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:	XNV-8030RN
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:	Hanwha Techwin (Tianjin) 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-E1-17T0090

NETWORK CAMERA, Model **XNV-8030RN** 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-E1-17T0090

Date of Issue: 02. 06, 2017

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
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EMC TEST REPORT For FCC

Test Report No.	:	KES-E1-17T0090
Date of Issue	:	Feb. 06, 2017
Product name	:	NETWORK CAMERA
Model/Type No.	:	XNV-8030RN
Variant Model	:	-
Applicant	:	Hanwha Techwin Co., Ltd.
Applicant Address	:	Changwon-daero, Seongsan-gu Changwon-si, Gyeongsangnam-do
Manufacturer	:	Hanwha Techwin (Tianjin) 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	:	Jan, 10, 2017
Test date	:	Jan. 31, 2017
Test Results	:	☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Jin Bae, Lee
EMC Test Engineer

Reviewed by

Dong-Hun, Jang
EMC Technical Manager

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REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Feb. 06, 2017	KES-E1-17T0090	Issued

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1.0 General Product Description

Main Specifications of EUT are:

	XNV-8030R
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 : 0.2 lux(F1.6, 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, 1280x720, for installation
Lens	
Focal Length (Zoom Ratio	4.6mm Fixed
Max. Aperture Ratio	F1.6
Angular Field of View	H: 77.9°, V:57.9°, D: 98.7°
Min. Object Distance	0.4m
Focus Control	Manual
Lens Type	Fixed
Mount Type	Board-in type
Pan / Tilt / Rotate	
Pan / Tilt / Rotate range	0° ~ 354° / 0° ~ 67° / 0° ~ 355°
Operational	
IR Viewable Length	30m(98.43ft)
Camera Title	Off / On (Displayed up to 85 characters) - W/W : English/Numeric/Special Characters - China : English/Numeric/Special/Chinese Characters - Common : Multi-line (Max 5), Color (Grey/Green/Red/Blue/Black/White), Transparency, Auto Scale by Resolution
Day & Night	Auto (ICR) / Color / B/W / External / Schedule
Backlight Compensation	Off / BLC / HLC(Masking/Dimming), WDR
Wide Dynamic Range	120dB
Contrast Enhancement	SSDR (Off / On)
Digital Noise Reduction	SSNR5 (2D+3D Noise Filter) (Off / On)
Digital Image Stabilization	Off / On
Defog	Auto(input from fog detection) / Manual / Off
Motion Detection	Off/ On(8ea, 8point Polygonal zones), Handover
Privacy Masking	Off / On (32ea, polygonal zones) - Color : Grey/Green/Red/Blue/Black/White - Mosaic
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)
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&Dust Detection, Virtual Line, Enter/Exit, Appear / Disappear, Audio Detection, Face Detection, Motion Detection, Digital Auto Tracking, Sound Classification, People counting, Heat map, Queue management
Alarm I/O	Input 1ea / Output 1ea
Alarm Triggers	Alarm Input, Motion Detection, Video & Audio Analytics, Network Disconnect
Alarm events	File upload via FTP, E-Mail Notification via E-Mail local storage(SD/SDHC/SDXC) or NAS recording at Event Triggers External output DPTZ preset
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

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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	2560 x 1920, 2560 x 1440, 1920 x 1080, 1600 x 1200, 1280 x 1024, 1280 x 960 1280 x 720, 1024 x 768, 800 x 600, 800 x 448, 720 x 576, 720 x 480, 640 x 480, 640 x 360, 320 x
Max. Framerate	H.265/H.264 : Max. 30fps at all resolutions Motion JPEG : Max. 30fps
Smart Codec	Manual Mode (area-based : 5EA)
WiseStream II	Support
Video Quality Adjustment	H.264/H.265 : Target Bitrate Level Control MJPEG : Target Bitrate Level Control
Bitrate Control Method	H.264/H.265 : CBR or VBR 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
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 I	ONVIF Profile S/G SUNAPI(HTTP API) Open Platform
Webpage Language	English, Korean, Chinese, French, Italian, Spanish, German, Japanese, Russian, Swedish,, Portuguese, Czech, Polish, Turkish, Dutch, Hungarian, Greek
Web Viewer	Supported OS: Windows 7, 8.1, 10, Mac OS X 10.10. 10.11 10.12 **Non-plugin Webviewer** Supported Browser: Google Chrome 54, MS Edge 38, Mozilla Firefox 49(Window 64bit only) , Apple Safari 9 (Mac OS X only) **Plug-in Webviewer** Supported Browser : MS Explore 11, Apple Safari 9 (Mac OS X only)
Central Management Soft	SmartViewer, SSM
Environmental	
Operating Temperature / Humidity	-30°C ~ +55°C (-22°F ~ +131°F) / Less than 90% RH *Start up should be done at above -20°C
Storage Temperature / Humidity	-50°C ~ +60°C (-22°F ~ +140°F) / Less than 90% RH
Ingress Protection	IP67, IP66
Vandal Resistance	IK10
Electrical	
Input Voltage / Current	DC12V,PoE(IEEE802.3af,Class3)
Power Consumption	Max. 8W(12VDC), Max. 9W(PoE)
Mechanical	
Color / Material	Ivory / Metal
Dimension (WxHxD)	Ø120xH97.5mm(Ø4.72" x 3.84")

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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	XNV-8030RN	-	Hanwha Techwin (Tianjin) Co.,Ltd.	E.U.T

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
POE Adapter	PD-3001GC/AC	RD9356082016964200	Power Dsine	-
Notebook	X56K	HN11N5151FJ0045W	HANSUNG	-
Notebook Adapter	A12-120P1A	F180271552011758	CHICONY POWER TECHNOLOGY CO.,LTD.	-
Phone	A1530	-	APPLE	-
MIC	CMK-303	-	CAMAC	-
Speaker	BR10000A CUVE	-	BEIJING EDIFIER HI-TECH GROUP.	-
Alarm	-	-	-	-
SD card	-	-	SanDisk	-

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1.6 External I/O Cabling

- DC 12 V Mode

Start		END		Cable Spec.	
Description	**I/O Port**	**Description**	**I/O Port**	**Length**	**Shield**
NETWORK CAMERA (E.U.T)	RJ-45	Notebook	RJ-45	3.0	U
	7 Pin	MIC	3.5 ㎜	1.7	U
		Speaker	3.5 ㎜	1.6	U
		Alarm	2 pin	3.0	U
	Slot	SD card	Slot	-	-
Notebook	Audio in	Phone	Audio out	1.7	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)	POE Adapter	RJ-45 (POE)	3.0	U
	7 Pin	MIC	3.5 ㎜	1.7	U
		Speaker	3.5 ㎜	1.6	U
		Alarm	2 pin	3.0	U
	Slot	SD card	Slot	-	-
Notebook	Audio in	Phone	Audio out	1.7	U
	RJ-45 (DATA)	POE Adapter	RJ-45 (DATA)	3.0	U

* Unshielded = U, Shielded = S

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1.7 EUT Operating Mode(s)

Test mode	operating
DC 12 V, POE	E.U.T Monitoring, 1 ㎑, Ping Test

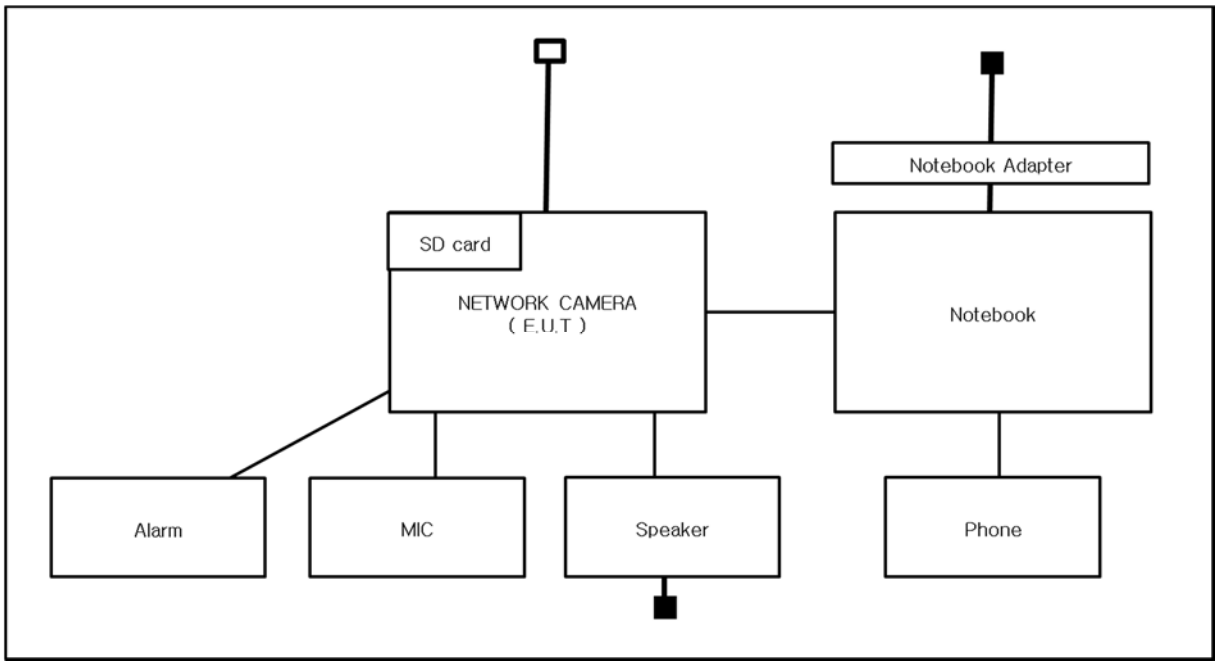
E.U.T Test operating S/W		
Name	Version	Manufacture Company
SmartViewer	-	Hanwha Techwin Co., Ltd.

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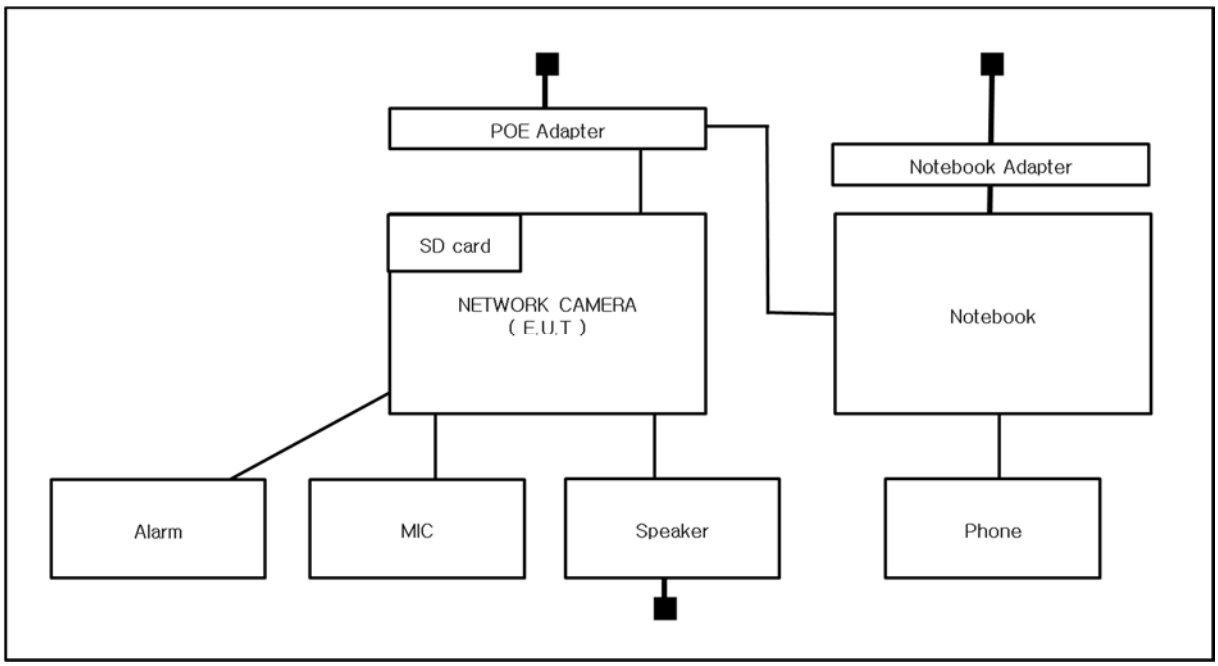
1.8 Configuration

■ AC Main
□ DC Main

- DC 12 V Mode



- 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)	KOREA LABORATORY ACCREDITATION SCHEME KOLAS TESTING NO. 489

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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 C63.4-2014 ☒ 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

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2.1 Conducted Emissions at Mains Power Ports

Test Date
N/A

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: ℃
Relative Humidity: %

Frequency Range of Measurement
150 ㎑ to 30 ㎒

Instrument Settings
IF Band Width: 9 ㎑

Test Results
The requirements are:

☐ PASS
☐ NOT PASS
☒ NOT APPLICABLE

Remarks
N/A Because the E.U.T power is 12 v (dc) power and PoE, limits are not specified.

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2.2 Radiated Electric Field Emissions(Below 1 ㎓)

Test Date
Jan, 31, 2017

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 Antenna	VULB9163	Schwarzbeck	714	11, 28, 2018
☒	OATS	-	KES	-	-
☒	Antenna Mast	-	DAEIL EMC	-	-
☒	Turn Table	-	DAEIL EMC	-	-
☒	EMI Test S/W	-	-	-	-

Test Conditions
Temperature: -1,9 ℃
Relative Humidity: 50,0 %

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
Jan, 31, 2017

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	SCU 18	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	N/A	N/A	N/A	N/A

Test Conditions
Temperature: 23,8 ℃
Relative Humidity: 41,1 %

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

[HOT]

N/A

♦ 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)

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[NEUTRAL]

N/A

♦ 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 ㎓)

- DC 12 V 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]
55.26	11.24	V	1.12	12.47	2.17	25.88	39.00	13.12
250.81	13.27	H	3.46	12.51	4.73	30.51	46.40	15.89
300.64	21.20	H	3.79	13.43	5.16	39.79	46.40	6.61
458.72	11.92	V	1.41	16.63	6.83	35.38	46.40	11.02
537.32	9.17	H	4.00	18.09	7.30	34.56	46.40	11.84
649.96	14.90	V	1.00	19.48	8.15	42.53	46.40	3.87

* 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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- 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]
70.10	15.82	V	1.14	8.73	2.40	26.95	39.00	12.05
300.14	12.42	V	1.27	13.42	5.15	30.99	46.40	15.41
350.62	17.11	H	3.81	14.53	5.65	37.29	46.40	9.11
400.63	11.49	H	4.00	15.62	6.18	33.29	46.40	13.11
525.67	8.31	H	4.00	17.86	7.21	33.38	46.40	13.02
650.02	14.47	V	1.00	19.49	8.15	42.11	46.40	4.29

* 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

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Radiated Electric Field Emissions(Above 1 ㎓)

- DC 12 V 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	592.000	76.310	V	3.790	23.520	3.850	43.660	60.020	80.000	19.980
1	597.000	75.030	H	2.410	23.540	3.860	43.660	58.770	80.000	21.230
1	810.000	69.970	V	3.920	24.630	4.310	43.720	55.190	80.000	24.810
1	933.000	81.040	H	3.710	25.260	4.370	43.760	66.910	80.000	13.090
1	993.000	66.730	H	3.660	25.560	4.400	43.780	52.910	80.000	27.090
2	185.000	66.010	V	1.180	26.380	4.760	43.870	53.280	80.000	26.720
3	590.000	45.130	H	1.520	30.730	6.190	44.240	37.810	80.000	42.190
3	590.000	45.260	V	1.610	30.730	6.190	44.240	37.940	80.000	42.060
4	337.000	41.590	V	2.840	32.010	6.750	44.240	36.110	80.000	43.890
4	430.000	42.760	H	3.110	32.180	6.720	44.250	37.410	80.000	42.590

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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	214.000	68.370	V	2.140	21.580	3.400	43.640	49.710	60.000	10.290
1	601.000	67.370	H	3.810	23.560	3.860	43.660	51.130	60.000	8.870
1	608.000	63.280	V	1.660	23.600	3.880	43.660	47.100	60.000	12.900
1	981.000	65.690	H	3.740	25.500	4.390	43.770	51.810	60.000	8.190
1	997.000	41.290	H	3.610	25.580	4.400	43.780	27.490	60.000	32.510
2	192.000	40.340	V	1.550	26.400	4.770	43.870	27.640	60.000	32.360
3	368.000	32.930	V	1.470	30.380	5.840	44.240	24.910	60.000	35.090
3	592.000	33.910	H	3.690	30.740	6.200	44.240	26.610	60.000	33.390
4	290.000	31.650	V	1.000	31.920	6.780	44.240	26.110	60.000	33.890
4	449.000	32.550	H	3.820	32.220	6.730	44.250	27.250	60.000	32.750

♦ 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]
	[MHz]	[dBμV]		[m]	ANT. [dB /m]	Cable [dB]	AMP [dB]	[dBμV/m]	[dBμV/m]	
1	182.000	85.000	V	2.140	21.420	3.360	43.640	66.140	80.000	13.860
1	292.000	79.270	H	3.860	21.980	3.500	43.630	61.120	80.000	18.880
1	582.000	78.070	H	3.870	23.460	3.840	43.650	61.720	80.000	18.280
1	597.000	79.360	V	1.920	23.540	3.860	43.660	63.100	80.000	16.900
1	999.000	65.300	V	1.500	25.590	4.400	43.780	51.510	80.000	28.490
2	361.000	55.460	H	3.130	27.110	4.880	43.950	43.500	80.000	36.500
3	578.000	44.780	V	2.420	30.710	6.170	44.240	37.420	80.000	42.580
3	684.000	46.070	H	3.810	30.880	6.280	44.240	38.990	80.000	41.010
4	391.000	41.530	H	3.650	32.110	6.710	44.250	36.100	80.000	43.900
4	787.000	40.090	V	1.380	32.840	6.990	44.300	35.620	80.000	44.380

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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	206.000	67.810	V	1.460	21.540	3.390	43.640	49.100	60.000	10.900
1	213.000	67.830	H	3.870	21.580	3.400	43.640	49.170	60.000	10.830
1	588.000	64.730	V	1.660	23.490	3.850	43.660	48.410	60.000	11.590
1	602.000	66.740	H	3.710	23.570	3.860	43.660	50.510	60.000	9.490
1	985.000	43.950	V	2.140	25.520	4.390	43.780	30.080	60.000	29.920
2	403.000	48.690	H	3.910	27.290	4.900	43.970	36.910	60.000	23.090
3	517.000	33.740	H	3.840	30.620	6.070	44.250	26.180	60.000	33.820
3	716.000	33.670	V	1.360	30.940	6.300	44.230	26.680	60.000	33.320
4	333.000	30.960	H	2.330	32.000	6.750	44.240	25.470	60.000	34.530
4	760.000	37.710	V	1.740	32.790	6.960	44.300	33.160	60.000	26.840

♦ 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

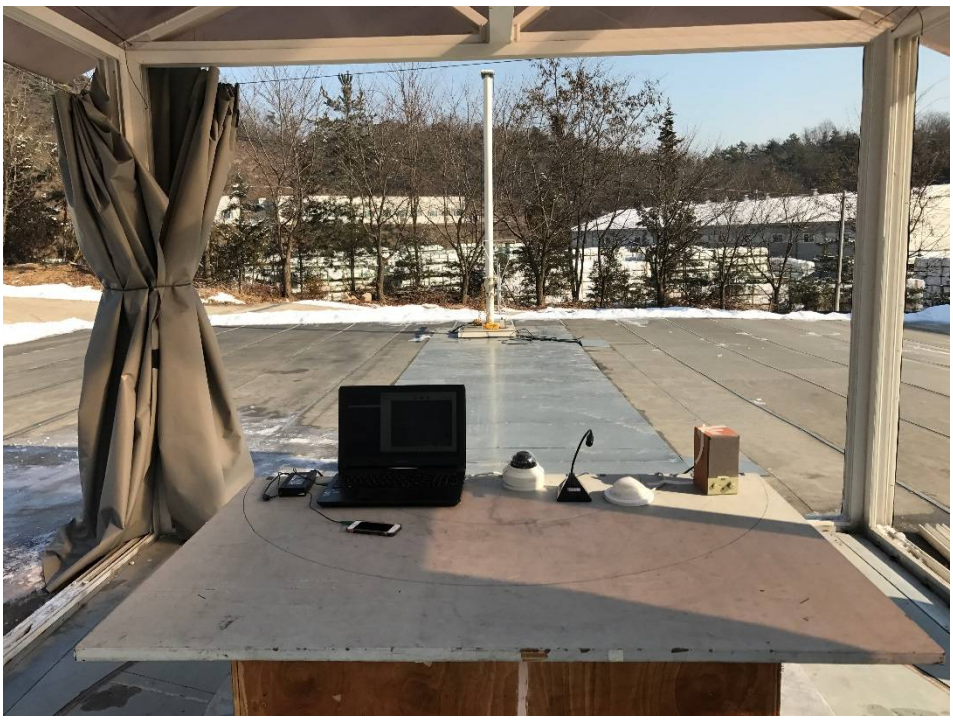
N/A

N/A

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Radiated Electric Field Emissions(Below 1 ㎓)

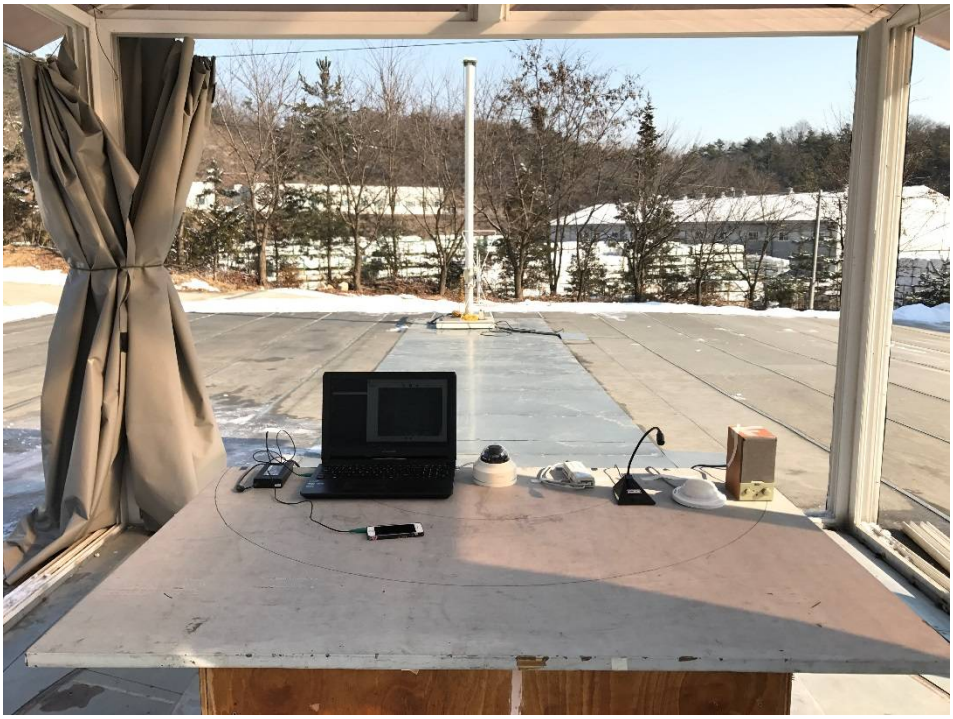
- DC 12 V Mode





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- PoE Mode



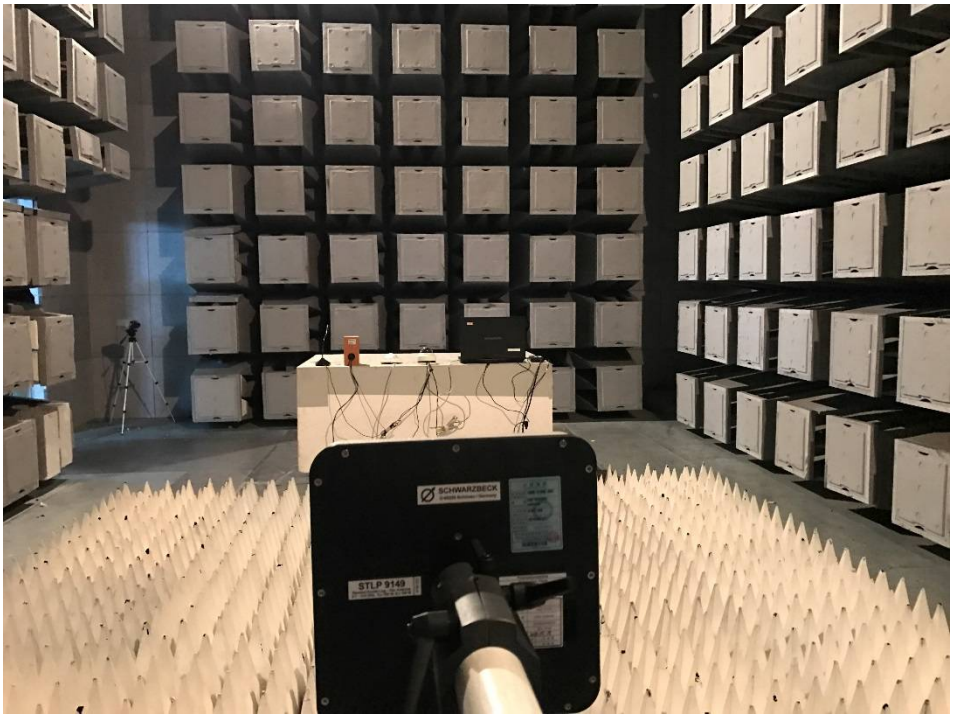


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Radiated Electric Field Emissions(Above 1 ㎓)

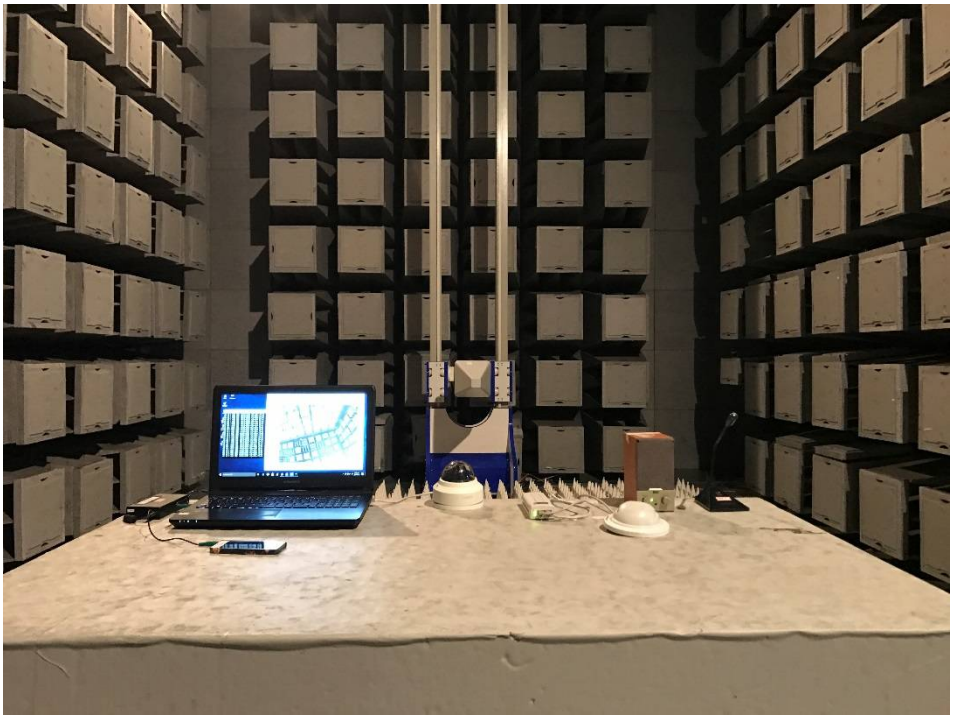
- DC 12 V Mode

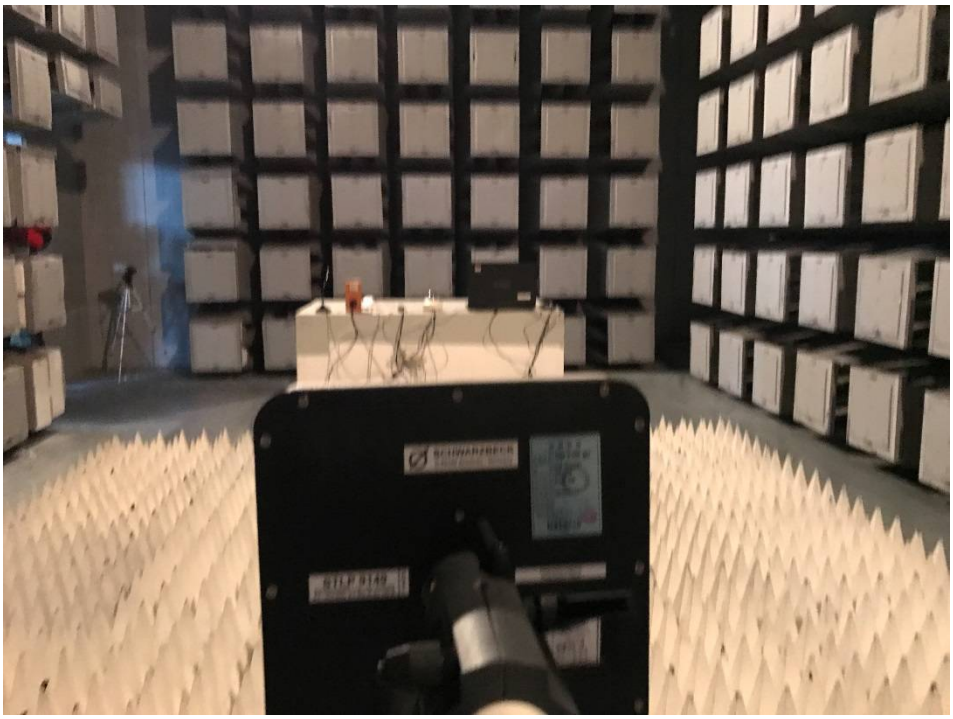




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- PoE Mode





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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 – Board 1

(Top)



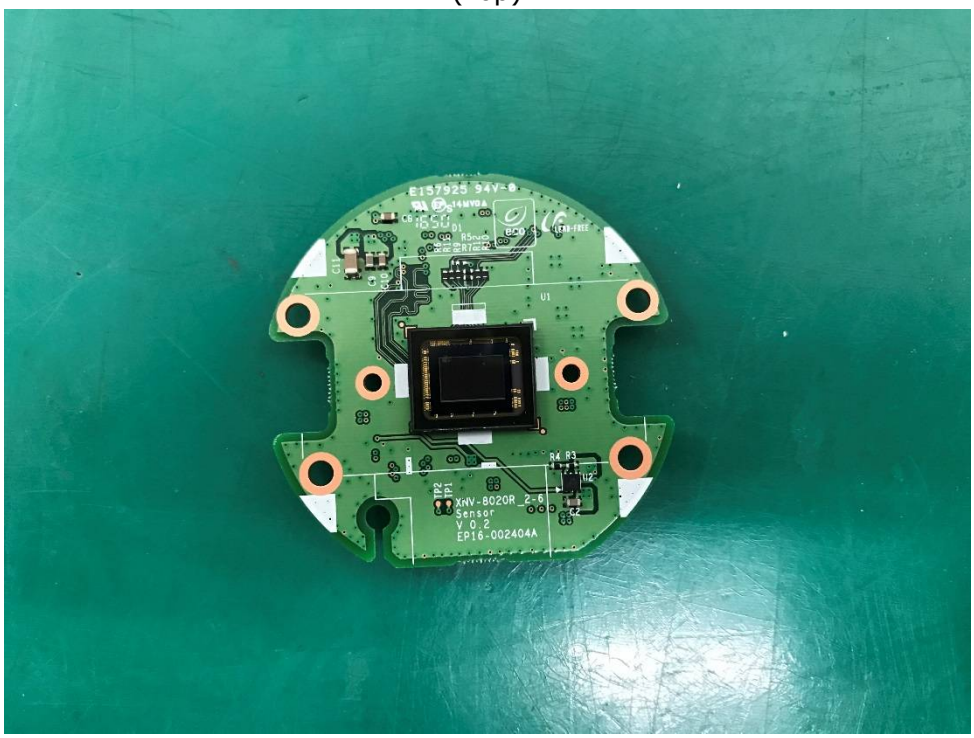
(Bottom)



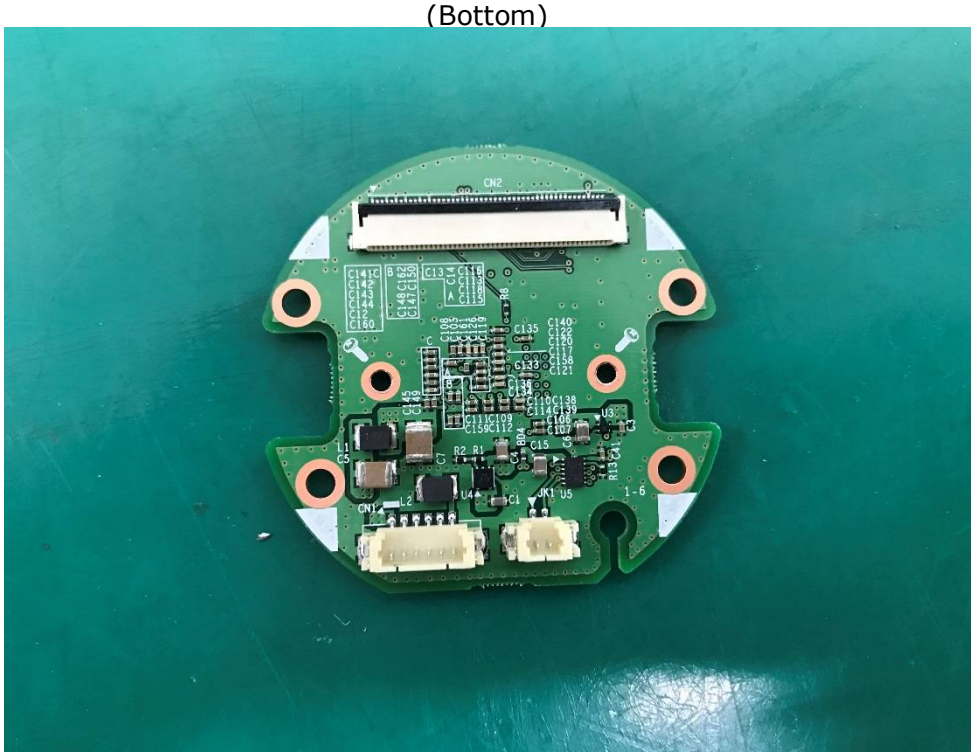
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EUT Internal View – Board 2

(Top)



(Bottom)



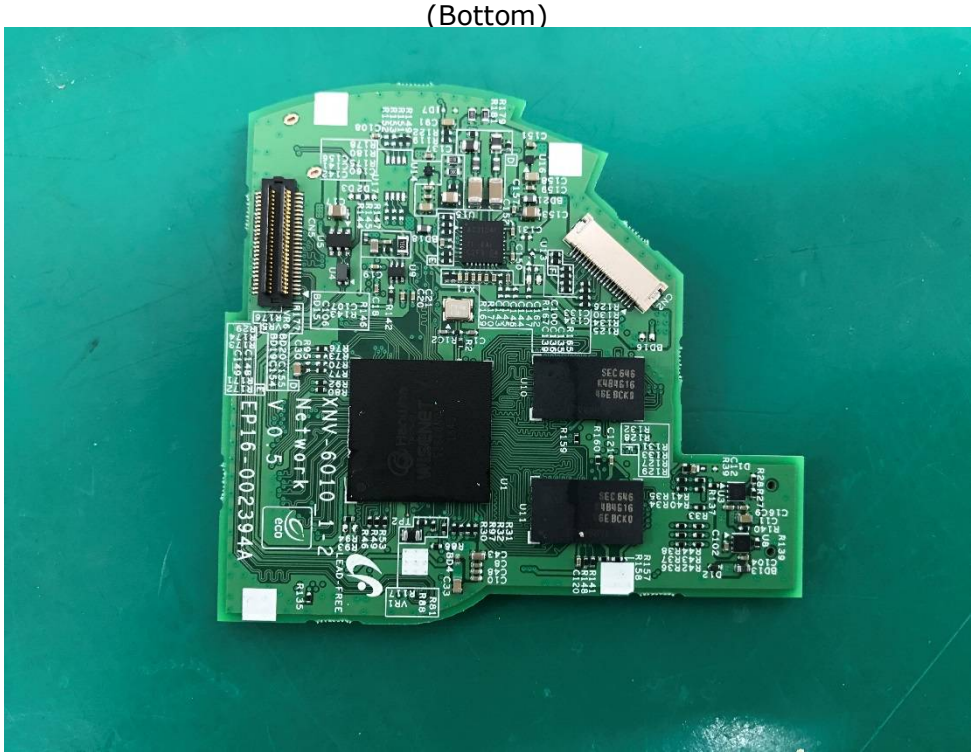
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EUT Internal View – Board 3

(Top)



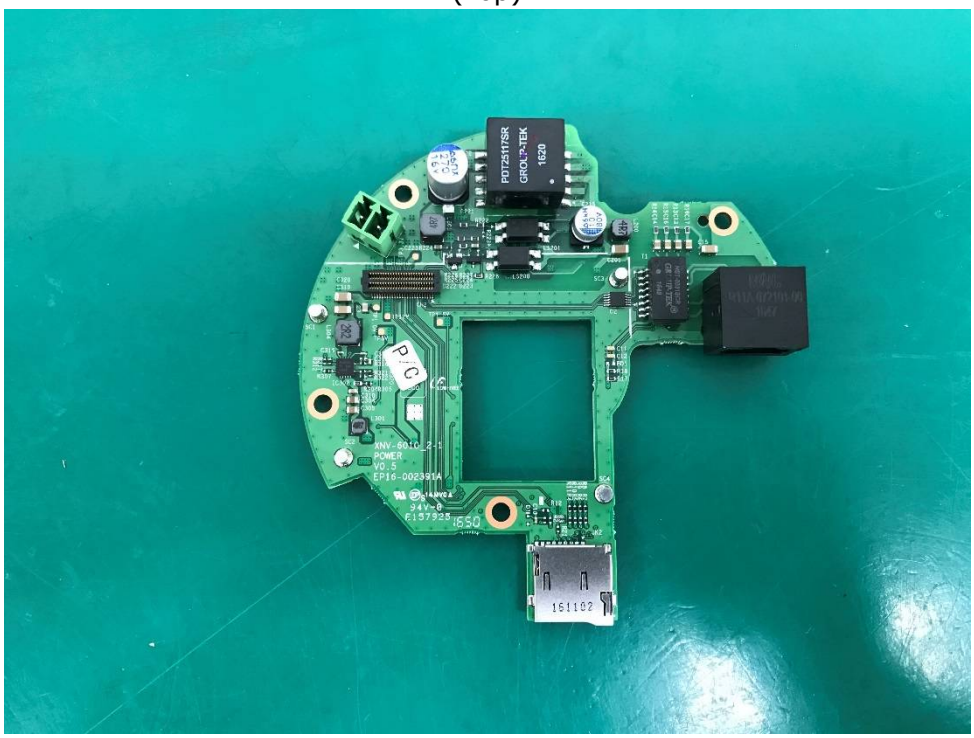
(Bottom)



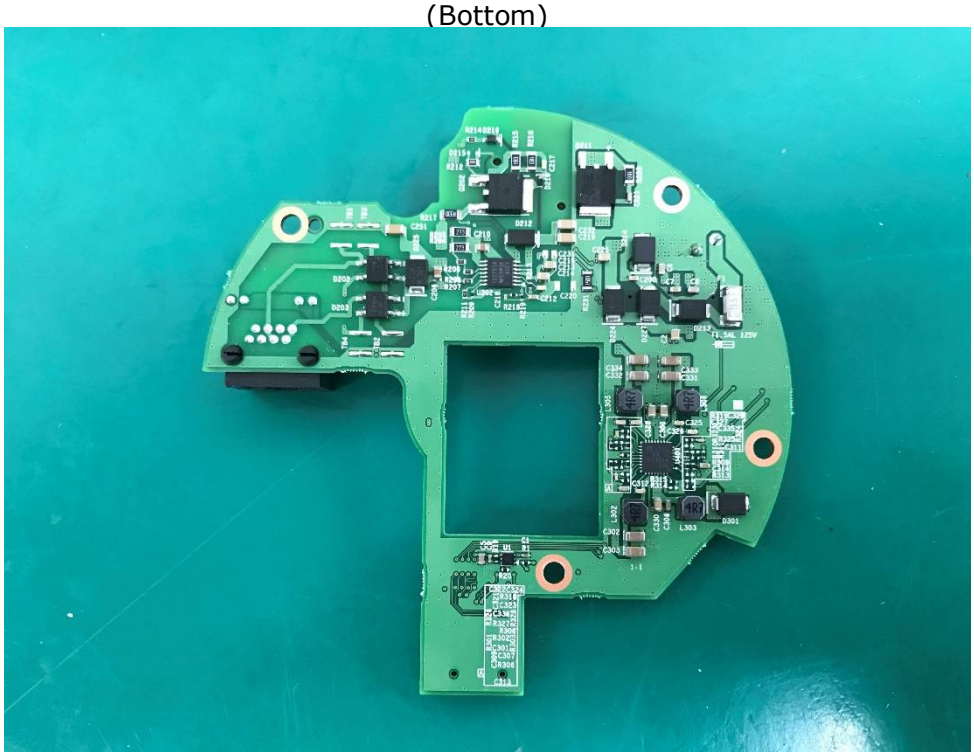
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EUT Internal View – Board 4

(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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