(Network Attached Storage) Local PC for Instant Recording
Application Programming I	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 10.8. 10.9. 10.10. 10.11 **Non-plugin Webviewer** Supported Browser: Google Chrome 47, MS Edge 20 Support Codec : Video : H.264, MJPEG (MAX 1M 15FPS) Audio : G.711 **Plug-in Webviewer** Supported Browser : MS Explore 11 , Mozilla Firefox 43 , Apple Safari 9 * Mac OS X only
Central Management Soft	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
스펙시트 미표기 요구사양	
Cable Connection	Plug-in
SD카드	듀얼슬롯

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1.1 Test Voltage & Frequency

Unless indicated otherwise on the individual data sheet or test results, the test voltage and frequency was as indicated below.

Voltage ☐ 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-8000P	-	Tianjin Samsung Techwin Opto-Electronic Co.,Ltd.	E.U.T

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
POE ADAPTOR	ANY4805C-LT1	10H300002	ANY ELECTRONICS CO., LTD	-
Notebook	X56K	HN11N5151FJ0045W	HANSUNG COMPUTER	-
Notebook ADAPTOR	A12-120P1A	F180271552011758	CHICONY POWER TECHNOLOGY CO.,LTD.	-
SPEAKER	BR10000A CUVE	-	BEIJING EDIFIER HI-TECH GROUP.	-
Cellphone	LG-F700	-	LG	-
Alarm	-	-	-	-
Micro SD CARD	-	-	-	4GB
Lens	SLA-M2890DN	-	SAMSUNG	-

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1.6 External I/O Cabling

- AC, DC Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (E.U.T)	RJ-45	Notebook	RJ-45	3.0	U
	Audio In	Cellphone	Audio In	1.0	U
	Audio OUT	SPEAKER	Audio OUT	1.7	U
	Micro SD	Micro SD Card	Micro SD	-	-
	Iris	Lens	Iris	-	-
	2Pin	Alarm	2Pin	3.0	U

- POE Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (E.U.T)	RJ-45	POE ADAPTOR	RJ-45	3.0	U
	Audio In	cellphone	Audio In	1.0	U
	Audio OUT	SPEAKER	Audio OUT	1.7	U
	Micro SD	Micro SD Card	Micro SD	-	-
	Iris	Lens	Iris	-	-
	2Pin	Alarm	2Pin	3.0	U
POE ADAPTOR	RJ-45	Notebook	RJ-45	3.5	U

* Unshielded = U, Shielded = S

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1.7 EUT Operating Mode(s)

Test mode	Normal operating
AC, DC, POE	E.U.T Monitoring, 1 ㎑, Ping Test

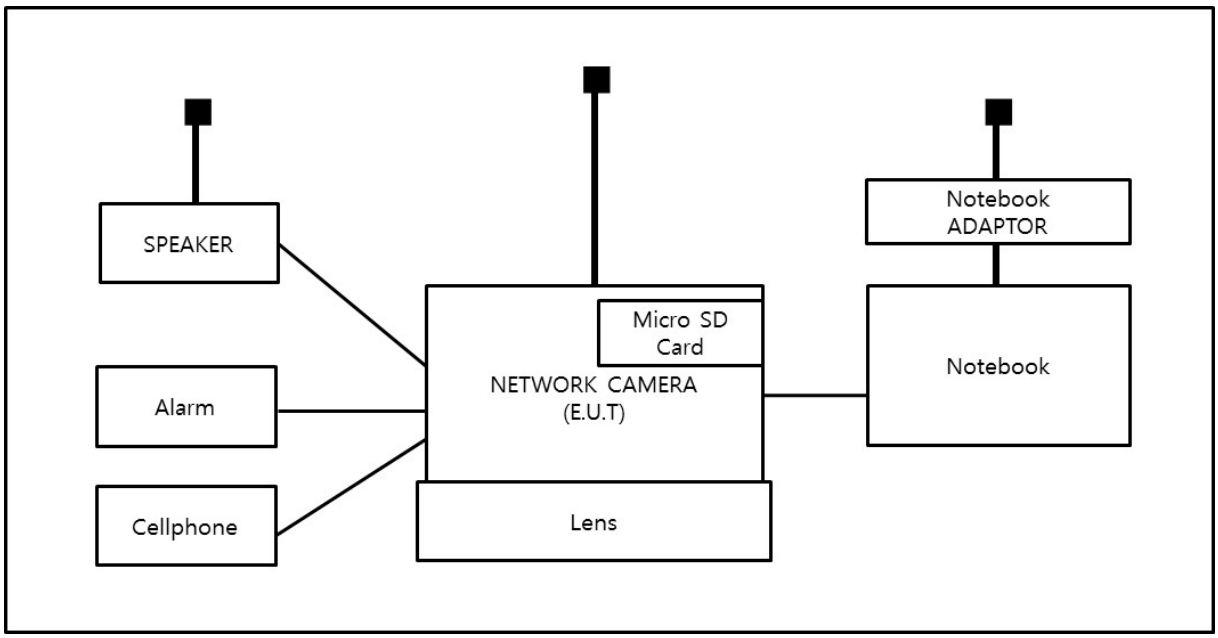
E.U.T Test operating S/W		
Name	Version	Manufacture Company
-	-	-

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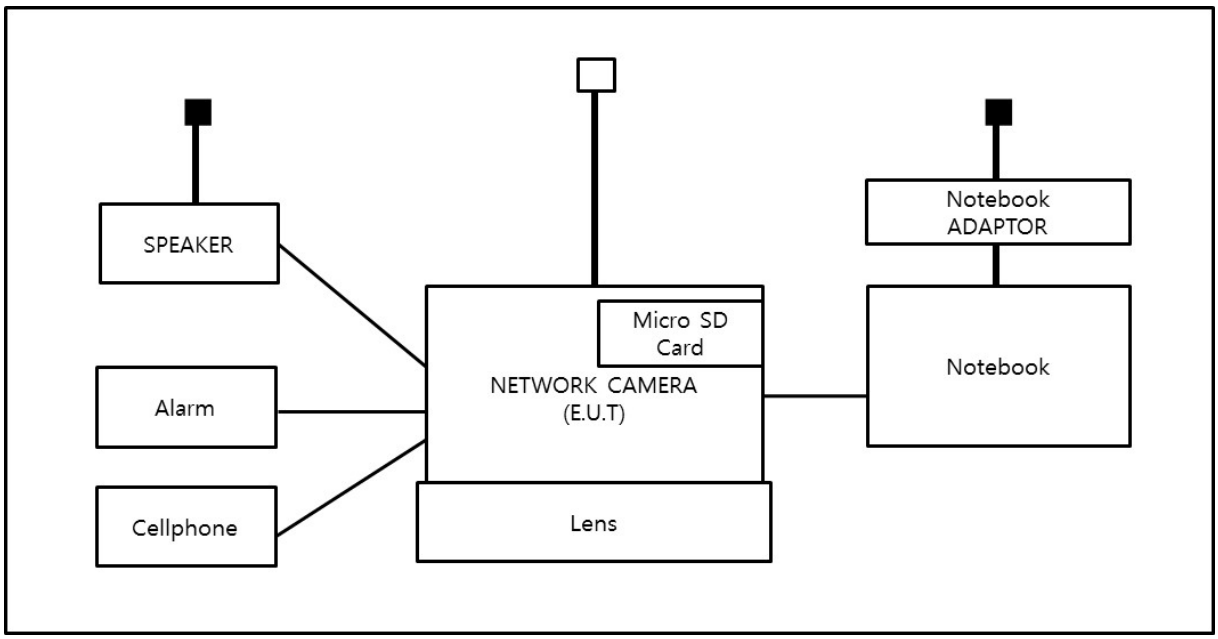
1.8 Configuration

■ AC Main
□ DC Main

- AC Mode

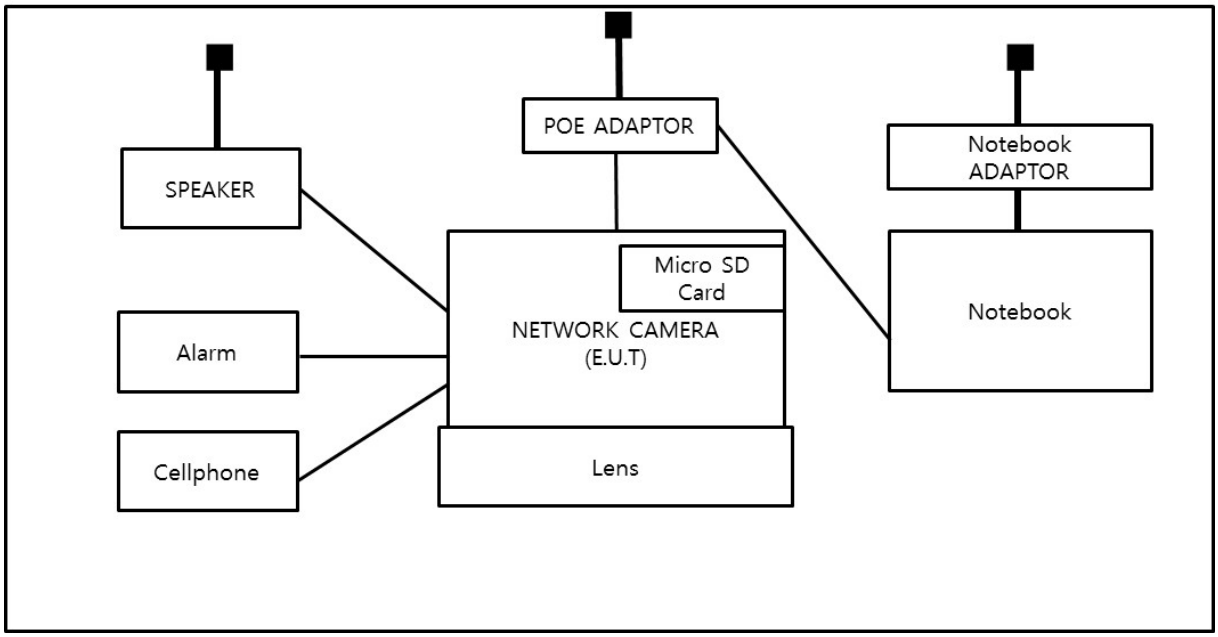


- DC Mode



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- POE Mode



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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. The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22.

1.11 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
USA	**FCC**	3 & 10 meter Open Area Test Sites and one conducted site to perform FCC Part 15/18 measurements.	
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-4308, C-4798, T-2311, G-914
KOREA	**MSIP**	EMI (10 meter Open Area Test Site and two conducted sites) Radio(3 & 10 meter Open Area Test Sites and one conducted site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	KR0100
Canada	**IC**	3 & 10 meter Open Area Test Sites and one conducted site	4769B-1
Europe	**CE**	EMI (10 meter Open Area Test Site and two conducted sites) Radio(3 & 10 meter Open Area Test Sites and one conducted site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	
International	**KOLAS**	EMI (10 meter Open Area Test Site and two conducted sites) Radio(3 & 10 meter Open Area Test Sites and one conducted site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	

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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

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☐ **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 C63.4-2009

☐ **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

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2.1 Conducted Emissions at Mains Power Ports

Test Date
Nov, 28, 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: 17,4 ℃
Relative Humidity: 41,7 %

Frequency Range of Measurement
150 ㎑ to 30 ㎒

Instrument Settings
IF Band Width: 9 ㎑

Test Results
The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks
See Appendix A for test data.

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2.2 Radiated Electric Field Emissions(Below 1 ㎓)

Test Date
Nov, 28, 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: 3,9 ℃
Relative Humidity: 65,0 %

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.

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2.3 Radiated Electric Field Emissions(Above 1 ㎓)

Test Date
Nov, 28, 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: 19,9 ℃
Relative Humidity: 51,2 %

Frequency Range of Measurement
1 ㎓ to 6 ㎓

Instrument Settings
IF Band Width: 1 ㎒

Test Results
The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks
See Appendix A for test data.

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APPENDIX A – TEST DATA

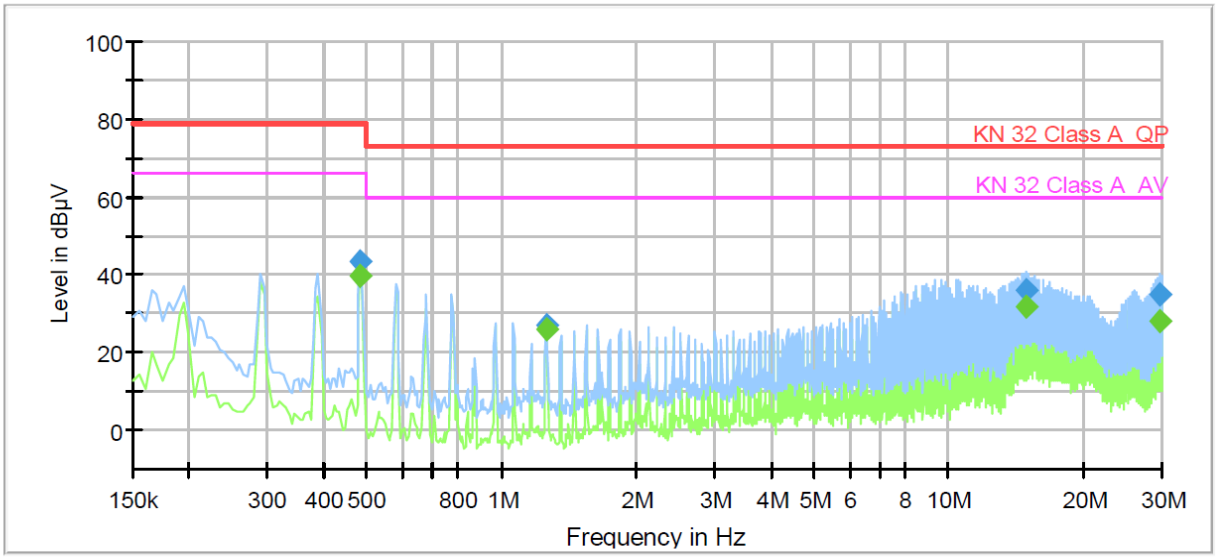
Conducted Emissions at Mains Power Ports

- AC Mode

[HOT]

Common Information

Test Description:	Conducted Emission
Model No.:	XNB-8000N
Mode	AC
Operator Name:	KES



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.485000	---	39.53	66.00	26.47	1000.0	9.000	L1	9.8
0.485000	43.53	---	79.00	35.47	1000.0	9.000	L1	9.8
1.260000	---	26.01	60.00	33.99	1000.0	9.000	L1	10.1
1.260000	26.84	---	73.00	46.16	1000.0	9.000	L1	10.1
14.835000	---	31.63	60.00	28.37	1000.0	9.000	L1	10.1
14.835000	36.25	---	73.00	36.75	1000.0	9.000	L1	10.1
29.575000	---	28.28	60.00	31.72	1000.0	9.000	L1	10.4
29.575000	35.12	---	73.00	37.88	1000.0	9.000	L1	10.4

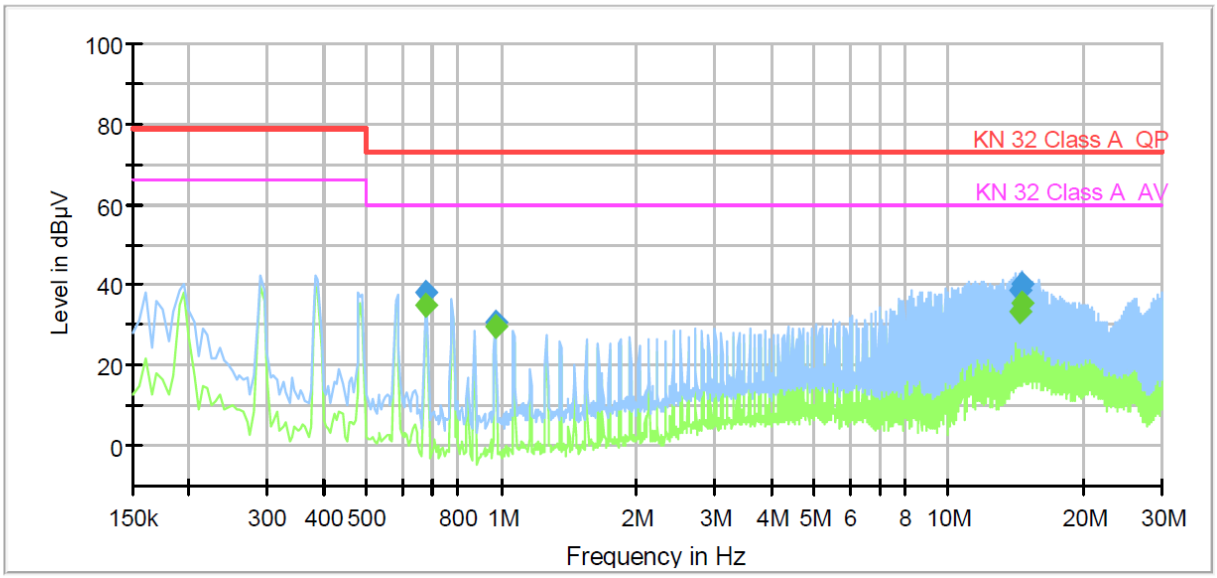
♦ Calculation
QuasiPeak[dBuV] / CAverage [dBuV] = Reading Value[dBuV] + Corr. [dB]
QuasiPeak / CAverage : The Final Value
Reading Value : Not shown in the table.
Corr. : Correction values (LISN FACTOR+ Cable Loss)

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[NEUTRAL]

Common Information

Test Description:	Conducted Emission
Model No.:	XNB-8000N
Mode	AC
Operator Name:	KES



Final_Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.680000	---	34.85	60.00	25.15	1000.0	9.000	N	9.9
0.680000	38.21	---	73.00	34.79	1000.0	9.000	N	9.9
0.970000	---	29.84	60.00	30.16	1000.0	9.000	N	10.0
0.970000	30.83	---	73.00	42.17	1000.0	9.000	N	10.0
14.355000	---	33.43	60.00	26.57	1000.0	9.000	N	10.1
14.355000	38.49	---	73.00	34.51	1000.0	9.000	N	10.1
14.550000	---	35.53	60.00	24.47	1000.0	9.000	N	10.1
14.550000	39.98	---	73.00	33.02	1000.0	9.000	N	10.1

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

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Radiated Electric Field Emissions(Below 1 ㎓)

- AC Mode

Frequency	Amplitude	ANT Polar.	ANT. Height	Correction Factor		Corrected Amplitude	Applicable Limit	Margin
[㎒]	[dB㎶]	(H/V)	[m]	ANT. [dB/m]	Cable [dB]	[dB㎶/m]	[dB㎶/m]	[dB]
150.19	18.71	H	2.36	8.21	3.57	30.49	43.50	13.01
157.05	12.58	V	1.35	8.45	3.66	24.69	43.50	18.81
224.06	11.85	H	2.11	11.83	4.41	28.09	46.40	18.31
230.72	16.25	V	1.85	11.98	4.49	32.72	46.40	13.68
270.45	19.24	V	1.05	12.81	4.90	36.95	46.40	9.45
297.69	12.37	V	3.01	13.34	5.13	30.84	46.40	15.56
297.72	13.05	H	2.00	13.34	5.13	31.52	46.40	14.88
350.96	12.95	H	1.96	14.56	5.65	33.16	46.40	13.24

* 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

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- DC 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]
151.24	10.52	H	2.36	8.24	3.58	22.34	43.50	21.16
155.10	11.58	V	1.52	8.38	3.63	23.59	43.50	19.91
220.01	12.25	H	2.01	11.74	4.36	28.35	46.40	18.05
229.79	11.09	H	1.95	11.96	4.47	27.52	46.40	18.88
251.07	10.23	V	3.02	12.43	4.73	27.39	46.40	19.01
297.69	13.20	H	1.22	13.34	5.13	31.67	46.40	14.73
473.24	11.28	V	3.01	16.73	6.89	34.90	46.40	11.50

* H : Horizontal, V : Vertical

♦ 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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- POE Mode

Frequency	Amplitude	ANT Polar. (H/V)	ANT. Height	Correction Factor		Corrected Amplitude	Applicable Limit	Margin
[㎒]	[dB㎶]		[m]	ANT. [dB/m]	Cable [dB]	[dB㎶/m]	[dB㎶/m]	[dB]
152.26	13.25	H	2.31	8.28	3.60	25.13	43.50	18.37
155.00	15.68	V	2.00	8.38	3.63	27.69	43.50	15.81
223.03	11.25	H	1.52	11.81	4.39	27.45	46.40	18.95
223.94	11.01	V	1.66	11.83	4.40	27.24	46.40	19.16
260.80	13.25	H	3.01	12.62	4.81	30.68	46.40	15.72
270.54	13.20	V	1.25	12.81	4.90	30.91	46.40	15.49
320.01	14.21	H	2.01	13.84	5.35	33.40	46.40	13.00
370.41	11.98	V	1.09	15.01	5.86	32.85	46.40	13.55

* 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

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Radiated Electric Field Emissions(Above 1 ㎓)

- AC Mode

- PK

	Frequency	Amplitude	ANT Polar. (H/V)	ANT. Height	Correction Factor			Corrected Amplitude	Applicable Limit	Margin [dB]
	[㎒]	[dB㎶]		[m]	ANT. [dB /m]	Cable [dB]	AMP [dB]	[dB㎶/m]	[dB㎶/m]	
1	141.000	62.520	H	1.000	21.210	3.300	43.640	43.390	70.000	26.610
1	147.000	52.260	V	1.000	21.240	3.310	43.640	33.170	70.000	36.830
1	198.000	62.160	H	1.000	21.500	3.380	43.640	43.400	70.000	26.600
1	198.000	51.900	V	1.000	21.500	3.380	43.640	33.140	70.000	36.860
1	596.000	49.010	H	1.000	23.540	3.860	43.660	32.750	70.000	37.250
2	057.000	54.830	H	1.000	25.840	4.510	43.810	41.370	70.000	28.630
2	397.000	54.330	H	1.000	27.260	4.900	43.960	42.530	70.000	27.470
2	397.000	50.130	V	1.000	27.260	4.900	43.960	38.330	70.000	31.670
4	000.000	43.360	V	1.000	31.390	6.620	44.210	37.160	74.000	36.840
4	801.000	43.400	H	1.000	32.860	7.000	44.300	38.960	74.000	35.040

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- 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	134.000	48.410	V	1.000	21.170	3.290	43.640	29.230	50.000	20.770
1	141.000	63.890	H	1.000	21.210	3.300	43.640	44.760	50.000	5.240
2	057.000	56.890	H	1.000	25.840	4.510	43.810	43.430	50.000	6.570
2	057.000	50.970	V	1.000	25.840	4.510	43.810	37.510	50.000	12.490
2	275.000	52.560	H	1.000	26.750	4.830	43.910	40.230	50.000	9.770
2	397.000	46.370	V	1.000	27.260	4.900	43.960	34.570	50.000	15.430
2	743.000	46.690	H	1.000	28.710	5.250	44.100	36.550	50.000	13.450
2	801.000	43.200	V	1.000	28.960	5.270	44.120	33.310	50.000	16.690
3	198.000	45.090	H	1.000	30.110	5.680	44.220	36.660	54.000	17.340
4	801.000	41.510	H	1.000	32.860	7.000	44.300	37.070	54.000	16.930
4	903.000	38.750	V	1.000	33.050	6.990	44.320	34.470	54.000	19.530

♦ 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

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- DC 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]			
1 131.000	53.990	V	1.000	21.160	3.290	43.640	34.800	70.000	35.200
1 134.000	61.460	H	1.000	21.170	3.290	43.640	42.280	70.000	27.720
1 198.000	58.550	H	1.000	21.500	3.380	43.640	39.790	70.000	30.210
1 198.000	51.370	V	1.000	21.500	3.380	43.640	32.610	70.000	37.390
1 596.000	48.320	H	1.000	23.540	3.860	43.660	32.060	70.000	37.940
2 000.000	48.680	V	1.000	25.600	4.400	43.780	34.900	70.000	35.100
2 057.000	54.730	H	1.000	25.840	4.510	43.810	41.270	70.000	28.730
2 288.000	53.260	H	1.000	26.810	4.840	43.910	41.000	70.000	29.000
2 288.000	50.860	V	1.000	26.810	4.840	43.910	38.600	70.000	31.400
2 801.000	46.900	V	1.000	28.960	5.270	44.120	37.010	70.000	32.990
4 000.000	45.570	H	1.000	31.390	6.620	44.210	39.370	74.000	34.630
4 000.000	44.350	V	1.000	31.390	6.620	44.210	38.150	74.000	35.850

- AV

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]			
1 141.000	64.270	H	1.000	21.210	3.300	43.640	45.140	50.000	4.860
1 147.000	57.980	V	1.000	21.240	3.310	43.640	38.890	50.000	11.110
1 993.000	49.110	H	1.000	25.560	4.400	43.780	35.290	50.000	14.710
2 057.000	55.750	H	1.000	25.840	4.510	43.810	42.290	50.000	7.710
2 057.000	51.160	V	1.000	25.840	4.510	43.810	37.700	50.000	12.300
2 282.000	51.380	V	1.000	26.780	4.840	43.910	39.090	50.000	10.910
2 288.000	56.270	H	1.000	26.810	4.840	43.910	44.010	50.000	5.990
3 198.000	44.000	H	1.000	30.110	5.680	44.220	35.570	54.000	18.430
4 000.000	41.610	V	1.000	31.390	6.620	44.210	35.410	54.000	18.590
4 001.000	43.930	H	1.000	31.390	6.620	44.210	37.730	54.000	16.270

♦ 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

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- POE Mode

- PK

	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	121.000	50.940	V	1.000	21.110	3.270	43.640	31.680	70.000	38.320
1	134.000	48.670	H	1.000	21.170	3.290	43.640	29.490	70.000	40.510
1	198.000	51.600	V	1.000	21.500	3.380	43.640	32.840	70.000	37.160
1	596.000	45.560	V	1.000	23.540	3.860	43.660	29.300	70.000	40.700
2	057.000	52.520	V	1.000	25.840	4.510	43.810	39.060	70.000	30.940
2	397.000	50.280	H	1.000	27.260	4.900	43.960	38.480	70.000	31.520
2	397.000	52.060	V	1.000	27.260	4.900	43.960	40.260	70.000	29.740
2	802.000	46.450	H	1.000	28.960	5.270	44.120	36.560	70.000	33.440
3	198.000	42.740	V	1.000	30.110	5.680	44.220	34.310	74.000	39.690
4	891.000	38.640	H	1.000	33.030	7.000	44.310	34.360	74.000	39.640

- 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	147.000	51.820	H	1.000	21.240	3.310	43.640	32.730	50.000	17.270
1	147.000	52.810	V	1.000	21.240	3.310	43.640	33.720	50.000	16.280
2	057.000	52.200	H	1.000	25.840	4.510	43.810	38.740	50.000	11.260
2	057.000	54.130	V	1.000	25.840	4.510	43.810	40.670	50.000	9.330
2	288.000	51.210	H	1.000	26.810	4.840	43.910	38.950	50.000	11.050
2	294.000	51.240	V	1.000	26.830	4.840	43.920	38.990	50.000	11.010
2	397.000	46.910	H	1.000	27.260	4.900	43.960	35.110	50.000	14.890
2	397.000	46.930	V	1.000	27.260	4.900	43.960	35.130	50.000	14.870
3	205.000	41.580	V	1.000	30.120	5.680	44.220	33.160	54.000	20.840
4	903.000	38.430	H	1.000	33.050	6.990	44.320	34.150	54.000	19.850
4	903.000	38.660	V	1.000	33.050	6.990	44.320	34.380	54.000	19.620

♦ Calculation

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

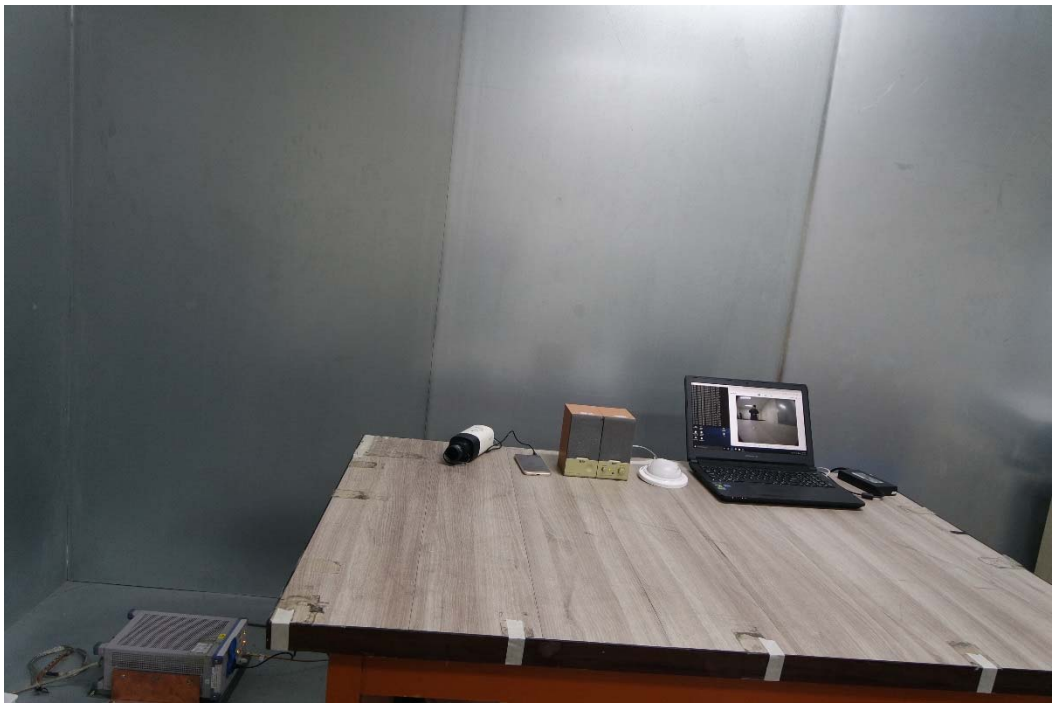
Over Limit : Margin Value, Read Level : Reading Value, Ant Factor : Ant Factor, Cable Loss : Cable loss, Preamp Factor : Preamp Factor

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Test Setup Photos and Configuration

Conducted Voltage Emissions

- AC Mode





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Radiated Electric Field Emissions(Below 1 ㎓)

- AC Mode





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- DC Mode





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- POE Mode

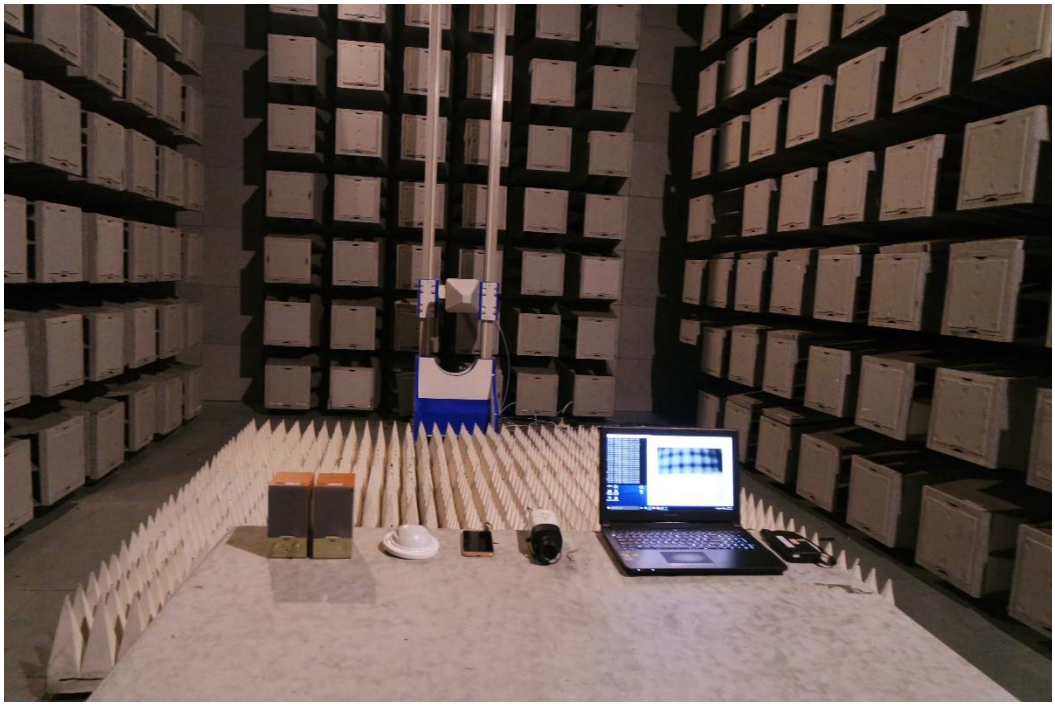


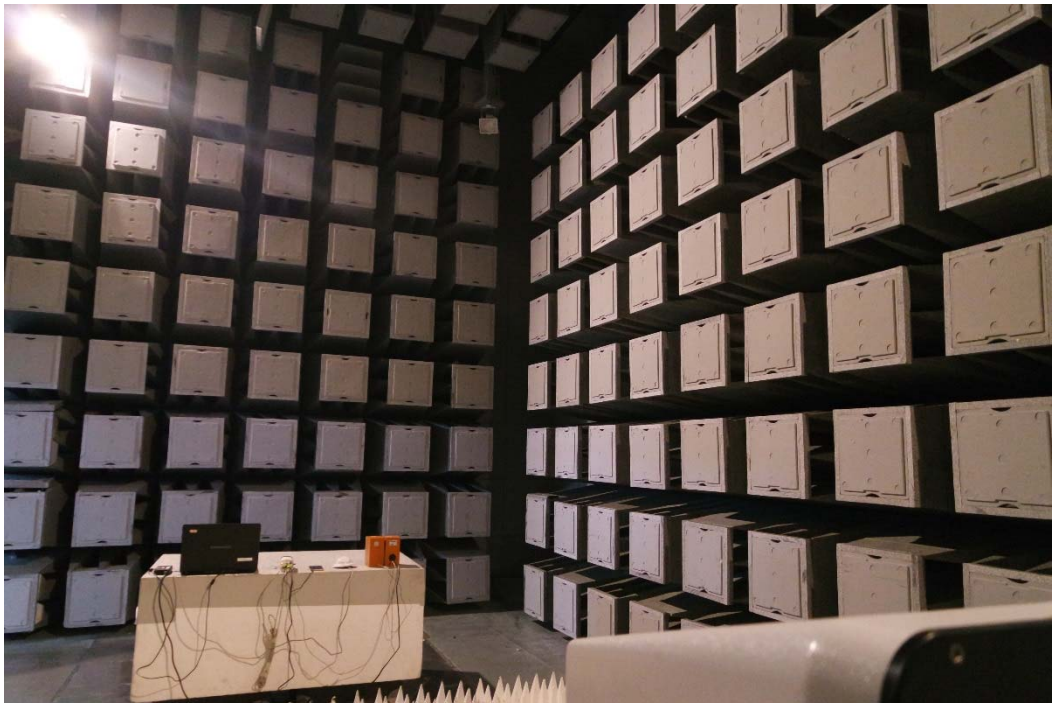


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Radiated Electric Field Emissions(Above 1 ㎓)

- AC Mode





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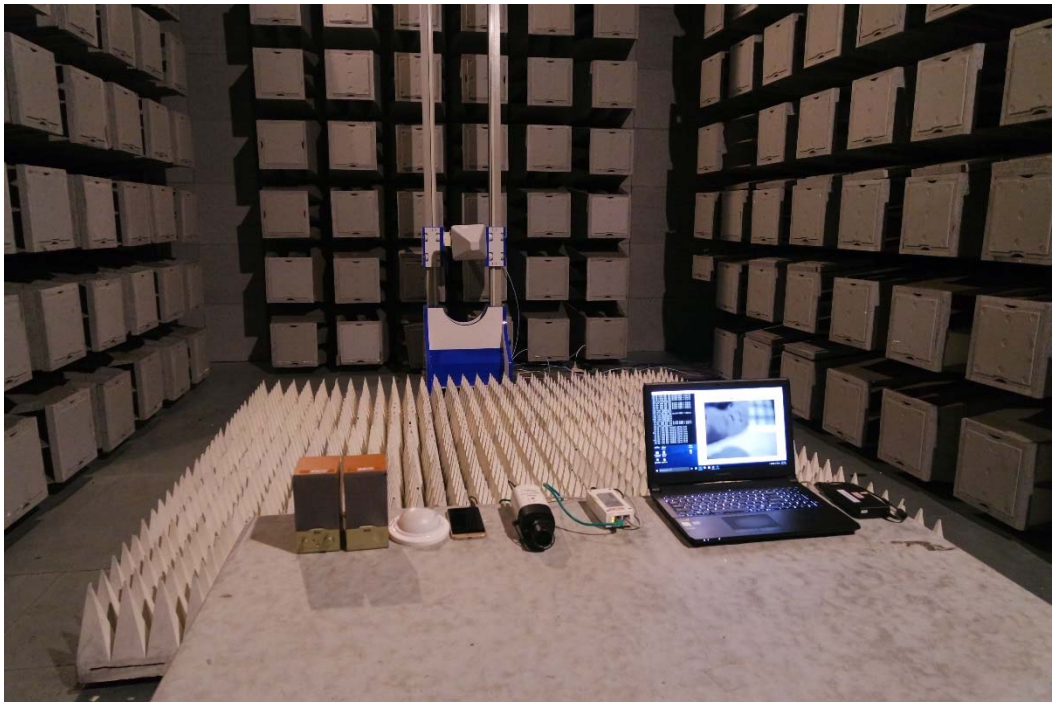
- DC Mode





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- POE Mode





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EUT External Photographs

(Top)



(Bottom)



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EUT Internal Photographs

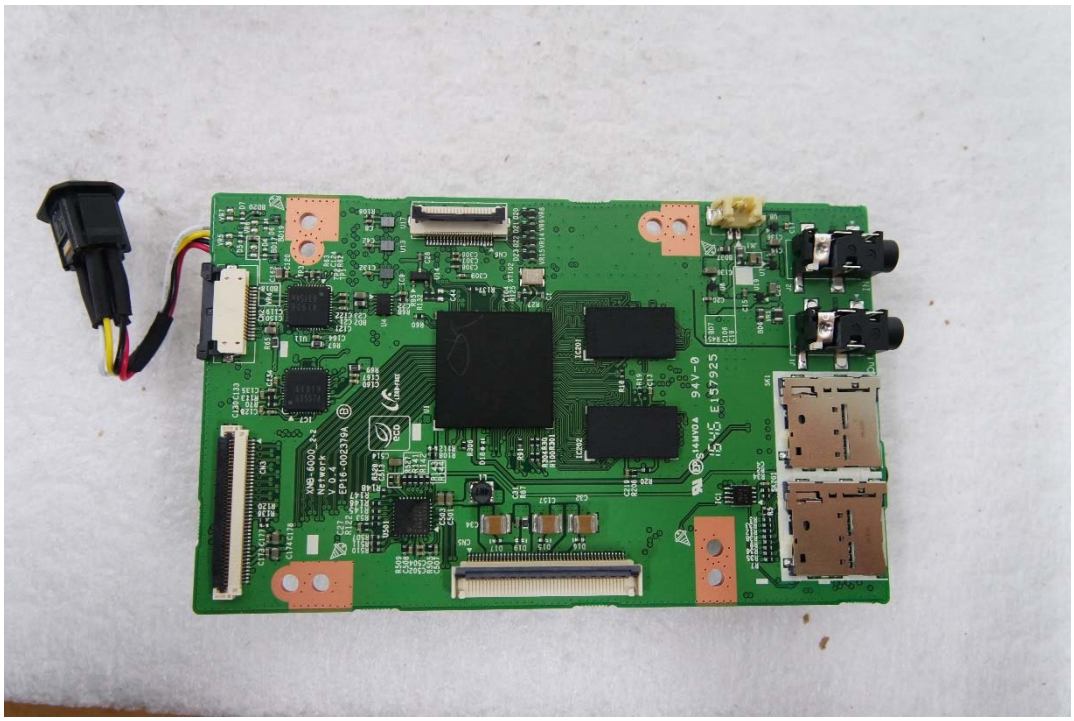
(Internal View)



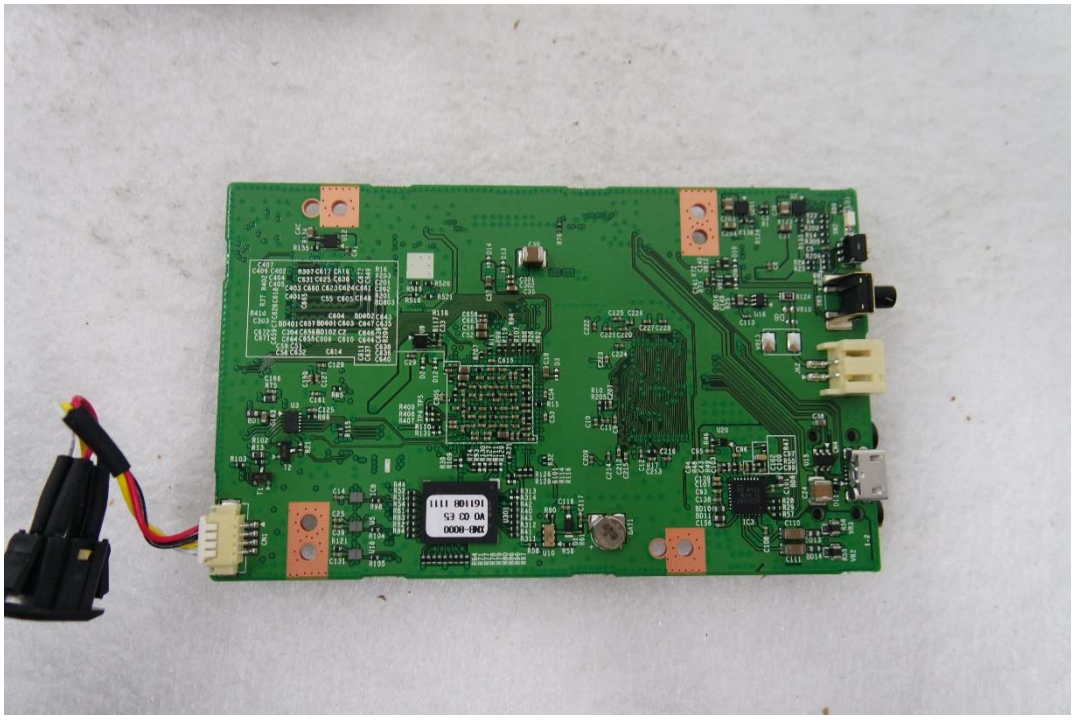
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EUT Internal View – Main Board

(Top)



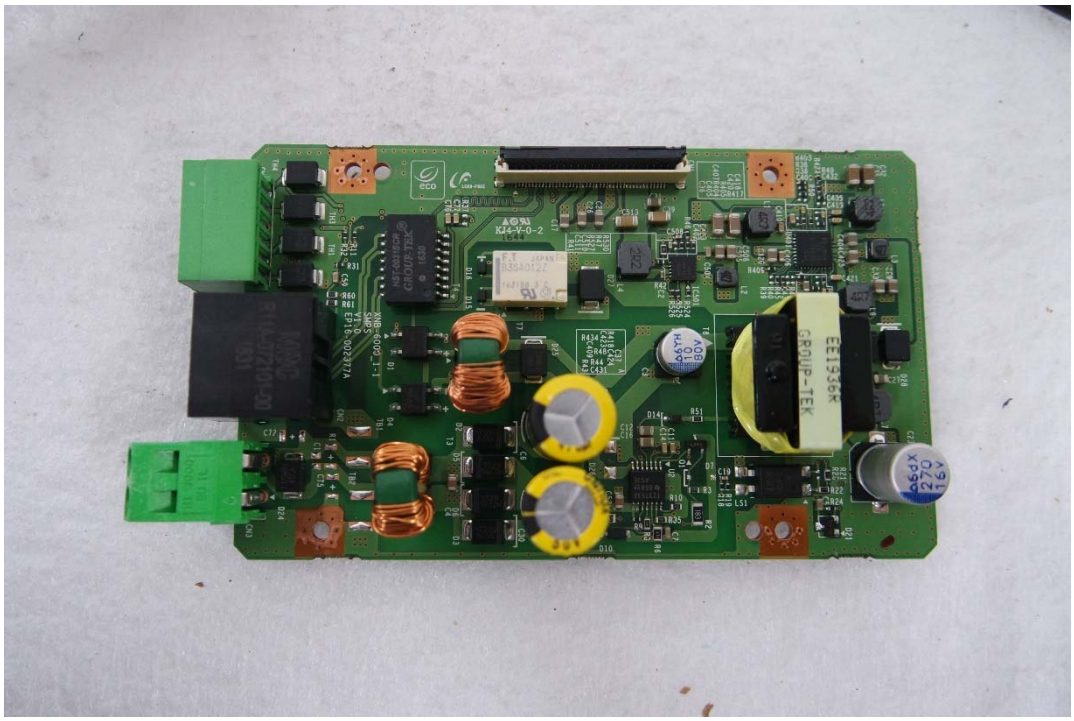
(Bottom)



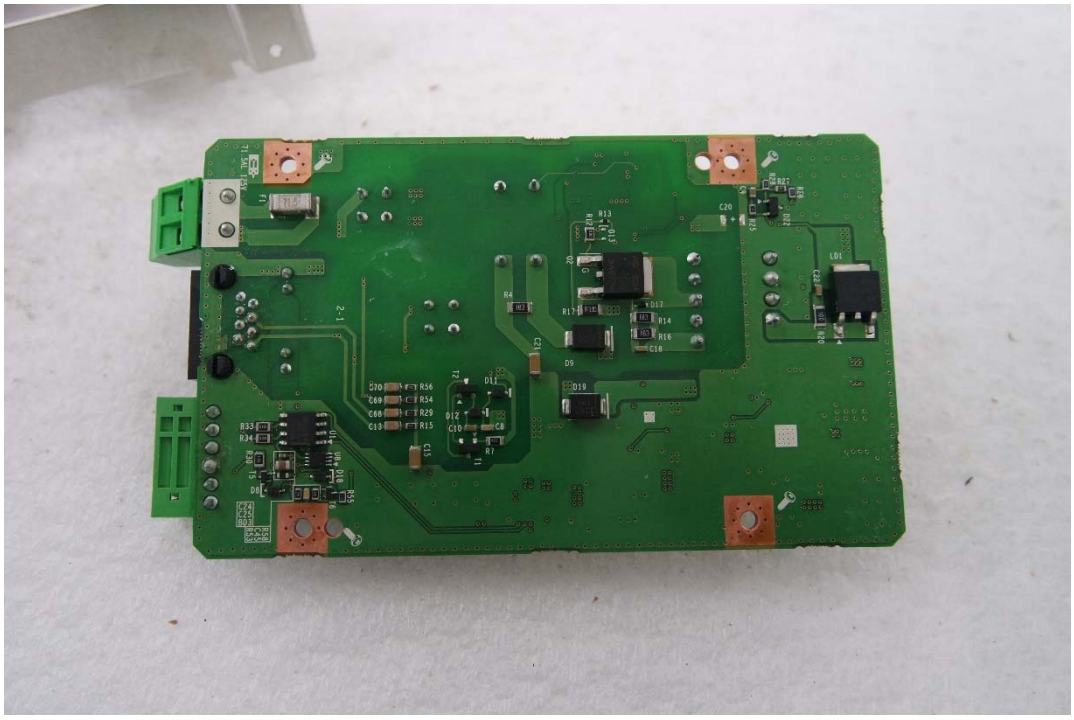
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EUT Internal View – Power Board

(Top)



(Bottom)



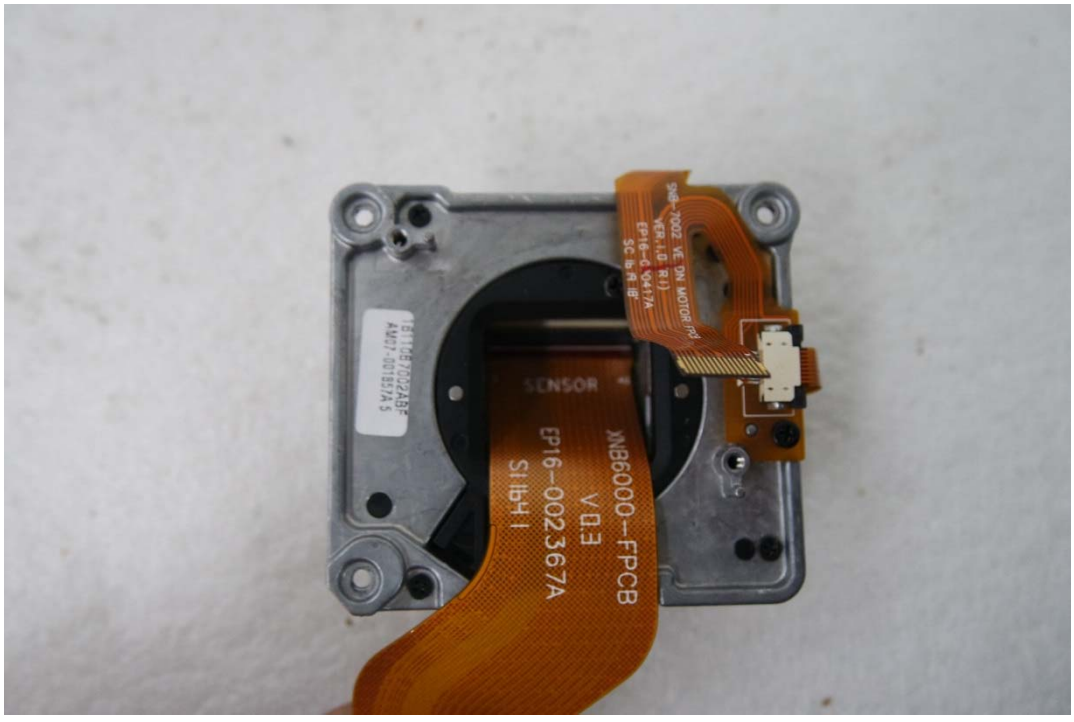
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EUT Internal View – Lens

(Top)

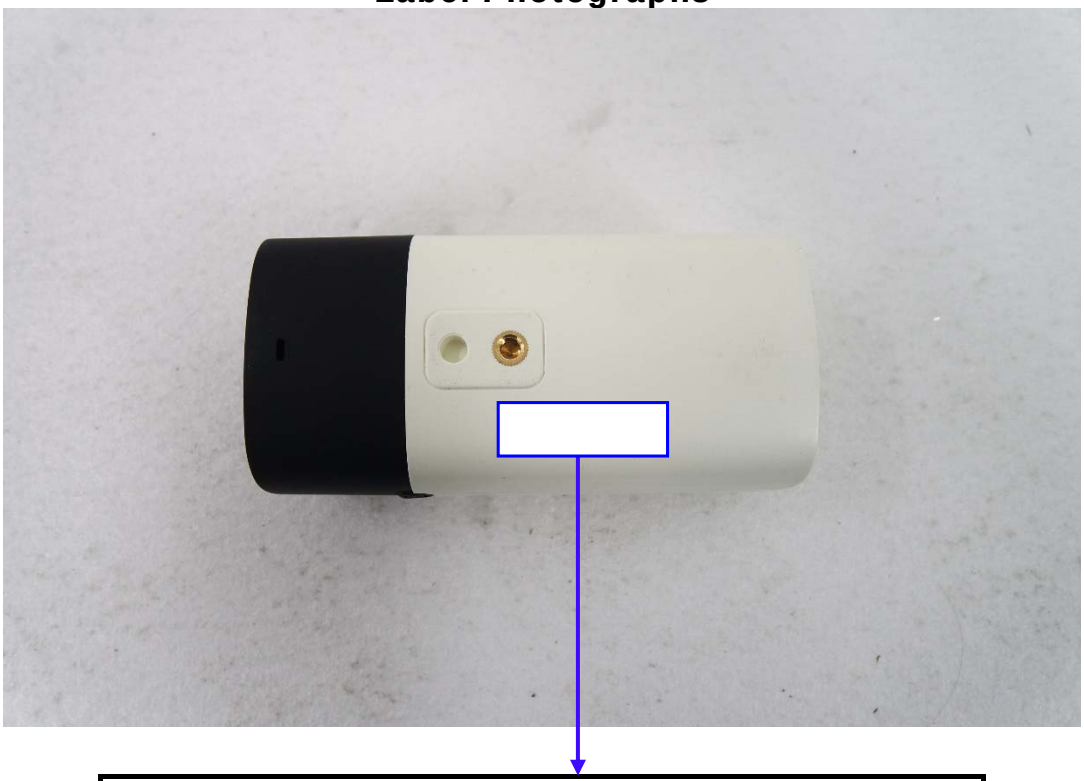


(Bottom)



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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.

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