



EMC TEST REPORT For VCCI

Test Report No. : KES-E1-18T0076-R1
Date of Issue : Feb. 24, 2023
Product name : Network Camera
Model/Type No. : XNV-6012M
Variant Model : -
Applicant : Hanwha Vision Co., Ltd
Applicant Address : 6, Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si,
Gyeonggi-do, Republic of Korea
Manufacturer : 1. HANWHA VISION VIETNAM COMPANY LIMITED
2. D-TECH CO.,LTD.
Manufacturer Address : 1. Lot O-2, Que Vo Industrial Zone extended area,
Nam Son commune, Bac Ninh city, Bac Ninh province, Vietnam
2. 173-25, Saneop-ro, Gwonseon-gu, Suwon-si, Gyeonggi- do,
Korea (Suwon Industrial Complex)
Equipment authorization : ☐ Declaration of Conformity
☒ Verification
☐ Certification
Date of Receipt : Dec. 21, 2017
Test date : Jan. 03, 2018 ~ Jan. 04, 2018
Test Results : ☒ In Compliance ☐ Not in Compliance

Tested by

Sung Min, Choi
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
Jan. 10, 2018	KES-E1-18T0076	Issued
Feb. 24, 2023	KES-E1-18T0076-R1	Change the Applicant, Applicant Address, Manufacturer and Manufacturer Address at the request of the customer

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1.0 General Product Description

Main Specifications of EUT are:

1/2.8" 2M CMOS
1945(H) x 1109(V) 2.16M
1945(H) x 1097(V) 2.13M
Progressive Scan
Color : 0.055 lux(F2.0, 1/30sec) (TBD)
B/W : 0.0055Lux
50dB
USB : Micro USB type B, 1280x720, for installation
2.4mm Fixed
F2.0
H 139° V 73° D 167° (TBD)
0.4m(1.31ft)
Manual
Fixed
Board-in type
±5°/0-67°/±90°
-
Off / On (Displayed up to 85 characters)
- WW : 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
Auto (ICR) / Color / B/W / External / Schedule
Off / BLC / HLC(Masking/Dimming), WDR
150dB
SSDR (Off / On)
SSNR5 (2D+3D Noise Filter) (Off / On)
Off / On
Auto(Input from fog detection) / Manual / Off
Off/ On(8ea, 8point Polygonal zones), Handover
Off / On (32ea, polygonal zones)
- Color : Grey/Green/Red/Blue/Black/White
- Mosaic
Off / Low / Middle / High
ATW / AWC / Manual / Indoor / Outdoor((Included Mercury & Sodium)
level adjustment
On/Off (5 levels with Min/Max)
Minimum / Maximum / Anti flicker (2 ~ 1/12,000sec)
24X, Digital PTZ(Preset, Group)
Filp : On/Off
Mirror : On/Off
Hallway view : 90°/270°
Tampering, Loitering, Directional Detection, Defocus Detection, Fog Detection,
Virtual Line, Enter/Exit, Appear / Disappear, Audio Detection, Face Detection, Motion
Detection, Digital Auto Tracking, Sound Classification
-
Motion Detection, Video & Audio Analytics, Network Disconnect
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
Selectable (Mic IN/Line IN), Built-in microphone
Supply voltage: 2.5VDC(4mA), Input Impedance: approx. 2K Ohm
Line out, Max output level: 1 Vrms
Off / On
Support

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M12 (10/100BASE-T)
H.265/H.264 (MPEG-4 Part 10/AVC) : Main/Baseline/High, Motion JPEG
1920x1080, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240
H.265/H.264 : Max. 60fps at all resolutions Motion JPEG : Max. 30fps
Manual Mode (area-based : 5EA)
Support
H.264/H.265 : Target Bitrate Level Control
MJPEG : Target Bitrate Level Control
H.264/H.265 : CBR or VBR
MJPEG : VBR
Multiple Streaming (Up to 10 Profiles)
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
Bi-directional (2-Way)
IPv4, IPv6
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
HTTPS(SSL) Login Authentication
Digest Login Authentication
IP Address Filtering
User access Log
802.1X Authentication (EAP-TLS, EAP-LEAP)
Unicast / Multicast
20 users at Unicast Mode
SD/SDHC/SDXC 1slot (up to 256 GB) - Motion Images recorded in the SD/SDHC/SDXC memory card can be downloaded. NAS(Network Attached Storage) Local PC for Instant Recording
ONVIF Profile S/G SUNAPI(HTTP API) Open Platform
English, Korean, Chinese, French, Italian, Spanish, German, Japanese, Russian, Swedish, Portuguese, Czech, Polish, Turkish, Dutch, Hungarian, Greek
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(Windows 64bit only), Apple Safari 9 (Mac OS X only) Plug-in Webviewer Supported Browser: MS Explorer 11, Apple Safari 9 (Mac OS X only) SmartViewer, SSM
-30°C ~ +55°C (-22°F ~ +131°F) / Less than 90% RH *Start up should be done at above -20°C
-50°C ~ +60°C (-22°F ~ +140°F) / Less than 90% RH
IP66
EN55011:2009+A1:2010, EN50581:2012, EN50121-3-2:2015, EN61000-4-2:2009 EN61000-4-3:2006+A2:2010, EN61000-4-4:2012, EN61000-4-5:2014 EN61000-4-6:2009, EN50155:2007, NEMA 4X
IK10, NEMA4X
PoE(IEEE802.3af, Class3)
TBD
Ivory / Metal
99 x 52 x 100
296g(TBD)

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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 ☐ 230 Vac ☐ 100 Vac ☐ 24 Vac ☐ 5 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-6012M	-	HANWHA VISION VIETNAM COMPANY LIMITED	E.U.T

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
PoE Adaptor	POE 36U-1AT-R	P90215791A1	PHIHONG	-
Laptop	LG15N54	410NZET022292	LG	-
Laptop Adaptor	DA-1900-08	9700591703	Dongguang Lite Power 2nd Plant	-
Speaker	BR10000A CUVE	-	BEIJING EDIFIER HI- TECH GROUP.	-
Mike	CMK-303	-	CAMAC	-
Micro SD Card	-	-	SanDisk	16 GB



1.6 External I/O Cabling

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
Network Camera (E.U.T)	RJ-45 (PoE)	PoE Adaptor	RJ-45 (PoE)	3.0	U
	3.5 mm	Speaker	3.5 mm	1.6	U
	3.5 mm	Mike	3.5 mm	1.7	U
	SLOT	Micro SD Card	SLOT	-	-
PoE Adaptor	RJ-45 (Data)	Laptop	RJ-45 (Data)	3.0	U

* Unshielded=U, Shielded=S

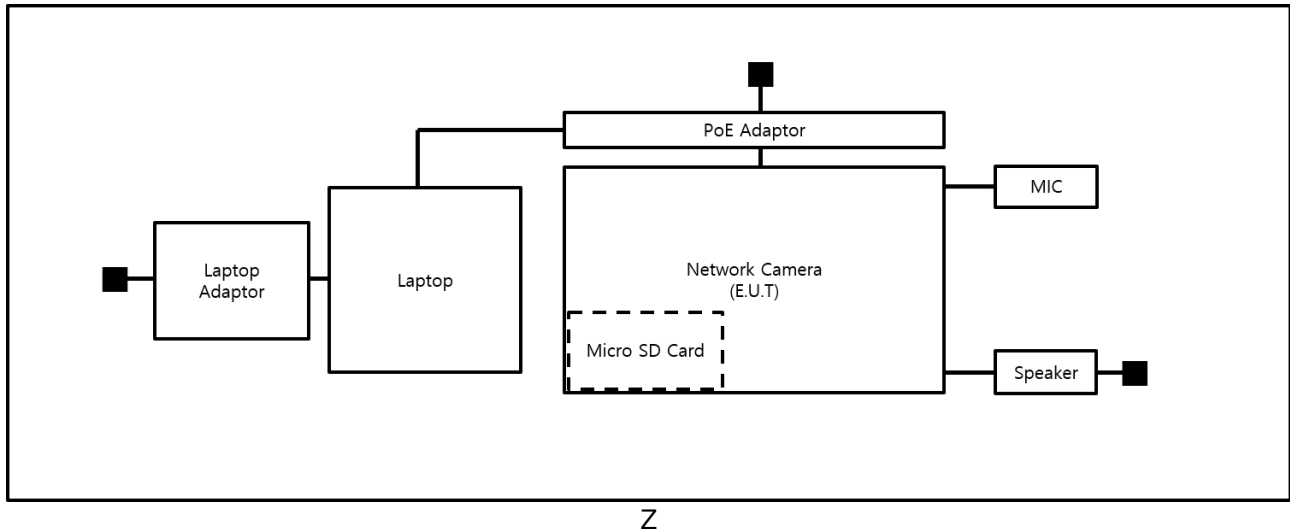
1.7 EUT Operating Mode(s)

Test mode	operating
PoE	E.U.T Monitoring, Ping Test

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

1.8 Configuration

■ AC Main
 □ DC Main



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, Republic of. The sites are constructed in conformance with the requirements of ANSI C63.4a-2017 and CISPR 16-1-4:2019

1.12 Laboratory Accreditations and Listings

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

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

☐ Group 2

☐ Class A

☐ Class B

☐ EN 55014-1:2006 +A2:2011

☐ EN 55014-2:1997 +A2:2008

☐ EN 55015:2013

☐ EN 61547 :2009

☐ EN 55032:2015

☐ Class A

☐ Class B

☐ EN 55024:2010 +A1:2015

☐ 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 | | |
|
☐ 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 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 S/W	EMC32	R & S	9.12.00	-
☐	EMI TEST RECEIVER	ESR3	R & S	101783	04, 27, 2018
☐	LISN	ENV216	R & S	101137	02, 13, 2018
☐	LISN	ENV216	R & S	101786	04, 27, 2018
☐	PULSE LIMITER	ESH3-Z2	R & S	101914	11, 27, 2018
☐	LISN	NNBM8124	SCHWARZBECK	8124-1002	08, 07, 2018
☐	LISN	NNBM8124	SCHWARZBECK	8124-1003	08, 07, 2018

Test Conditions

Temperature:

°C

Relative Humidity:

% 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

N/A



2.2 Conducted Emissions at Telecommunication Ports

Test Date

Jan. 03, 2018

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	101781	04, 27, 2018
☒	LISN	ENV216	R & S	101787	01, 11, 2018
☒	LISN	ESH2-Z5	R & S	100450	04, 27, 2018
☒	PULSE LIMITER	ESH3-Z2	R & S	101915	11, 27, 2018
☒	8-WIRE ISN CAT3,5	ENY81	R & S	100174	01, 11, 2018
☐	8-WIRE ISN CAT6	ENY81-CAT6	R & S	101665	01, 11, 2018
☐	ISN	ISN S8	SCHWARZBECK	ISN-S8-0019	05, 12, 2018

Test Conditions

Temperature: 23,1 °C
Relative Humidity: 40,9 % 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.



2.3 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Jan. 04, 2018

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, 18, 2018
☒	AMPLIFIER	SCU 01	R & S	100603	11, 27, 2018
☒	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	716	11, 28, 2018

Test Conditions

Temperature: 23,8 °C
Relative Humidity: 41,7 % 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

Jan. 04, 2018

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, 07, 2018
☒	PREAMPLIFIER	8449B	AGILENT	3008A01967	05, 31, 2018
☐	ATTENUATOR	8491A	HP	32173	03, 24, 2018
☒	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	05, 02, 2019

Test Conditions

Temperature: 22,8 °C

Relative Humidity: 41,5 % 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

RemarksSee Appendix A for test data.



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APPENDIX A – TEST DATA

Conducted Emissions at Mains Power Ports

HOT LINE

N/A

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NEUTRAL LINE

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 + Pulse Limiter FACTOR))

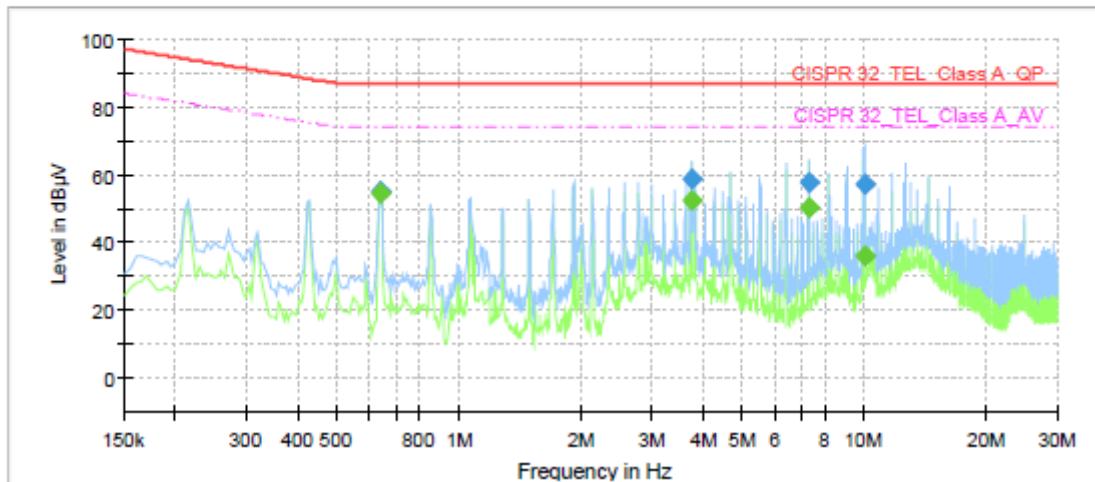
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Conducted Emissions at Telecommunication Ports

[10 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	XNV-6012MN
Mode	PoE_10 Mbps
Operator Name:	KES



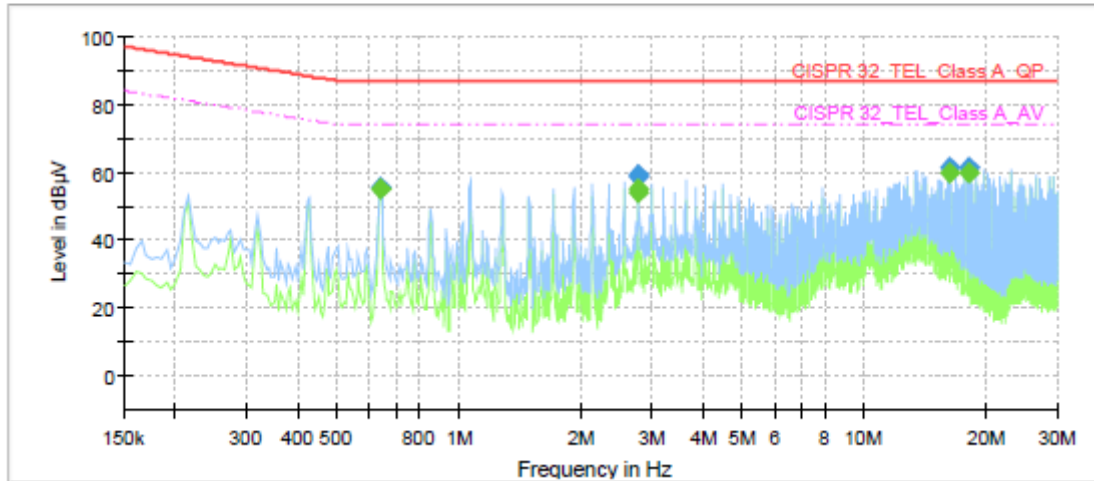
Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.640000	---	54.36	74.00	19.64	1000.0	9.000	Single Line	19.7
0.640000	54.82	---	87.00	32.18	1000.0	9.000	Single Line	19.7
3.750000	---	52.58	74.00	21.42	1000.0	9.000	Single Line	19.7
3.750000	58.97	---	87.00	28.03	1000.0	9.000	Single Line	19.7
7.335000	---	50.39	74.00	23.61	1000.0	9.000	Single Line	19.4
7.335000	57.43	---	87.00	29.57	1000.0	9.000	Single Line	19.4
10.010000	---	35.99	74.00	38.01	1000.0	9.000	Single Line	19.8
10.010000	57.34	---	87.00	29.66	1000.0	9.000	Single Line	19.8

[100 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	XNV-6012MN
Mode	PoE_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)
0.640000	---	55.21	74.00	18.79	1000.0	9.000	Single Line	20.0
0.640000	55.42	---	87.00	31.58	1000.0	9.000	Single Line	20.0
2.775000	---	54.20	74.00	19.80	1000.0	9.000	Single Line	20.2
2.775000	58.59	---	87.00	28.41	1000.0	9.000	Single Line	20.2
2.780000	---	54.99	74.00	19.01	1000.0	9.000	Single Line	20.2
2.780000	59.53	---	87.00	27.47	1000.0	9.000	Single Line	20.2
16.230000	---	59.73	74.00	14.27	1000.0	9.000	Single Line	20.2
16.230000	61.18	---	87.00	25.82	1000.0	9.000	Single Line	20.2
18.245000	---	59.91	74.00	14.09	1000.0	9.000	Single Line	20.3
18.245000	61.19	---	87.00	25.81	1000.0	9.000	Single Line	20.3

◆ 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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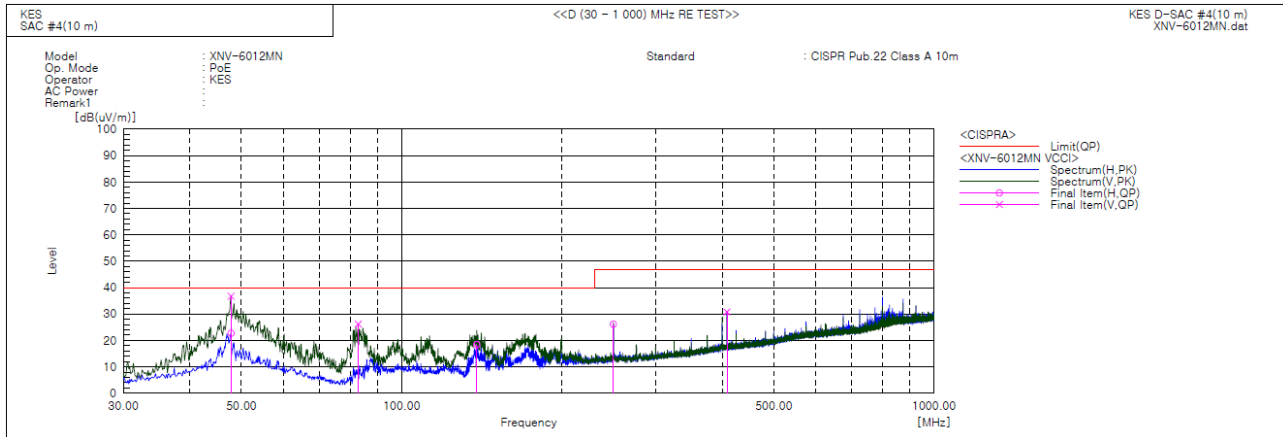
3701, 40, Simin-daero 365beon-gil,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
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KES-E1-18T0076-R1

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Radiated Electric Field Emissions(Below 1 GHz)



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	47.803	V	64.6	-27.9	36.7	40.0	3.3	267.0	341.0	
2	47.824	H	50.6	-27.9	22.7	40.0	17.3	100.0	150.0	
3	82.865	V	59.5	-33.3	26.2	40.0	13.8	150.0	250.0	
4	138.398	H	50.3	-31.9	18.4	40.0	21.6	400.0	3.0	
5	249.948	H	51.5	-25.4	26.1	47.0	20.9	400.0	142.0	
6	408.421	V	51.0	-20.2	30.8	47.0	16.2	100.0	225.0	

◆ 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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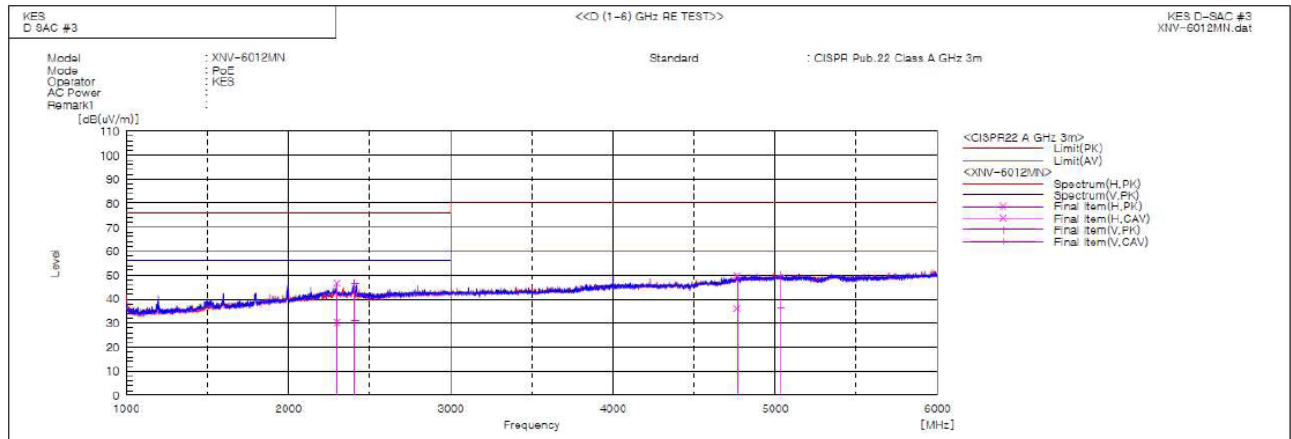
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Radiated Electric Field Emissions(Above 1 GHz)



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	2297.319	H	46.8	30.4	-0.2	46.6	30.2	76.0	56.0	29.4	25.8	101.0	240.8	
2	2409.202	V	46.5	31.0	0.2	46.7	31.2	76.0	56.0	29.3	24.8	101.0	253.9	
3	4764.140	H	40.5	26.8	9.3	49.8	36.1	80.0	60.0	30.2	23.9	101.0	340.6	
4	5035.192	V	39.6	26.2	10.5	50.1	36.7	80.0	60.0	29.9	23.3	101.0	234.5	

◆ Calculation

Result(PK/CAV) [dB(μ V/m)] = (Reading(PK/CAV)[dB(μ V)] + c.f[dB(1/m)])

Margin(PK/CAV)[dB] = Limit[dB(μ V/m)] - Result(PK/CAV) [dB(μ V/m)]

Reading(PK/CAV) : Reading value, Result(PK/CAV) : Reading value + Factor value

Limit(QP) : Limit value, c.f : (ANT Factor + Cable Loss - Preamp Factor), Margin: Margin value

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Test Setup Photos and Configuration

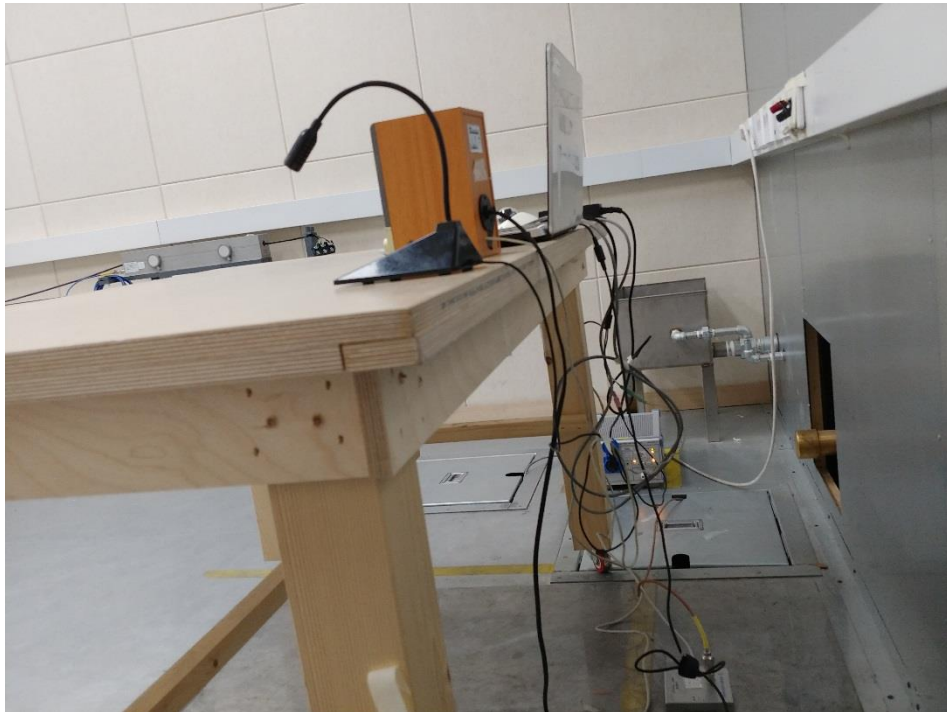
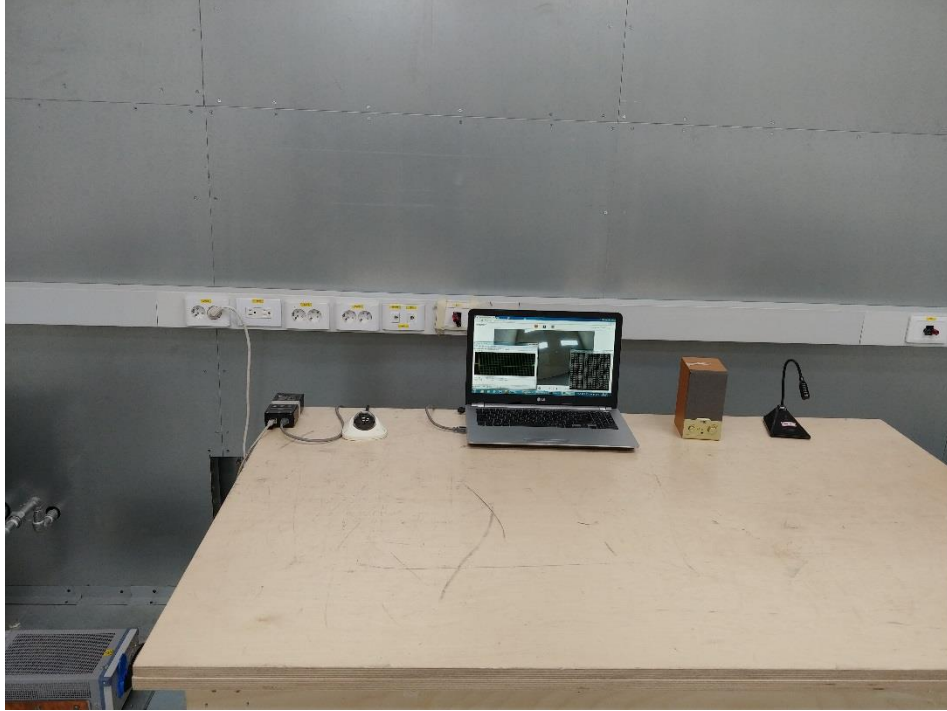
Conducted Voltage Emissions

N/A

N/A

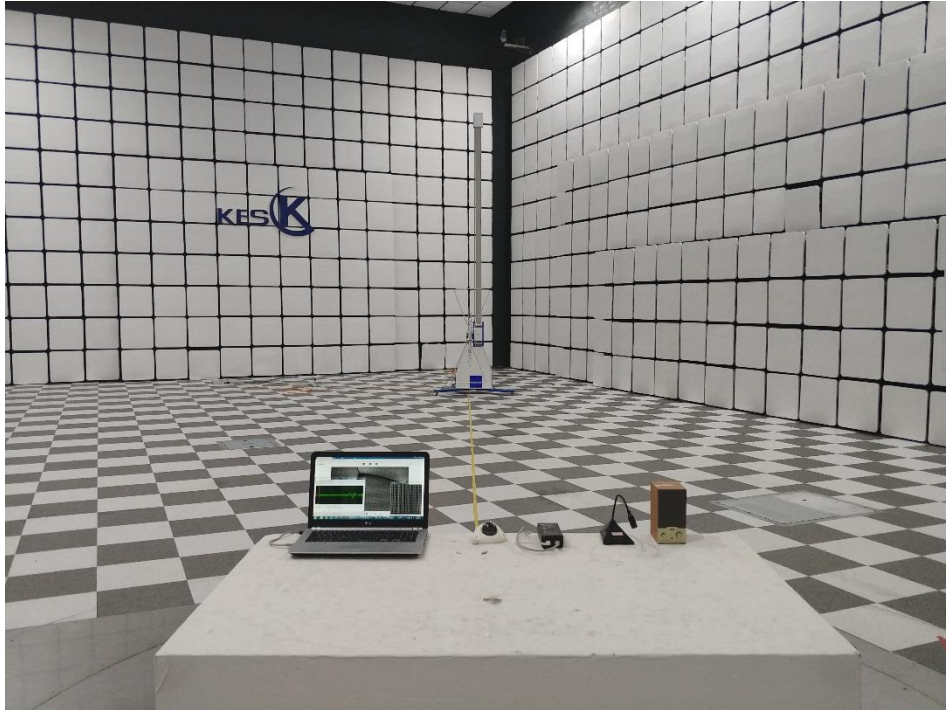
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Conducted Telecommunication Emissions



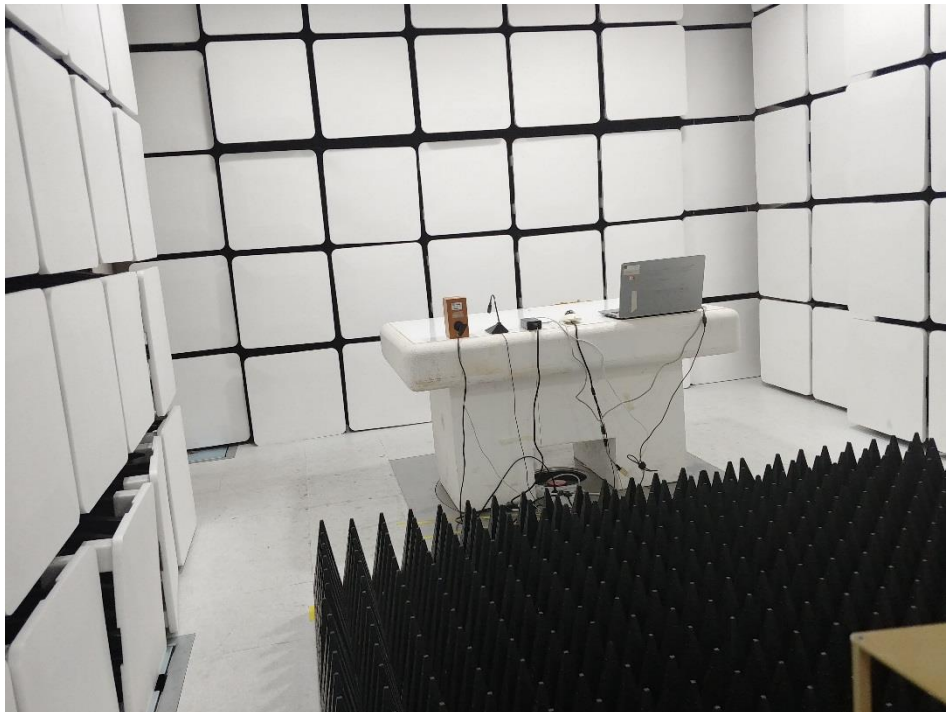
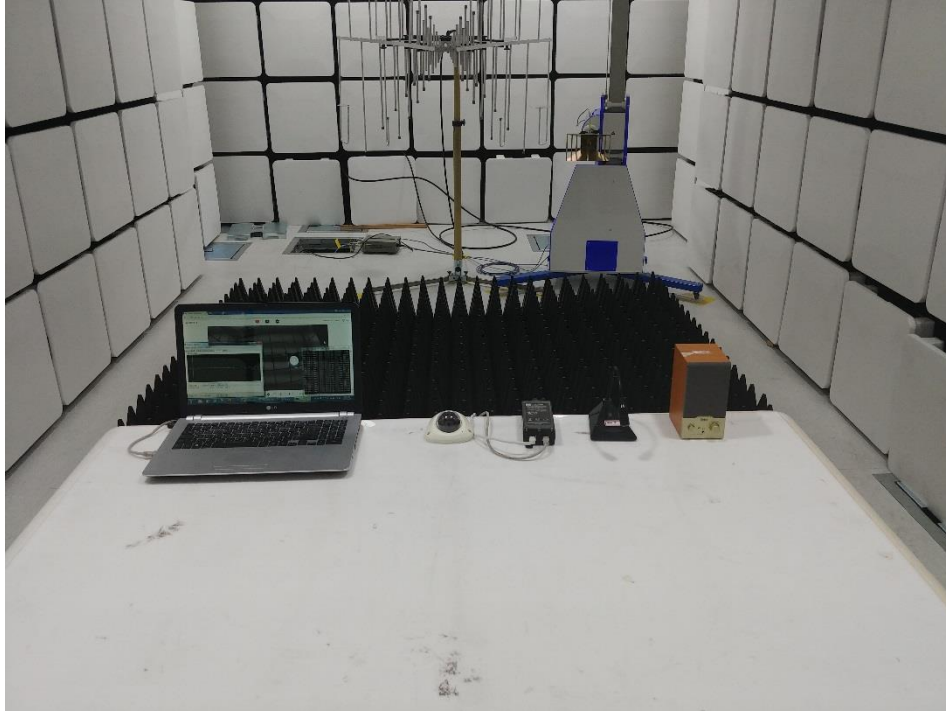
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adiated Electric Field Emissions(Below 1 GHz)



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Radiated Electric Field Emissions(Above 1 GHz)



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EUT External Photographs

(Top)



(Bottom)



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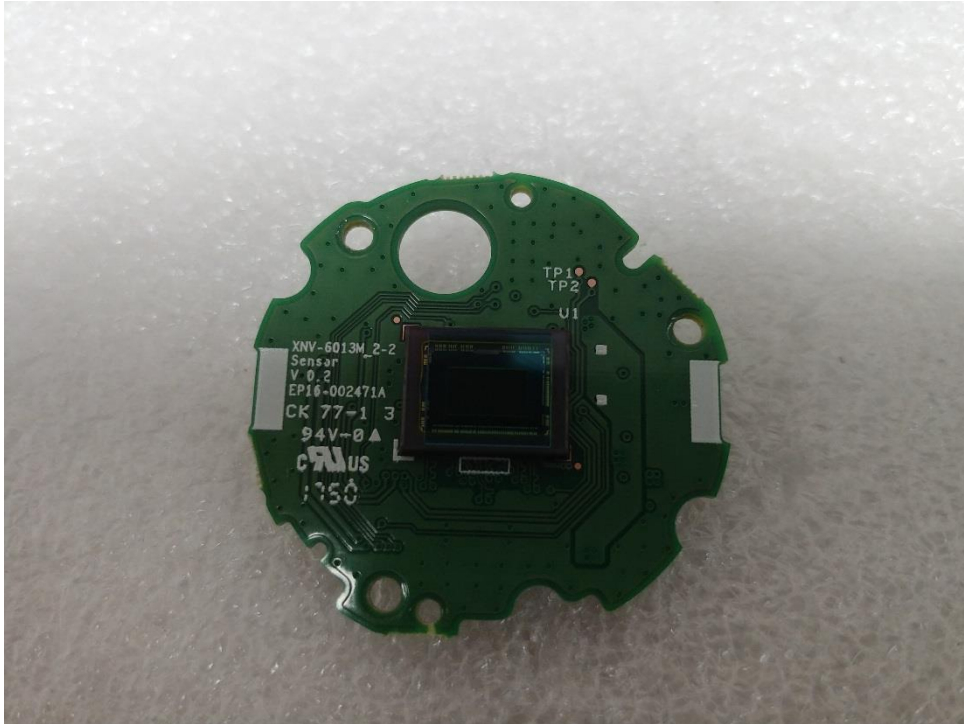
EUT Internal Photographs

(Internal View)



EUT Internal View – board 1

(Top)



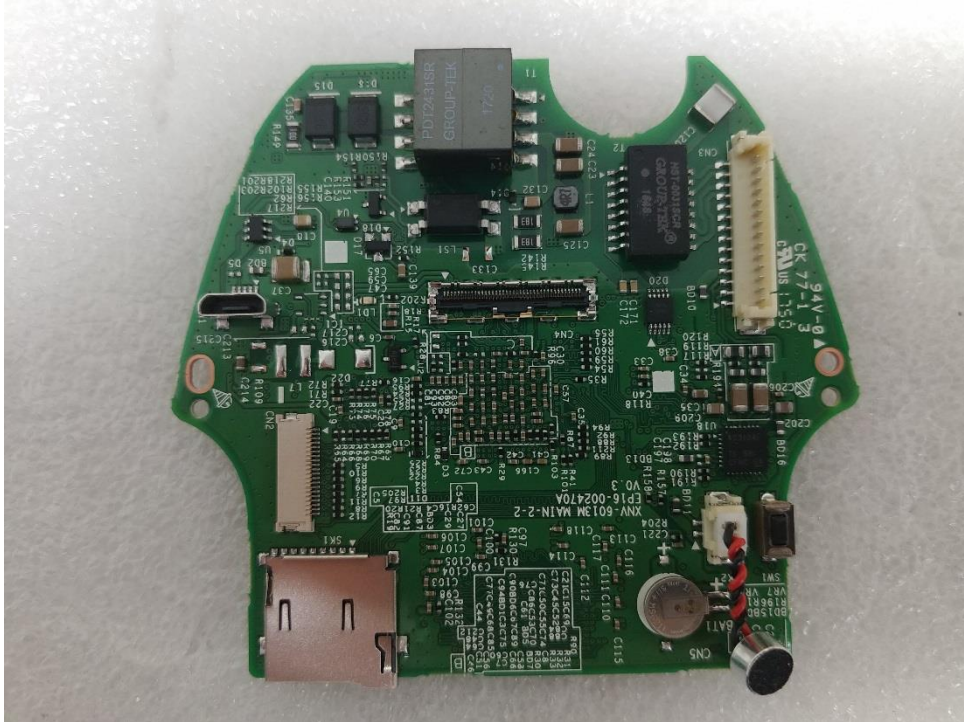
(Bottom)



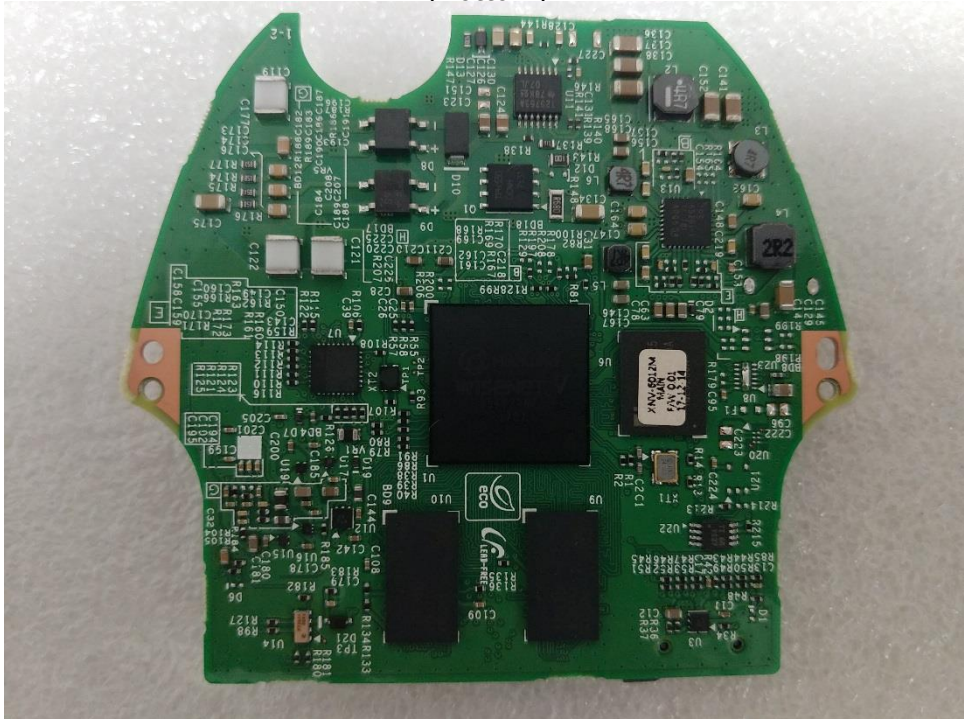
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EUT Internal View – board 2

(Top)



(Bottom)



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