



EMC TEST REPORT For VCCI

Test Report No. : KES-EM-21T0329-R1
Date of Issue : Feb. 24, 2023
Product name : NETWORK CAMERA
Model/Type No. : QNP-6320
Variant Model : QNP-6250
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)
Date of Receipt : Apr. 19, 2021
Test date : Apr. 25, 2021 ~ Apr. 26, 2021
Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Eun Gu, Jeon
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
May. 04, 2021	KES-EM-21T0329	Issued
Feb. 24, 2023	KES-EM-21T0329-R1	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" CMOS
Resolution	1920x1080, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240
Max. Framerate	H.265/H.264: Max. 60fps/50fps(60Hz/50Hz) MJPEG: Max. 30fps/25fps(60Hz/50Hz)
NETD	None
Pixel Size	None
Min. Illumination	Color: 0.05Lux(F1.6, 1/30sec) BW: 0.005Lux(F1.6, 1/30sec)
Video Out	None
Video Transmission Distance	None
Lens	
Focal Length (Zoom Ratio)	4.44~142.6mm(32x) zoom
Max. Aperture Ratio	F1.6(Wide)~F4.4(Tele)
Angular Field of View	H: 64.66°(Wide)~2.29°(Tele) / V: 38.08°(Wide)~1.30°(Tele)
Min. Object Distance	Wide: 1.5m(4.92ft), Tele: 2m(6.56ft)
Focus Control	Oneshot AF
Lens Type	DC auto iris
Mount Type	None
Optional Lens	None
Pan / Tilt / Rotate	
Pan / Tilt / Rotate Range	None
Pan Range	360° Endless
Pan Speed	Preset: 700°/sec, Manual: 0.024°/sec~200°/sec
Tilt Range	105°(-15°~90°)
Tilt Speed	Preset: 400°/sec, Manual: 0.024°/sec~200°/sec(TBD)
Rotate Range	None
Sequence	Preset(300ea), Swing, Group(6ea), Trace, Tour, Auto Run, Schedule
Preset Accuracy	±0.2°
Operational	
Camera Title	Displayed up to 85 characters
Direction Indicator	Support
Day & Night	Auto(ICR)
Backlight Compensation	BLC, HLC, WDR, SDR
Wide Dynamic Range	120dB
Digital Noise Reduction	SSNR V
Digital Image Stabilization	Support(built-in gyro sensor)
Defog	Support
Motion Detection	8ea, 8point polygonal zones
Privacy Masking	32ea, Quadrangle Support(TBD) - Color: Grey/Green/Red/Blue/Black/White - Mosaic
Gain Control	Low / Middle / High
White Balance	ATW / AWC / Manual / Indoor / Outdoor / Mercury / Sodium
LDC	None
Electronic Shutter Speed	Minimum / Maximum / Anti flicker (2~1/12,000sec)
Digital PTZ	None
Video Rotation	Flip, Mirror
Analytics	Directional detection, Motion detection, Enter/Exit, Tampering, Virtual line, Audio detection
Business Intelligence	None
Serial Interface	None
Alarm I/O	Input 4ea / Output 2ea
Alarm Triggers	Analytics, Network disconnect, Alarm input
Alarm Events	File upload via FTP and e-mail Notification via e-mail SD/SDHC/SDXC or NAS recording at event triggers PTZ Preset Handover * Alarm output(with NW I/O Box)

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Audio In	Selectable(mic in/line in) Supply voltage: 2.5VDC(4mA), Input impedance: 2K Ohm
Audio Out	Line out, Max.output level: 1Vrms
IR Viewable Length	None
IR Illuminator (Optional)	None
Water Removal	None
Auto Tracking	None
Coaxial Protocol	None
Color Palettes	None
Radiometry	
Temperature detect range	None
Temperature accuracy	None
Temperature detection	None
Additional	None
Network	
Ethernet	RJ-45(10/100BASE-T)
Video Compression	H.265/H.264,MJPEG
Audio Compression	G.711 u-law /G.726 Selectable G.726(ADPCM) 8KHz, G.711 8KHz G.726: 16Kbps, 24Kbps, 32Kbps, 40Kbps AAC-LC: 48Kbps at 16KHz
Smart Codec	Manual(5ea area), WiseStreamII
Video Quality Adjustment	H.264/H.265: Target bitrate level control MJPEG: Target bitrate level control
Bitrate Control	H.264/H.265: CBR or VBR MJPEG: VBR
Streaming	Unicast(20 users) / Multicast (128 user)Multiple streaming(Up to 10 profiles)
Protocol	IPv4, IPv6, TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP,RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, PIM-SM, UPnP, Bonjour, LLDP, SRTP
Security	HTTPS(SSL) Login Authentication Digest Login Authentication IP Address Filtering User access log 802.1X Authentication(EAP-TLS, EAP-LEAP)
Application Programming Interface	ONVIF Profile S/G/T SUNAPI(HTTP API) Wisenet open platform
General	
Webpage Language	English, Korean, Chinese, French, Italian, Spanish, German, Japanese, Russian, Swedish,, Portuguese, Czech, Polish, Turkish, Dutch, Hungarian, Greek
Web Viewer	None
Edge Storage	Micro SD/SDHC/SDXC 1slot 256GB
Memory	1024MB RAM, 256MB Flash
Environmental & Electrical	
Operating Temperature / Humidity	-10°C~+55°C (-58°F ~ +131°F) / Less than 95% RH
Storage Temperature / Humidity	-30°C~+60°C (-58°F~+140°F) / Less than 95% RH
Certification	None
Input Voltage	PoE+(IEEE802.3at, Class4)
Power Consumption	TBD
Mechanical	
Color / Material	White
RAL Code	RAL9003
Product dimensions / weight	Ø152x218mm(5.98x8.58"), 1.7Kg(3.75 lb)
Conduit hole	None
Hanging mount(Dome)	None
Skin cover(Dome)	None
Weather cap(Dome)	None
Power module	None
Backbox	None
DORI (EN62676-4 standard)	
Detect (25PPM/ 8PPF)	Wide: 64.2m(210.5ft) / Tele: 2009.0m(6591.3ft)
Observe (63PPM/ 19PPF)	Wide: 25.7m(84.2ft) / Tele: 803.6m(2636.5ft)
Recognize (125PPM/ 38PPF)	Wide: 12.8m(42.1ft) / Tele: 401.8m(1318.3ft)
Identify (250PPM/ 76PPF)	Wide: 6.4m(21.1ft) / Tele: 200.9m(659.1ft)

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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.

☒ PoE

1.2 Variant Model Differences

Addition of derivative models for place of sale management

1.3 Device Modifications

Not applicable

1.4 Equipment Under Test

Description	Model Number	Serial Number	Manufacturer	Remarks
NETWORK CAMERA	QNP-6320	-	HANWHA VISION VIETNAM COMPANY LIMITED	EUT

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Notebook	ProBook4430s	-	HP	-
Notebook Adapter	SeriesPPP0009H	-	CHICONY POWER TECHNOLOGY (SUZHOU) CO.,LTD,	-
Micro SD Card	-	-	SanDisk	8 GB
PoE Adapter	GS728TPP	-	NETGEAR, INC	-
Alarm	-	-	-	-
Button Alarm	-	-	-	-
Smartphone	SM-J730K	-	Samsung Electronics Co., Ltd.	-
Speaker	BR1000A Cuve Black 2	-	DONGGUAN EDIFIER TECHNOLOGY Co., Ltd	-
MIC	MP1000	-	-	-

1.6 External I/O Cabling

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (EUT)	RJ-45	PoE Adapter	RJ-45	3.0	U
	Audio Out	Speaker	3.5 mm	1.4	U
	Audio In	MIC	3.5 mm	1.4	U
	Alarm Out	Alarm	Alarm In	3.0	U
	Alarm In	Button Alarm	Alarm Out	3.0	U
	Micro SD Slot	Micro SD Card	Micro SD Slot	-	-
Notebook	RJ-45	PoE Adapter	RJ-45	3.0	U
	3.5 mm	Smartphone	3.5 mm	0.5	U

* Unshielded=U, Shielded=S

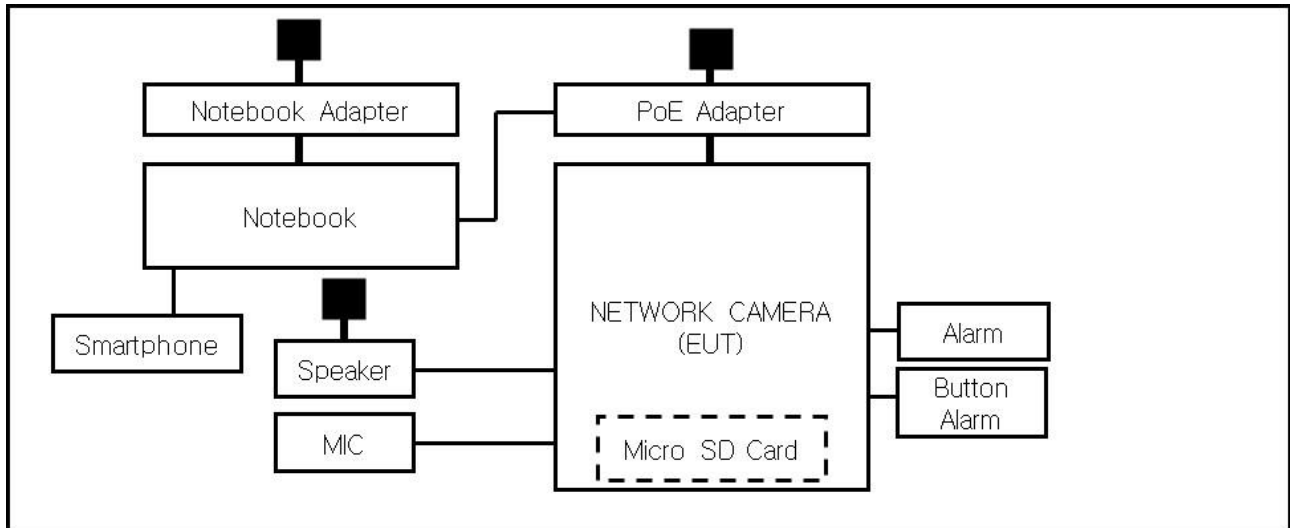
1.7 EUT Operating Mode(s)

Test Mode	operating
Operation	After placing the test equipment and peripheral devices as shown in the layout below, the tests were conducted while checking the 1KHz output from the smartphone, the camera video output from the notebook and verifying that they were operating normally while PING TEST.

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

1.8 Configuration

■ AC Main
 □ DC Main



1.9 Remarks when standards applied

- The main power ports were excluded tested because the EUT operated by PoE Powered.
- USB port are for administrator use and are excluded from testing.



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
☐ Class A

☐ Group 2
☐ 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-CISPR 32:2016 | ☒ Class A | ☐ Class B |
| ☐ AS/NZS CISPR32:2015 | ☐ 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 #6

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☐	EMI Test S/W	EMC32	R & S	9.12.00	-
☐	EMI TEST RECEIVER	ESR3	R & S	101783	01, 15, 2022
☐	LISN	ENV216	R & S	101787	12, 29, 2021
☐	LISN	ESH2-Z5	R & S	100450	12, 29, 2021
☐	PULSE LIMITER	ESH3-Z2	R & S	101915	12, 29, 2021

Test Conditions

Temperature: (±) °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

Please refer to the Remarks when standards applied.

2.2 Conducted Emissions at Telecommunication Ports

Test Date

Apr. 26, 2021

Test Location

Electro wave Shieldroom #6

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	EMC32	R & S	9.12.00	-
☒	EMI TEST RECEIVER	ESR3	R & S	101783	01, 15, 2022
☒	LISN	ENV216	R & S	101787	12, 29, 2021
☒	LISN	ESH2-Z5	R & S	100450	12, 29, 2021
☒	PULSE LIMITER	ESH3-Z2	R & S	101915	12, 29, 2021
☒	8-WIRE ISN CAT3,5	ENY81	R & S	100174	12, 30, 2021
☐	8-WIRE ISN CAT6	ENY81-CAT6	R & S	101665	12, 30, 2021
☐	CDN	CDNS502A	TESEQ	40431	12, 29, 2021

Test Conditions

Temperature: (24,2 ± 0,1) °C

Relative Humidity: (45,1 ± 0,1) % R.H.

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

RemarksSee Appendix A for test data.



2.3 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Apr. 27, 2021

Test Location

☐ OPEN AREA TEST SITE #2 ☒ SEMI ANECHOIC CHAMBER #4(10m)

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.0	-
☒	EMI TEST RECEIVER	ESU26	R & S	100551	04, 01, 2022
☒	AMPLIFIER	SCU 01	R & S	100603	11, 25, 2021
☒	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	715	12, 08, 2022
☒	ATTENUATOR	8491A	HP	32173	03, 10, 2022

Test Conditions

Temperature: (24,0 ± 0,1) °C
Relative Humidity: (45,0 ± 0,2) % R.H.

Frequency Range of Measurement

30 MHz to 1 GHz

Instrument Settings

IF Band Width: 120 kHz

Test Results

The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

See Appendix A for test data.



2.4 Radiated Electric Field Emissions(Above 1 GHz)

Test Date

Apr. 25, 2021

Test Location

SEMI ANECHOIC CHAMBER #3

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.0	-
☒	EMI TEST RECEIVER	ESR7	R & S	101190	08, 05, 2021
☒	PREAMPLIFIER	8449B	AGILENT	3008A01967	04, 07, 2022
☐	ATTENUATOR	8491A	HP	35496	03, 10, 2022
☒	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	03, 11, 2022

Test Conditions

Temperature: (24,5 ± 0,2) °C

Relative Humidity: (45,1 ± 0,3) % R.H.

Frequency Range of Measurement

1 GHz to 6 GHz

Instrument Settings

IF Band Width: 1 MHz

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

See Appendix A for test data.



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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.

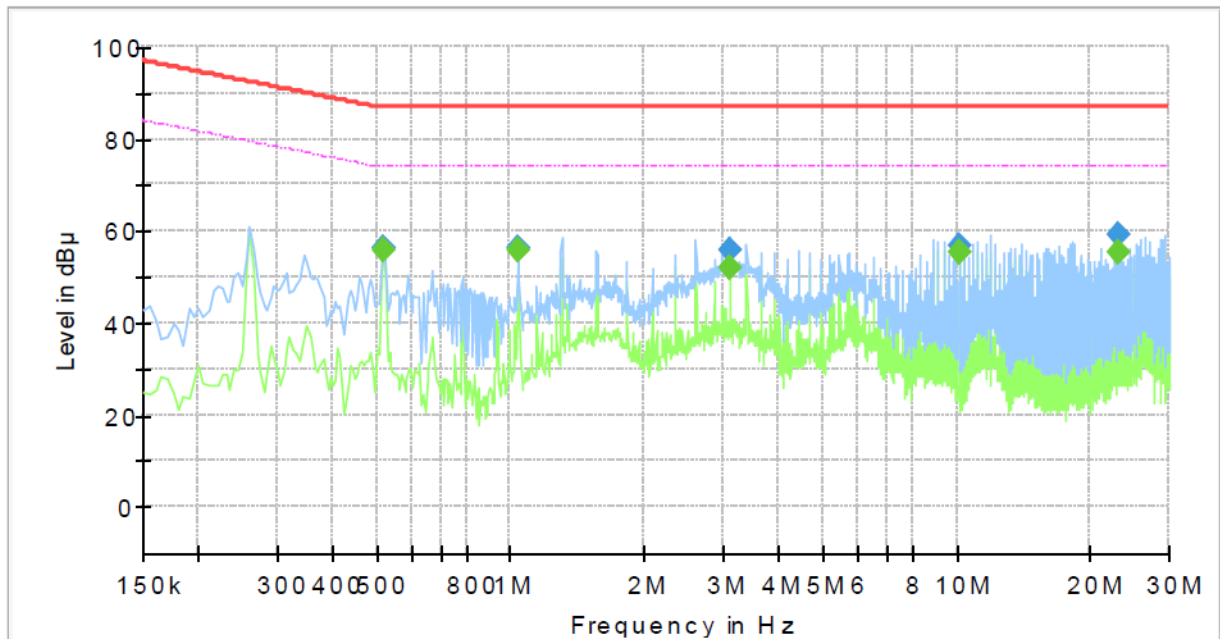
Corr. : Correction values (LISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))

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Conducted Emissions at Telecommunication Ports [100 Mbps]

Common Information

Test Description: Telecommunication Emission
Model No.: QNP-6320
Mode :
Speed : 100 Mbps
Operator Name: KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.520000	---	56.02	74.00	17.98	1000.0	9.000	Single Line	19.8
0.520000	56.52	---	87.00	30.48	1000.0	9.000	Single Line	19.8
1.040000	---	55.82	74.00	18.18	1000.0	9.000	Single Line	20.0
1.040000	56.52	---	87.00	30.48	1000.0	9.000	Single Line	20.0
3.120000	---	51.87	74.00	22.13	1000.0	9.000	Single Line	20.0
3.120000	55.57	---	87.00	31.43	1000.0	9.000	Single Line	20.0
10.135000	---	55.23	74.00	18.77	1000.0	9.000	Single Line	19.7
10.135000	56.75	---	87.00	30.25	1000.0	9.000	Single Line	19.7
23.130000	---	55.32	74.00	18.68	1000.0	9.000	Single Line	20.1
23.130000	59.14	---	87.00	27.86	1000.0	9.000	Single Line	20.1

◆ 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 (ISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))

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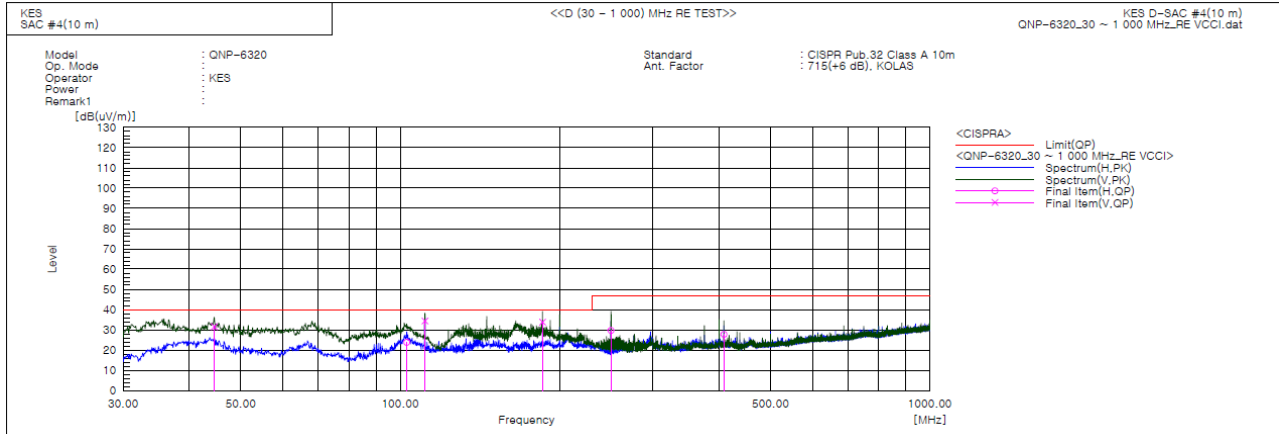
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Radiated Electric Field Emissions(Below 1 GHz)



Final Result

No.	Frequency	(P)	Reading	c.f	Result	Limit	Margin	Height	Angle	Remark
	[MHz]		QP		QP	QP	QP			
			[dB(uV)]	[dB(1/m)]	[dB(uV/m)]	[dB(uV/m)]	[dB]	[cm]	[deg]	
1	44.582	V	53.1	-21.5	31.6	40.0	8.4	115.0	129.0	
2	102.892	H	46.3	-22.5	23.8	40.0	16.2	382.0	96.0	
3	111.389	V	56.8	-22.4	34.4	40.0	5.6	142.0	184.0	
4	185.583	V	56.5	-22.7	33.8	40.0	6.2	132.0	358.0	
5	249.983	H	48.8	-19.1	29.7	47.0	17.3	378.0	222.0	
6	408.465	H	41.9	-14.1	27.8	47.0	19.2	372.0	207.0	

◆ 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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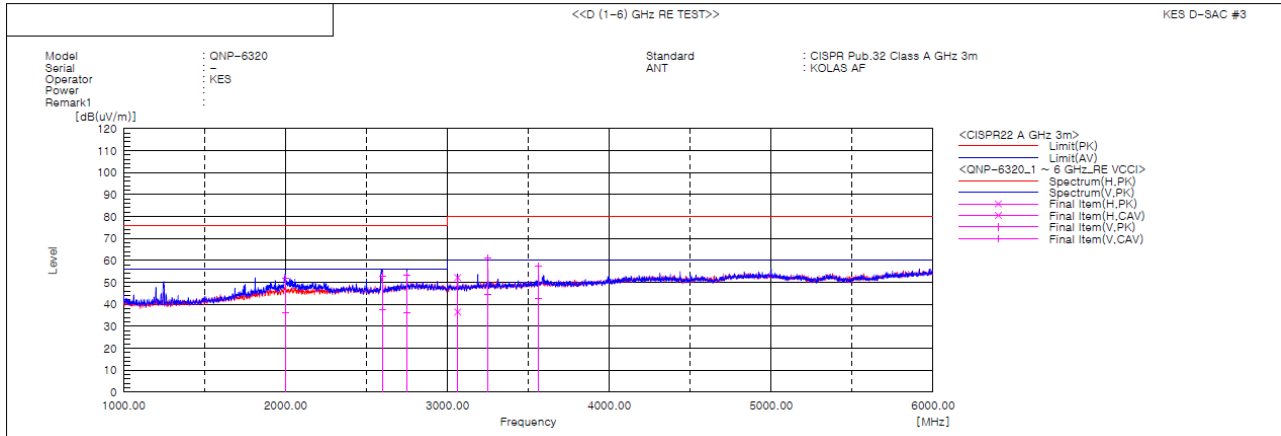


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KES-EM-21T0329-R1
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Radiated Electric Field Emissions(Above 1 GHz)



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	2000.115	V	46.7	31.0	5.2	51.9	36.2	76.0	56.0	24.1	19.8	100.0	13.0	
2	2599.107	V	46.7	31.2	6.3	53.0	37.5	76.0	56.0	23.0	18.5	100.0	77.0	
3	2750.412	V	45.2	28.3	8.0	53.2	36.3	76.0	56.0	22.8	19.7	100.0	2.9	
4	3063.425	H	44.2	28.5	8.0	52.2	36.5	80.0	60.0	27.8	23.5	100.0	259.0	
5	3250.231	V	52.1	35.5	8.9	61.0	44.4	80.0	60.0	19.0	15.6	100.0	239.8	
6	3563.142	V	47.1	32.4	10.1	57.2	42.5	80.0	60.0	22.8	17.5	100.0	234.7	

◆ Calculation

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

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

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

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

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Test Setup Photos and Configuration

Conducted Emissions at Mains Power Ports

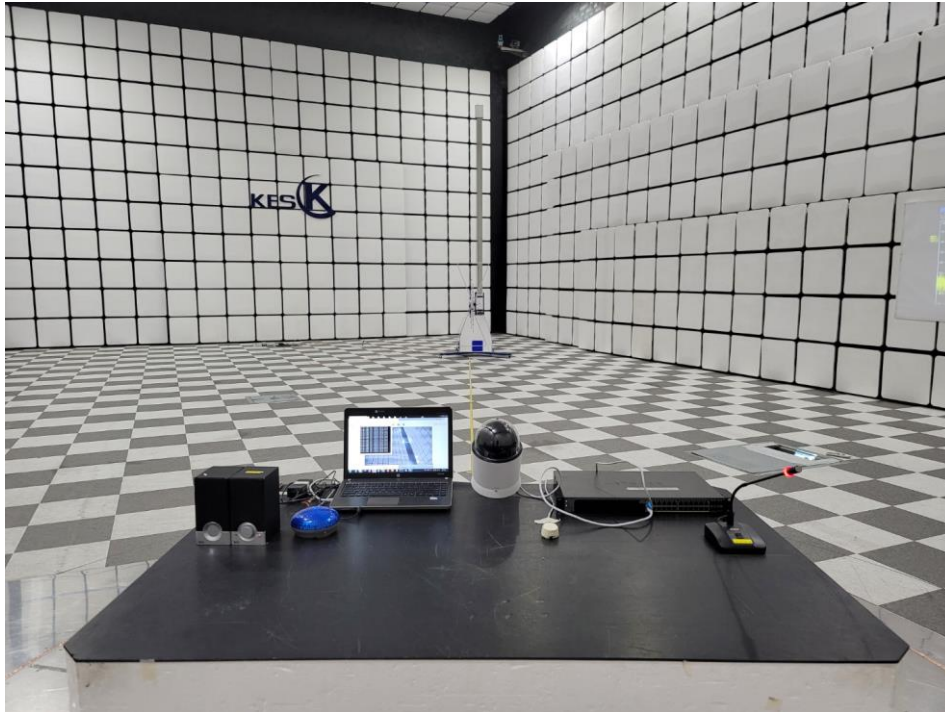
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Conducted Emissions at Telecommunication Ports



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Radiated Electric Field Emissions(Below 1 GHz)



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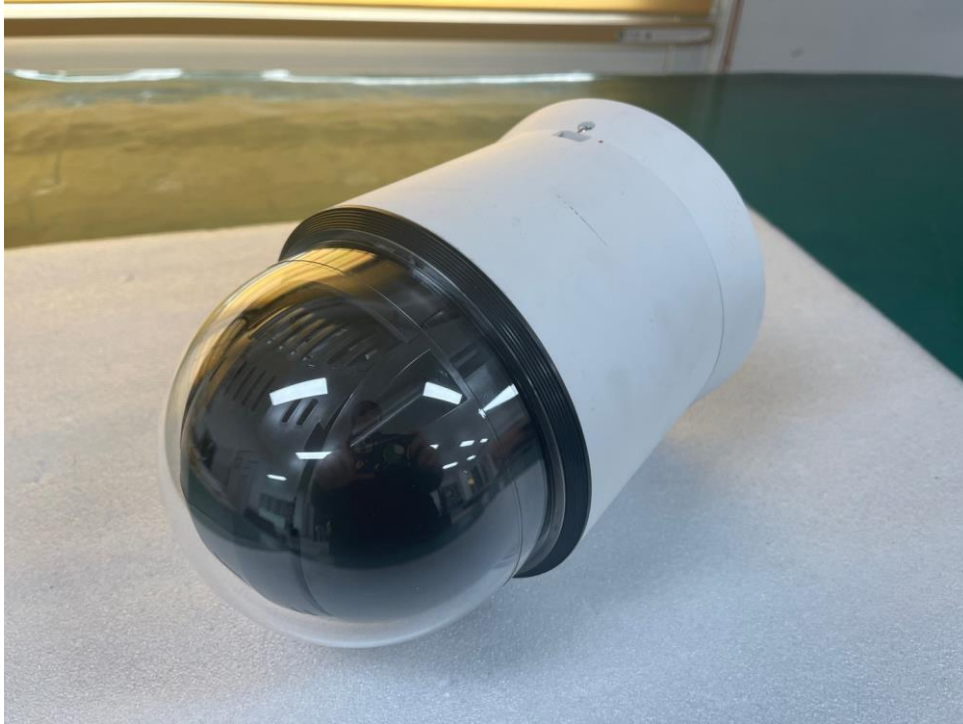
Radiated Electric Field Emissions(Above 1 GHz)



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EUT External Photographs

(Top)



(Bottom)



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EUT Internal Photographs

(Internal View)



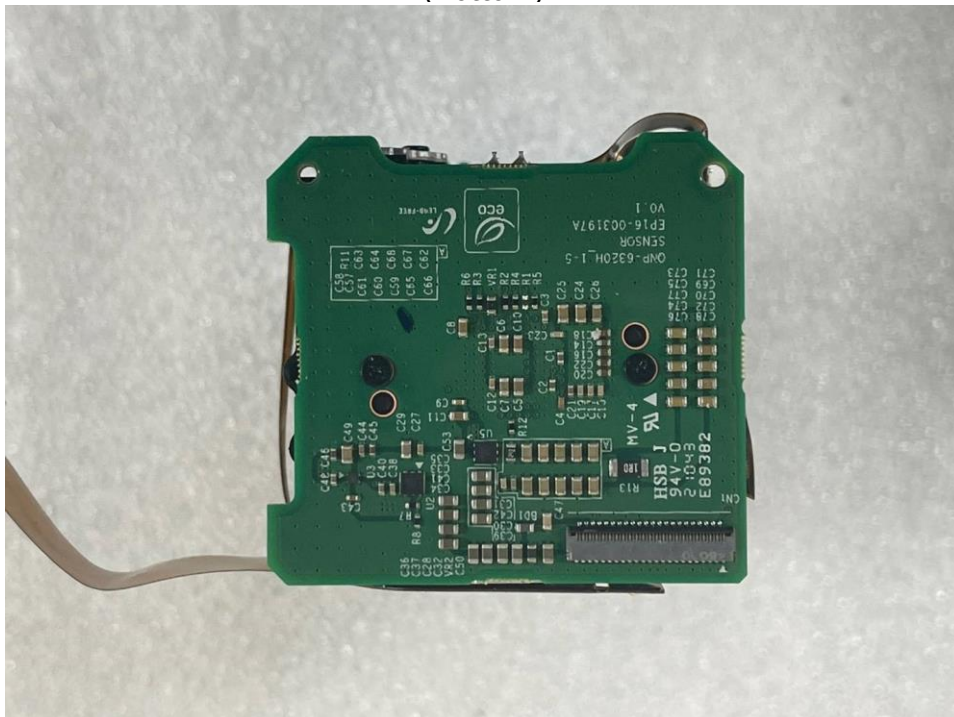
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EUT Internal View – Board 1

(Top)



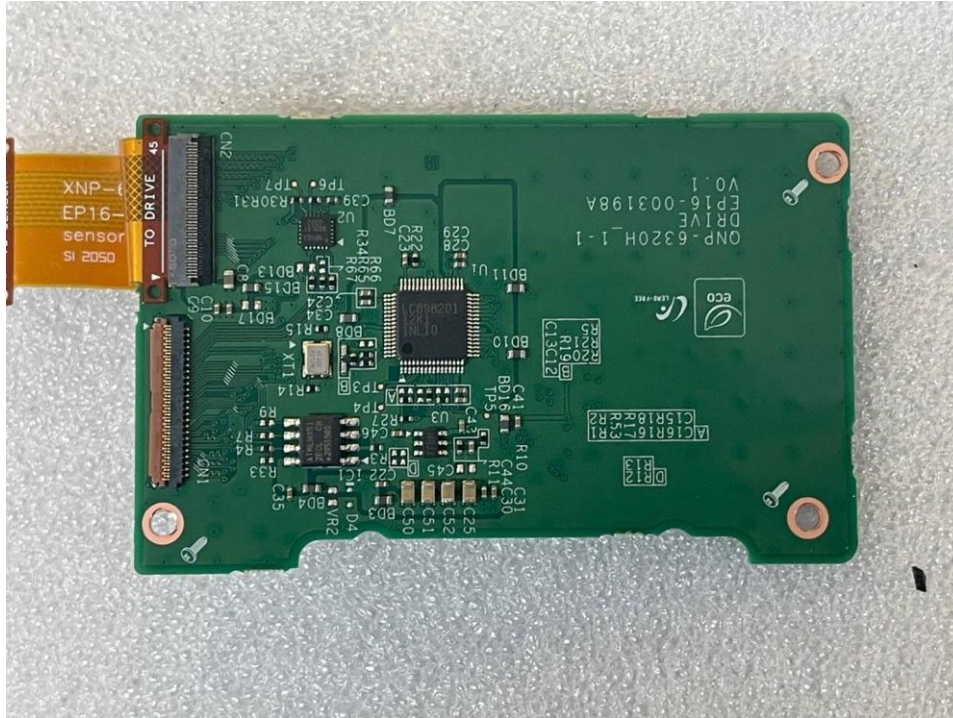
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EUT Internal View – Board 2

(Top)



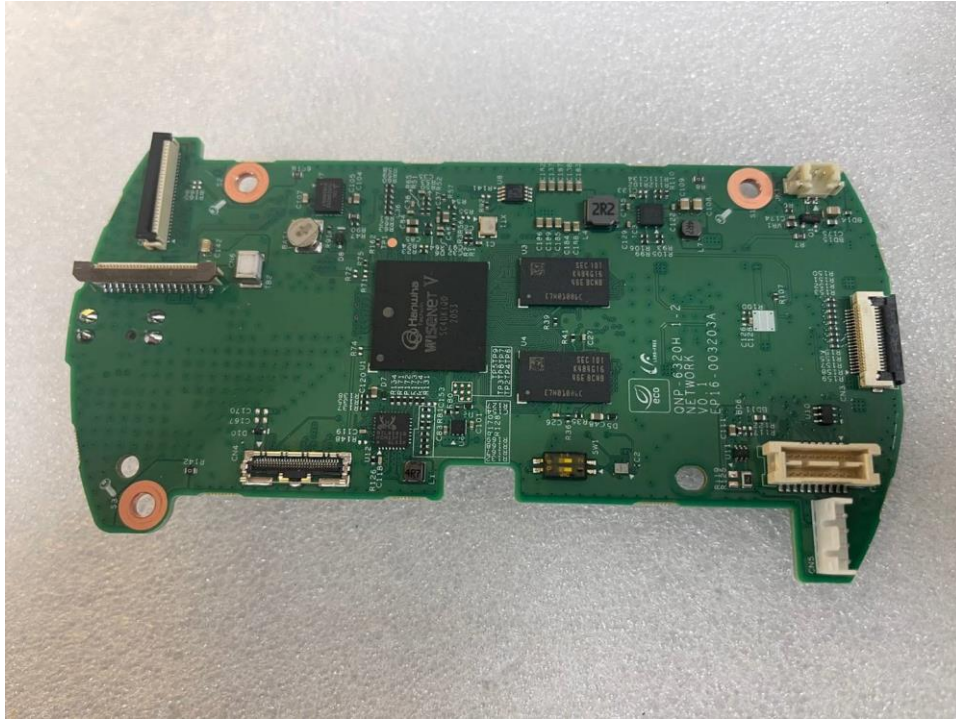
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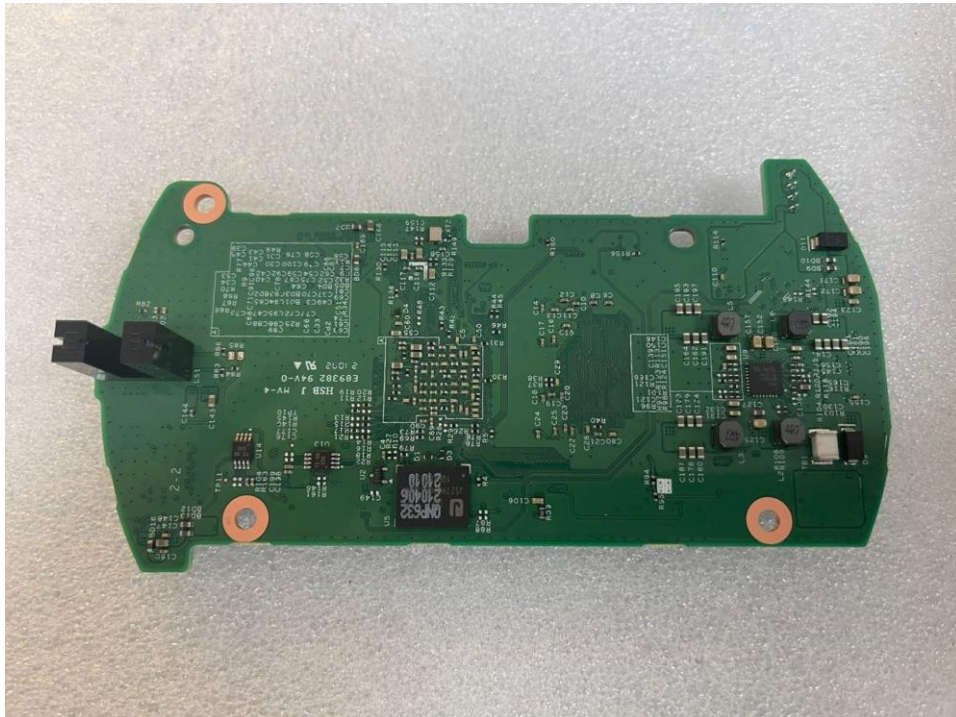
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EUT Internal View – Board 3

(Top)



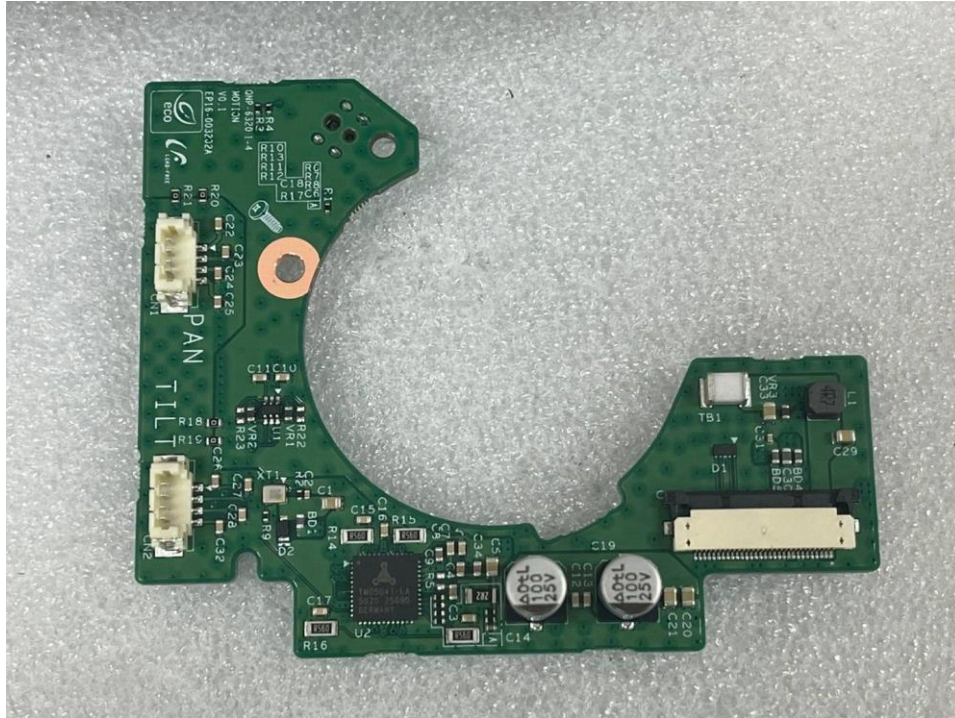
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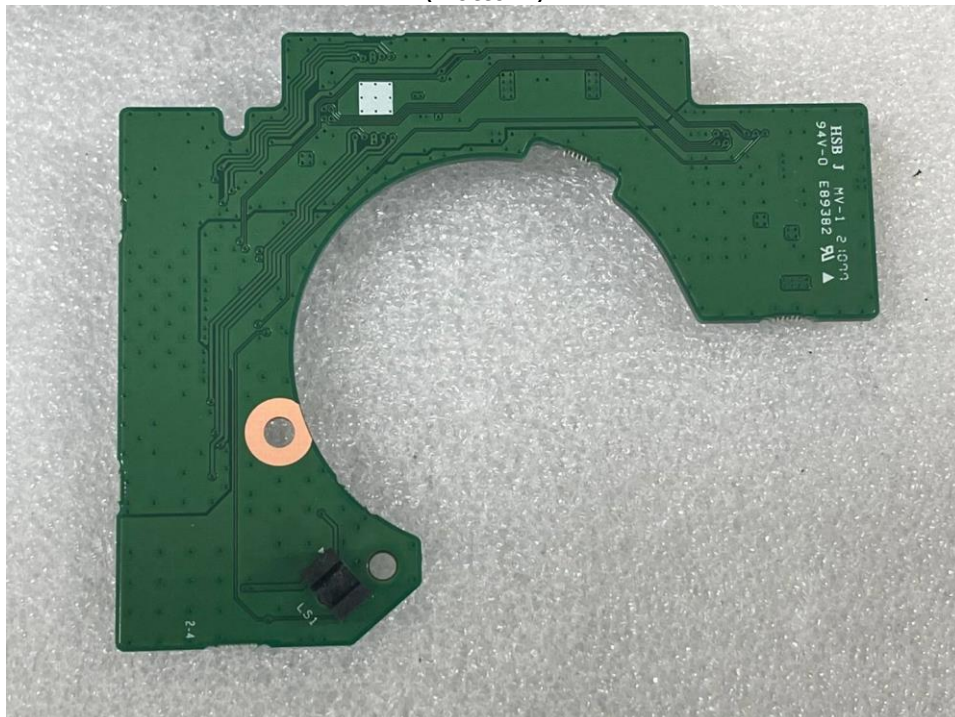
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EUT Internal View – Board 4

(Top)

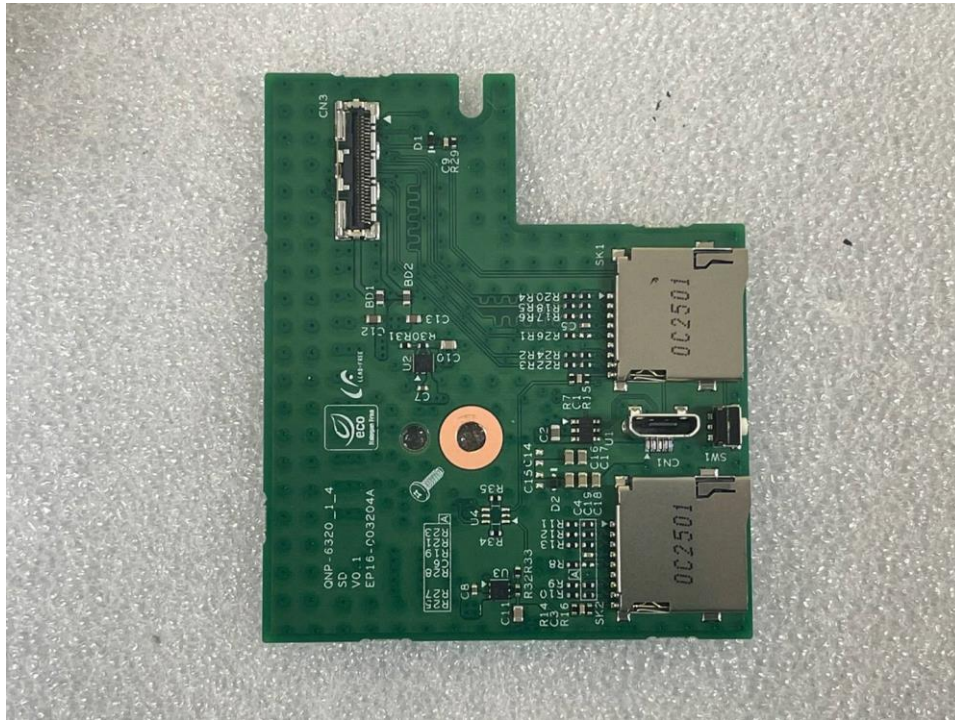


(Bottom)

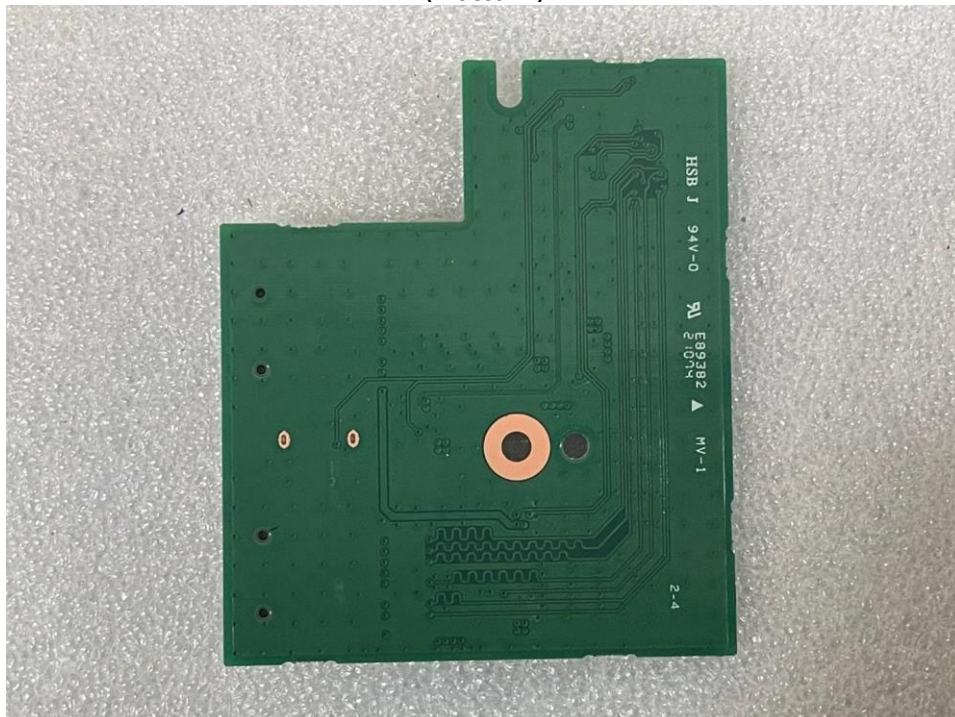


EUT Internal View – Board 5

(Top)



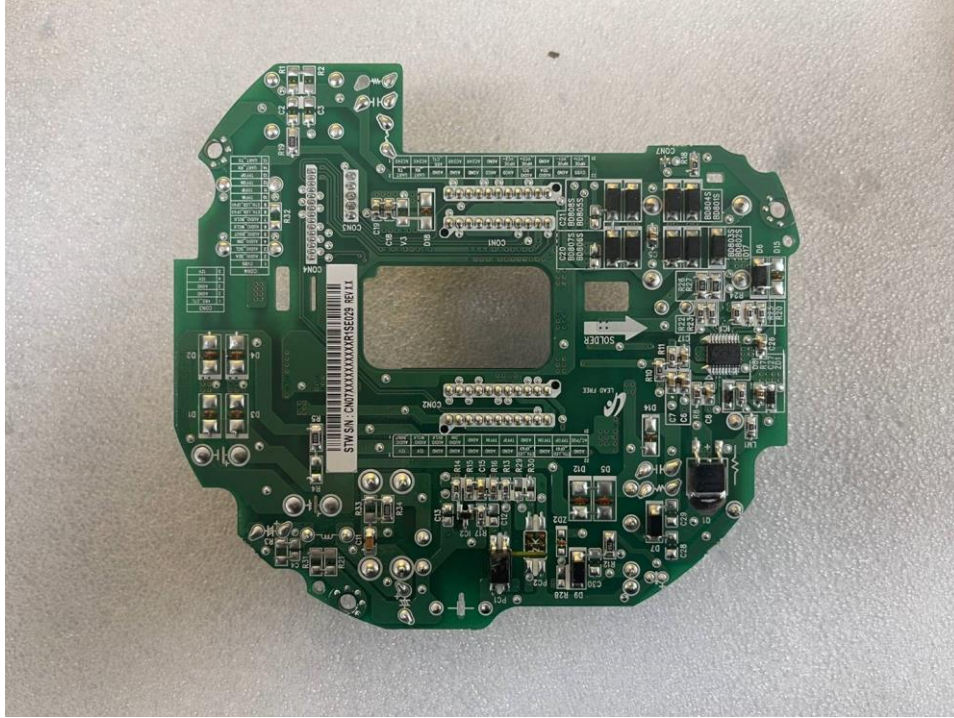
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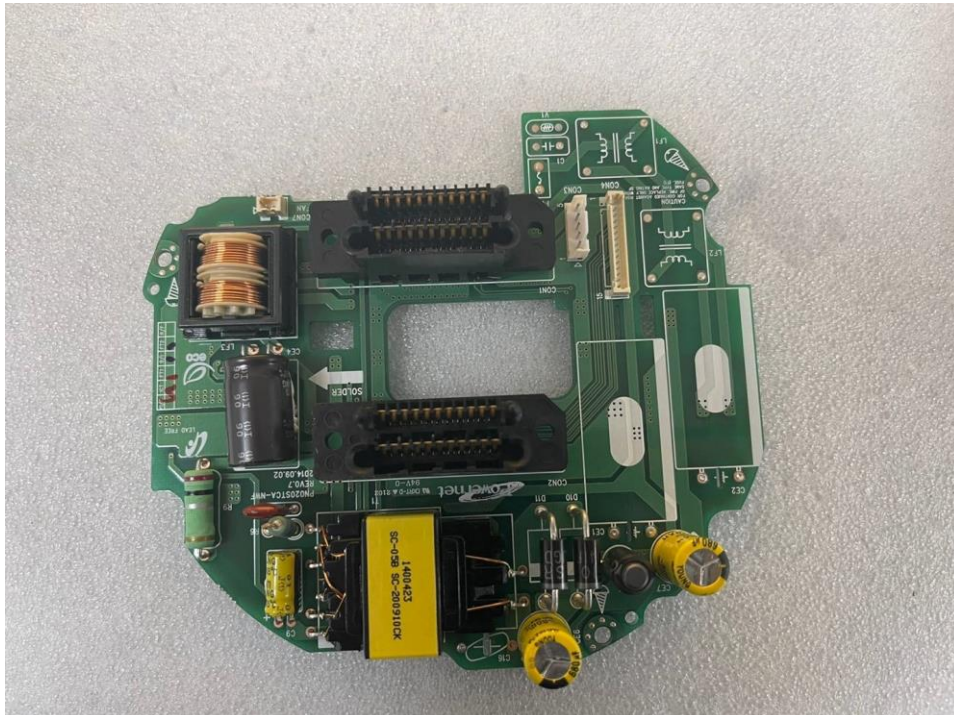
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EUT Internal View – Board 6

(Top)



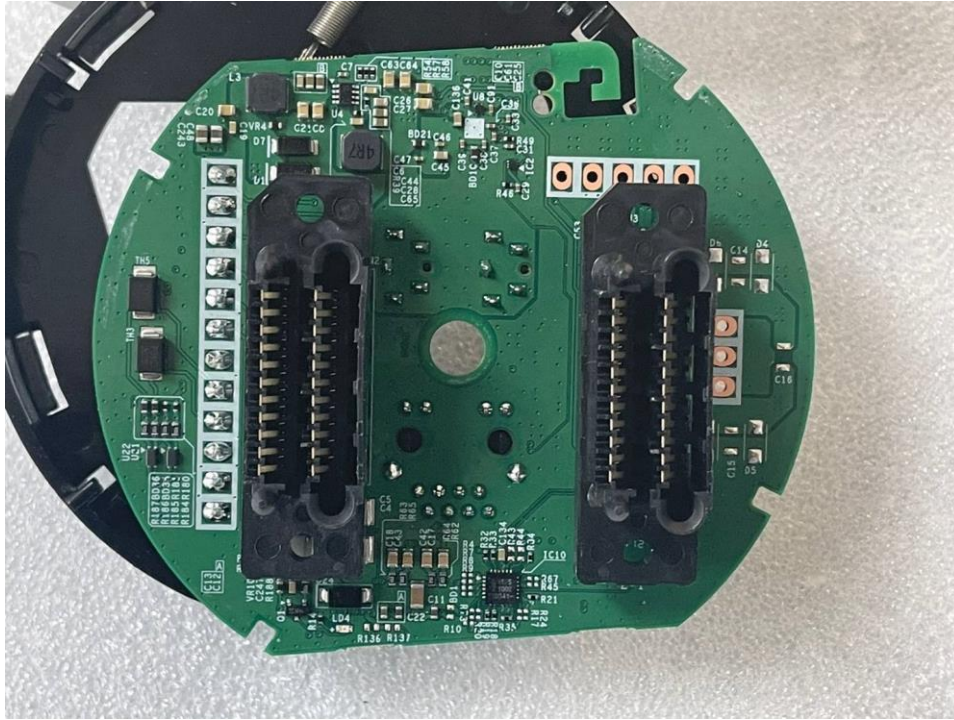
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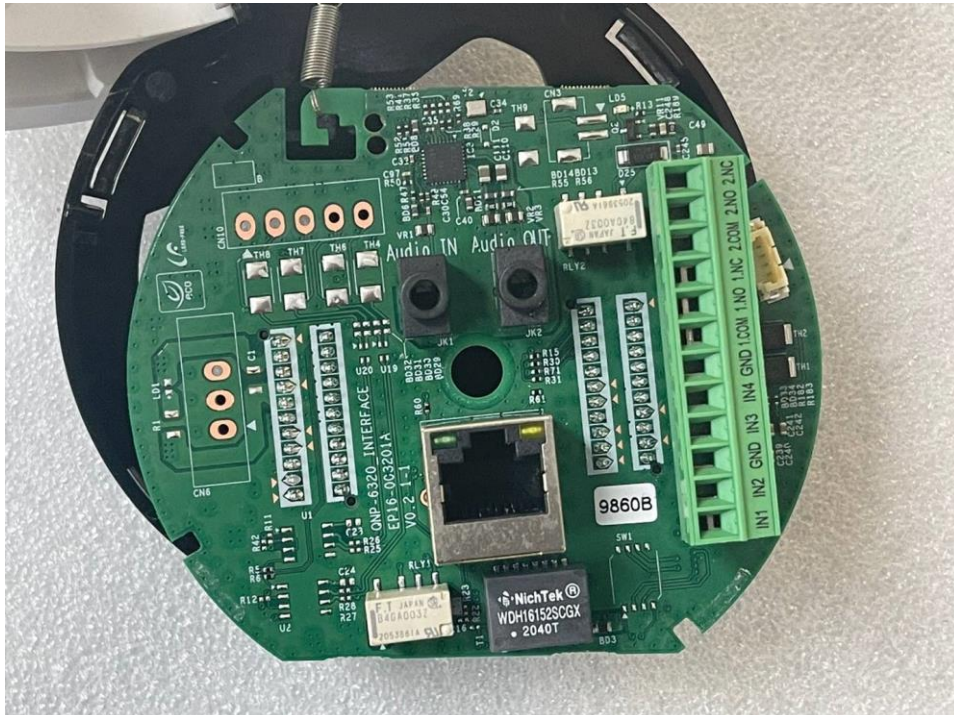
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EUT Internal View – Board 7

(Top)



(Bottom)



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