



## EMC TEST REPORT For VCCI

Test Report No. : KES-EM-20T0685  
Date of Issue : Oct. 16, 2020  
Product name : NETWORK CAMERA  
Model/Type No. : PNM-9322VQP  
Variant Model : -  
Applicant : Hanwha Techwin Co., Ltd.  
Applicant Address : 6, Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si,  
Gyeonggi-do, Republic of Korea  
Manufacturer : 1. HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.  
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 : Aug. 19, 2020  
Test date : Aug. 27, 2020 ~ Aug. 28, 2020  
Test Results : ☒ In Compliance ☐ Not in Compliance

Tested by

Dong Hyun, Won  
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
Oct. 16, 2020	KES-EM-20T0685	Issued

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## 1.0 General Product Description

Main Specifications of EUT are:

Video	
Imaging Device	1~4CH: Optional lens / 5CH: 1/2.8" CMOS
Resolution	[5MP] 2560x1920, 2560x1440, 1920x1080, 1600x1200, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 320x240 [2MP] 1920x1080, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240
Max. Framerate	H.265/H.264: 2MP Max. 60fps/50fps(60Hz/50Hz), 5MP Max. 30fps/25fps(60Hz/50Hz) MJPEG: Max. 30fps/25fps(60Hz/50Hz)
Video Out	CVBS : 1.0 Vp-p / 75Ω composite, 720x480(N), 720x576(P), for installation
Lens	
Focal Length (Zoom Ratio)	1~4CH: Optional lens / 5CH: 4.44~142.6mm(32x) zoom
Optional Lens	SLA-2M2400P(2MP 2.4mm) SLA-2M2800P(2MP 2.8mm) SLA-2M3600P(2MP 3.6mm) SLA-2M6000P(2MP 6.0mm) SLA-2M1200P(2MP 12mm) SLA-5M3700P(5MP 3.7mm) SLA-5M4600P(5MP 4.6mm) SLA-5M7000P(5MP 7.0mm)
Operational	
Camera Title	Displayed up to 85 characters
Day & Night	Auto(Electrical)
Backlight Compensation	BLC, HLC, WDR, SDR
Wide Dynamic Range	2MP 150dB, 5MP 120dB
Digital Noise Reduction	SSNR V
Digital Image Stabilization	Support
Defog	Support
Motion Detection	8ea, 8point polygonal zones
Privacy Masking	32ea, polygonal zones - Color: Grey/Green/Red/Blue/Black/White - Mosaic
Gain Control	Low / Middle / High
White Balance	ATW / AWC / Manual / Indoor / Outdoor
LDC	Support
Electronic Shutter Speed	Minimum / Maximum / Anti flicker (2~1/12,000sec)
Video Rotation	Flip, Mirror, Halfway view(90°/270°)
Analytics	Defocus detection, Directional detection, Face detection, Fog detection, Motion detection, Appear/Disappear, Enter/Exit, Loitering, Tampering, Virtual line
Alarm Triggers	Analytics, Network disconnect, Alarm input
Alarm I/O	Input 1ea / Output 2ea

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Alarm Events	File upload via FTP and e-mail Notification via e-mail SD/SDHC/SDXC recording at event triggers
Audio In	Selectable(mic in/line in) - PTZ(CH5) only Supply voltage: 2.5VDC(4mA), Input impedance: 2K Ohm
Audio Out	Line out, Max.output level: 1Vrms - PTZ(CH5) only
<b>Network</b>	
Ethernet	Metal shielded RJ-45(10/100/1000BASE-T)
Video Compression	H.265/H.264: Main/Baseline/High, MJPEG
Smart Codec	Manual(Sea area), WiseStreamII
Bitrate Control	H.264/H.265: CBR or VBR MJPEG: VBR
Streaming	Unicast(20 users) / Multicast 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
Security	HTTPS(SSL) Login Authentication Digest Login Authentication IP Address Filtering User access log 802.1X Authentication(EAP-TLS, EAP-LEAP)
Edge Storage	Micro SD/SDHC/SDXC 4slot 256GB(Each CH)
Application Programming Interface	ONVIF Profile S SUNAPI(HTTP API)
Web Viewer	Supported OS: Windows 7, 8.1, 10, Mac OS X 10.10, 10.11, 10.12 Recommended Browser: Google Chrome Supported Browser: MS Explore11, MS Edge, Mozilla Firefox(Window 64bit only), Apple Safari(Mac OS X only)
Memory	5GB RAM, 1280MB Flash
<b>Environmental</b>	
Operating Temperature / Humidity	-35°C ~ +55°C (-31°F ~ +131°F) / Less than 90% RH
Storage Temperature / Humidity	-50°C ~ +60°C(-58°F ~ +140°F) / Less than 90% RH
Certification	IP66, IK10
<b>Electrical</b>	
Input Voltage	HPoE(IEEE802.3bt)
Power Consumption	HPoE: Max 65W
<b>Mechanical</b>	
Color / Material	White / Aluminum
Product dimensions / weight	Ø367.8x335.7mm (Ø14.48"x13.22"), 7.05kg (16.1 lb)

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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 ☐ 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	PNM-9322VQP	-	HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.	EUT
PoE Adapter 1	PT-PSE109GBRO- AH-S	-	Dongguan PROCET Network Technology Co.,Ltd	EUT



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## 1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
PoE Adapter 2	GS728TPP V1H1	-	-	-
Notebook	P95G001	8KM8HT2	Wistron Infocom (Chengdu) Company Limited	-
Notebook Adapter	LA65NS2-01	-	LITE-ON TECHNOLOGY (CHANGZHOU)CO.,LTD.	-
Speaker	BR1000A Cuve Black 2	-	DONGGUAN EDIFIER TECHNOLOGY Co., Ltd	-
MIC	CMK-303	-	CAMAC	-
Controller	SPC-1010	C50E67WG10100 F	SamSung Techwin Co.,Ltd.	-
Controller Adapter	RS-AB1000	-	Dongguan Jinhuasheng Power Technology Co.,Ltd.	-
Alarm	SIP-1201DD D0	-	SAMSUNG TECHWIN CO., LTD.	-
Button Alarm	SLE-0001 DO	C64167JDB6012 68 F	-	-
Smart Phone	SM-J500N0	-	Samsung Electronics Co.,Ltd.	-
Micro SD Card	-	-	-	16 GB

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## 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 1 (EUT)	RJ-45	3.0	U
	3.5mm	Speaker	3.5mm	1.4	U
	3.5mm	MIC	3.5mm	1.7	U
	RS-485	Controller	RS-485	10.0	U
	Alarm OUT	Alarm	Alarm IN	10.0	U
	Alarm IN	Button Alarm	Alarm OUT	10.0	U
	Slot	Micro SD Card	Slot	-	-
PoE Adapter 1 (EUT)	Optical	PoE Adapter 2	Optical	1.8	U
	RJ-45	Notebook	RJ-45	4.0	U
Notebook	3.5mm	Smart Phone	3.5mm	1.2	U

\* Unshielded=U, Shielded=S

## 1.7 EUT Operating Mode(s)

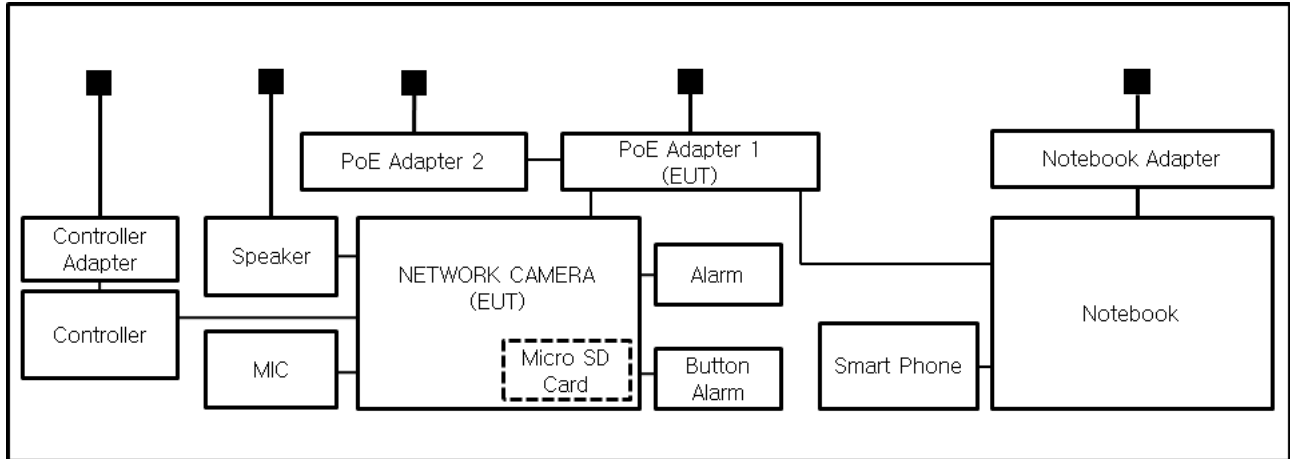
Test mode	operating
Operation mode	EUT Monitoring, Ping Test

EUT Test operating S/W		
Name	Version	Manufacture Company
Web Viewer	-	Hanwha Techwin 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. The sites are constructed in conformance with the requirements of ANSI C63.4: 2014 and CISPR 16-1-4: 2012

## 1.12 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
KOREA	RRA	EMI (3 m & 10 m Semi-Anechoic Chamber , 10 m Open Area 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, 10 m Open Area and Conducted test site to perform FCC Part 15/18 measurements.	 KR0100
Canada	ISED	3 m & 10 m Semi-Anechoic Chamber and Conducted test site	 23298-1
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-20056, C-20036, T-20040, G-20057
Europe	TÜV SÜD	EMI (3 m & 10 m Semi-Anechoic Chamber , 10 m Open Area 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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- |  |   |                                  |
|--|---|----------------------------------|
| <input checked="" type="checkbox"/> VCCI - CISPR 32:2016 | <input checked="" type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> AS/NZS CISPR32:2015             | <input type="checkbox"/> Class A            | <input type="checkbox"/> Class B |
| <input type="checkbox"/> 47 CFR Part 15, Subpart B       |   |                                  |
| <input type="checkbox"/> CISPR 22:2009 +A1:2010          | <input type="checkbox"/> Class A            | <input type="checkbox"/> Class B |
| <input type="checkbox"/> ANSI C63.4-2009                 |   |                                  |
| <input type="checkbox"/> IC Regulation ICES-003 : 2016   |   |                                  |
| <input type="checkbox"/> CAN/CSA CISPR 22-10             | <input type="checkbox"/> Class A            | <input type="checkbox"/> Class B |
| <input type="checkbox"/> ANSI C63.4-2014                 |   |                                  |
| <br>   |   |                                  |
| <input type="checkbox"/> RE- Directive 2014/53/EU        |   |                                  |
| <br>   |   |                                  |
| <input type="checkbox"/> EN 301 489-1 V1.9.2             |   |                                  |
| <input type="checkbox"/> Equipment for fixed use         |   |                                  |
| <input type="checkbox"/> Equipment for vehicular use     |   |                                  |
| <input type="checkbox"/> Equipment for portable use      |   |                                  |
| <input type="checkbox"/> EN 301 489-3 V1.6.1             |   |                                  |
| <input type="checkbox"/> EN 301 489-17 V2.2.1            |   |                                  |
| <input type="checkbox"/> EN 60945:2002                   |   |                                  |

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## 2.1 Conducted Emissions Mains Power Ports

Test Date  
Aug. 27, 2020

Test Location  
Electro wave Shieldroom #6

### Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test S/W	EMC32	R & S	9.12.00	-
<input checked="" type="checkbox"/>	EMI TEST RECEIVER	ESR3	R & S	101783	01, 20, 2021
<input checked="" type="checkbox"/>	LISN	ENV216	R & S	101787	01, 02, 2021
<input checked="" type="checkbox"/>	LISN	ESH2-Z5	R & S	100450	01, 02, 2021
<input checked="" type="checkbox"/>	PULSE LIMITER	ESH3-Z2	R & S	101915	01, 02, 2021

Test Conditions  
Temperature: 23,8 °C  
Relative Humidity: 51,7 % 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.

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## 2.2 Conducted Emissions at Telecommunication Ports

Test Date  
Aug. 27, 2020

Test Location  
Electro wave Shieldroom #6

### Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test S/W	EMC32	R & S	9.12.00	-
<input checked="" type="checkbox"/>	EMI TEST RECEIVER	ESR3	R & S	101783	01, 20, 2021
<input checked="" type="checkbox"/>	LISN	ENV216	R & S	101787	01, 02, 2021
<input checked="" type="checkbox"/>	LISN	ESH2-Z5	R & S	100450	01, 02, 2021
<input checked="" type="checkbox"/>	PULSE LIMITER	ESH3-Z2	R & S	101915	01, 02, 2021
<input type="checkbox"/>	8-WIRE ISN CAT3,5	ENY81	R & S	100174	01, 07, 2021
<input checked="" type="checkbox"/>	8-WIRE ISN CAT6	ENY81-CAT6	R & S	101665	01, 07, 2021
<input type="checkbox"/>	CDN	CDNS502A	TESEQ	40431	01, 02, 2021

### Test Conditions

Temperature: 23,8 °C  
Relative Humidity: 51,7 % 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

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## 2.3 Radiated Electric Field Emissions(Below 1 GHz)

Test Date  
Aug. 27, 2020

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

### Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.0	-
<input checked="" type="checkbox"/>	EMI TEST RECEIVER	ESU26	R & S	100551	04, 01, 2021
<input checked="" type="checkbox"/>	AMPLIFIER	SCU 01	R & S	100603	11, 25, 2020
<input checked="" type="checkbox"/>	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	715	11, 29, 2020
<input checked="" type="checkbox"/>	ATTENUATOR	8491A	HP	32173	03, 10, 2021

Test Conditions  
Temperature: 23,5 °C  
Relative Humidity: 51,9 % 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.



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## 2.4 Radiated Electric Field Emissions(Above 1 GHz)

Test Date  
Aug. 28, 2020

Test Location  
SEMI ANECHOIC CHAMBER #3

### Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.0	-
<input checked="" type="checkbox"/>	EMI TEST RECEIVER	ESR7	R & S	101190	08, 05, 2021
<input checked="" type="checkbox"/>	PREAMPLIFIER	8449B	AGILENT	3008A01967	04, 20, 2021
<input type="checkbox"/>	ATTENUATOR	8491A	HP	35496	03, 10, 2021
<input checked="" type="checkbox"/>	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	03, 11, 2021

Test Conditions  
Temperature: 23,4 °C  
Relative Humidity: 51,1 % 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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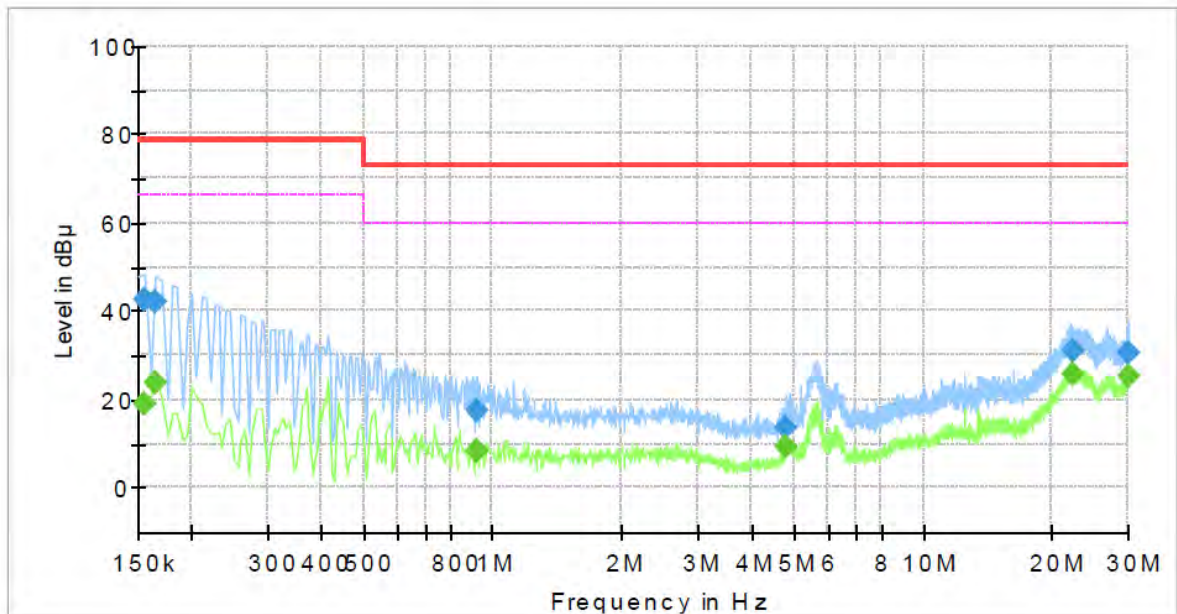
## APPENDIX A – TEST DATA

### Conducted Emissions at Mains Power Ports

HOT LINE

#### Common Information

Test Description: Conducted Emission  
Model No.: PNM-9322VQP  
Phase:  
Mode: H  
Operator Name: KES



#### Final Result

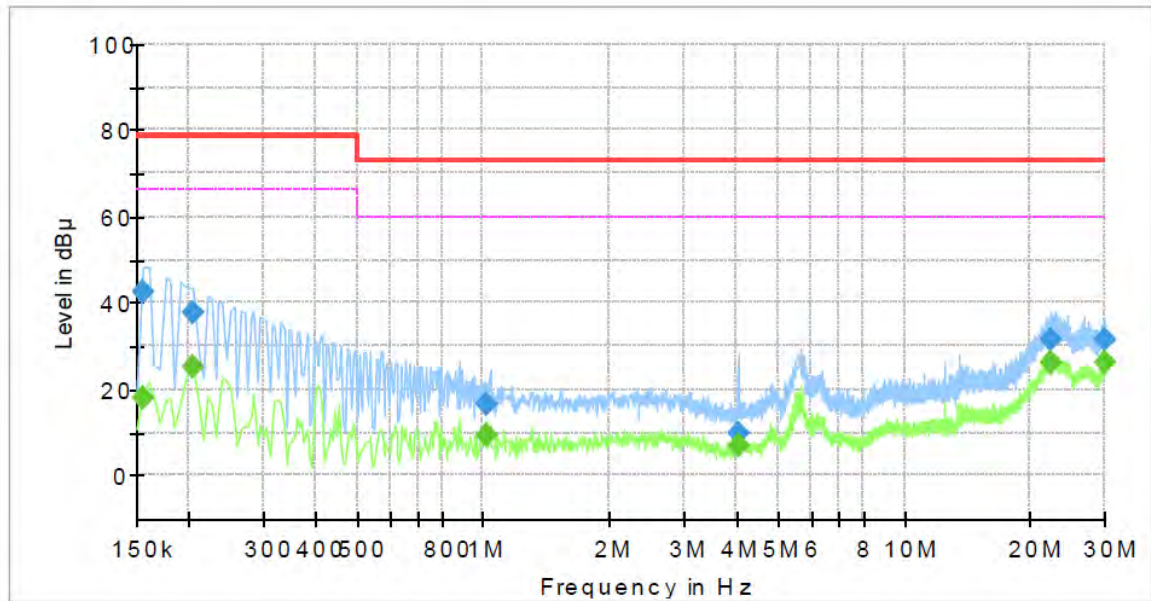
Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.155000	---	18.78	66.00	47.22	1000.0	9.000	L1	19.5
0.155000	42.74	---	79.00	36.26	1000.0	9.000	L1	19.5
0.165000	---	23.65	66.00	42.35	1000.0	9.000	L1	19.5
0.165000	41.98	---	79.00	37.02	1000.0	9.000	L1	19.5
0.915000	---	8.37	60.00	51.63	1000.0	9.000	L1	20.1
0.915000	17.47	---	73.00	55.53	1000.0	9.000	L1	20.1
4.800000	---	9.29	60.00	50.71	1000.0	9.000	L1	19.6
4.800000	13.88	---	73.00	59.12	1000.0	9.000	L1	19.6
22.345000	---	25.75	60.00	34.25	1000.0	9.000	L1	20.2
22.345000	31.22	---	73.00	41.78	1000.0	9.000	L1	20.2
29.865000	---	25.32	60.00	34.68	1000.0	9.000	L1	20.5
29.865000	30.64	---	73.00	42.36	1000.0	9.000	L1	20.5

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## NEUTRAL LINE

### Common Information

Test Description: Conducted Emission  
 Model No.: PNM-9322VQP  
 Phase:  
 Mode: N  
 Operator Name: KES



### Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.155000	---	17.93	66.00	48.07	1000.0	9.000	N	19.4
0.155000	42.77	---	79.00	36.23	1000.0	9.000	N	19.4
0.205000	---	25.12	66.00	40.88	1000.0	9.000	N	19.5
0.205000	37.73	---	79.00	41.27	1000.0	9.000	N	19.5
1.015000	---	9.45	60.00	50.55	1000.0	9.000	N	20.1
1.015000	16.37	---	73.00	56.63	1000.0	9.000	N	20.1
4.020000	---	6.77	60.00	53.23	1000.0	9.000	N	19.8
4.020000	9.92	---	73.00	63.08	1000.0	9.000	N	19.8
22.385000	---	26.04	60.00	33.96	1000.0	9.000	N	20.3
22.385000	31.57	---	73.00	41.43	1000.0	9.000	N	20.3
29.970000	---	26.28	60.00	33.72	1000.0	9.000	N	20.5
29.970000	31.61	---	73.00	41.39	1000.0	9.000	N	20.5

#### ◆ 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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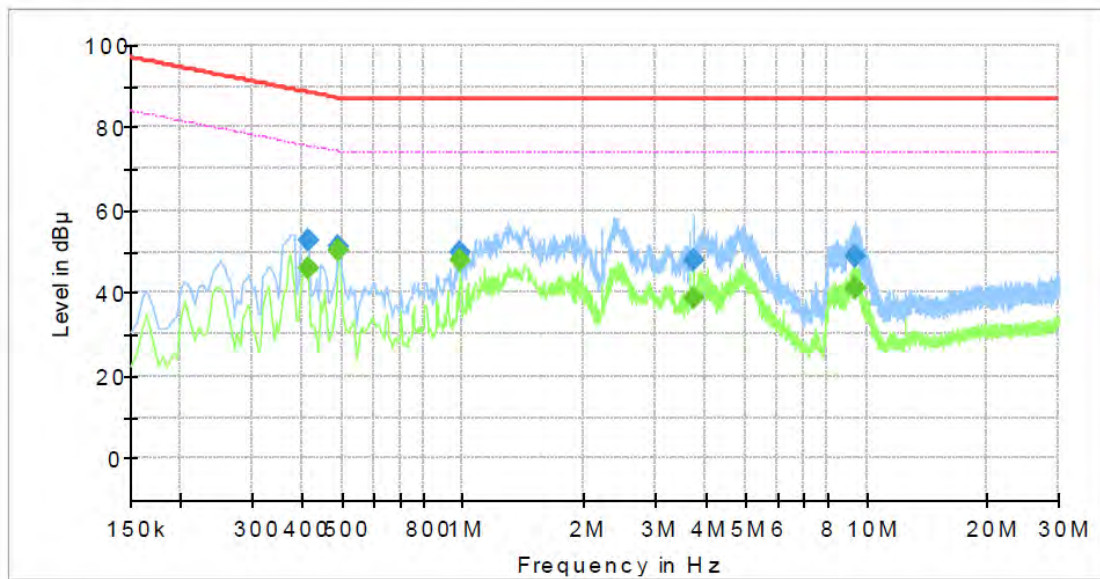
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## Conducted Emissions at Telecommunication Ports

[1 000 Mbps]

### Common Information

Test Description:	Telecommunication Emission
Model No.:	PNM-9322VQP
Mode :	
Speed :	1 000 Mbps
Operator Name:	KES



### Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.415000	---	45.75	75.55	29.80	1000.0	9.000	Single Line	19.7
0.415000	52.56	---	88.55	35.99	1000.0	9.000	Single Line	19.7
0.490000	---	50.13	74.17	24.04	1000.0	9.000	Single Line	19.8
0.490000	51.06	---	87.17	36.11	1000.0	9.000	Single Line	19.8
0.985000	---	47.82	74.00	26.18	1000.0	9.000	Single Line	20.0
0.985000	49.96	---	87.00	37.04	1000.0	9.000	Single Line	20.0
3.740000	---	38.69	74.00	35.31	1000.0	9.000	Single Line	19.6
3.740000	47.93	---	87.00	39.07	1000.0	9.000	Single Line	19.6
9.335000	---	41.11	74.00	32.89	1000.0	9.000	Single Line	19.7
9.335000	48.88	---	87.00	38.12	1000.0	9.000	Single Line	19.7
9.430000	---	41.38	74.00	32.62	1000.0	9.000	Single Line	19.7
9.430000	49.09	---	87.00	37.91	1000.0	9.000	Single Line	19.7

#### ◆ 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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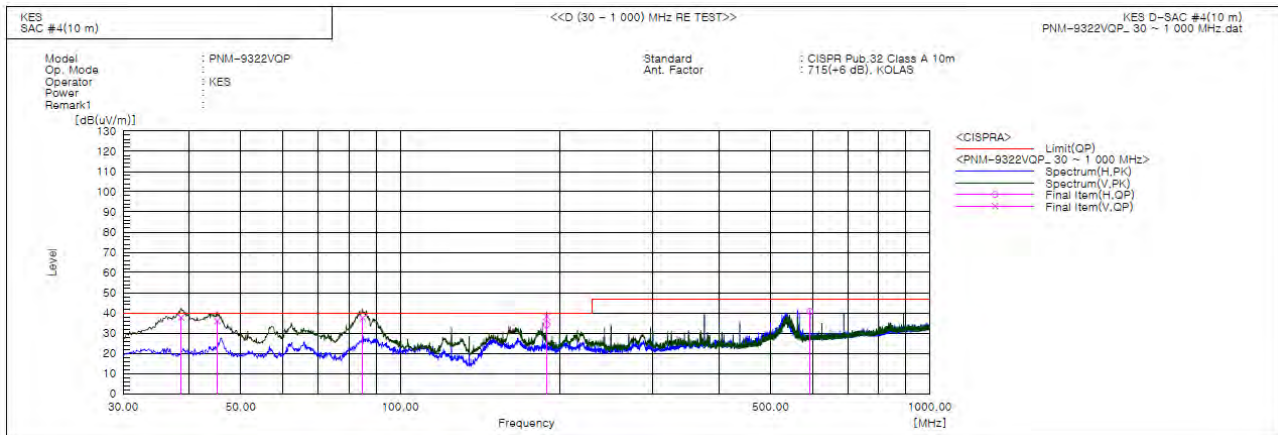


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www.kes.co.kr

Report No.:  
KES-EM-20T0685  
Page (20) of (40)

### 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	38.609	V	61.2	-23.5	37.7	40.0	2.3	105.0	248.0	
2	45.156	V	57.9	-21.9	36.0	40.0	4.0	121.0	207.0	
3	84.926	V	63.7	-26.3	37.4	40.0	2.6	150.0	108.0	
4	188.997	H	57.2	-22.9	34.3	40.0	5.7	349.0	171.0	
5	189.015	V	61.1	-22.9	38.2	40.0	1.8	116.0	241.0	
6	594.055	H	50.6	-9.9	40.7	47.0	6.3	384.0	249.0	

#### ◆ 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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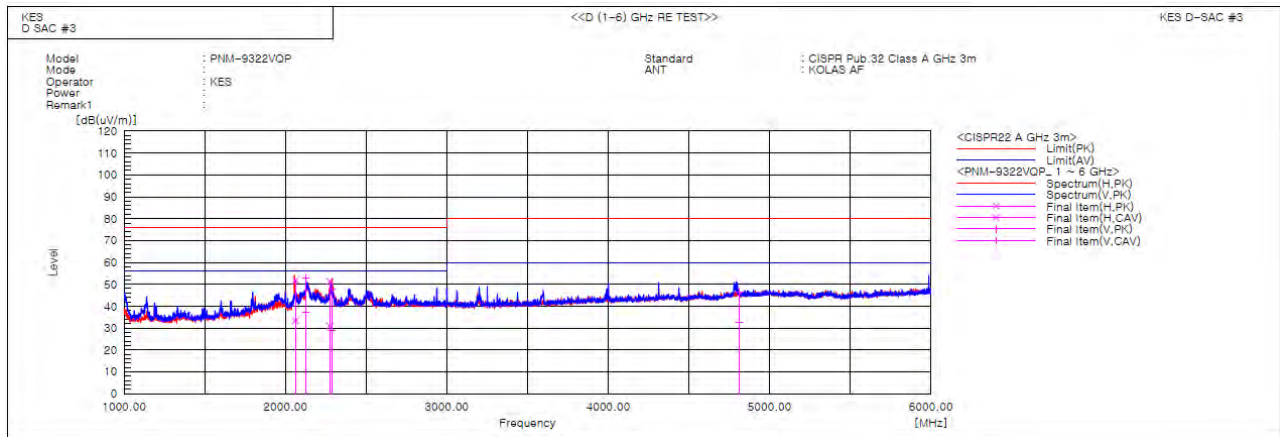


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Report No.:  
KES-EM-20T0685  
Page (21) of (40)

### 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	2062.419	H	53.7	35.2	-1.9	51.8	33.3	76.0	56.0	24.2	22.7	100.0	211.0	
2	2127.870	V	54.5	38.7	-1.6	52.9	37.1	76.0	56.0	23.1	18.9	100.0	177.9	
3	2274.163	H	52.5	32.0	-1.1	51.4	30.9	76.0	56.0	24.6	25.1	100.0	143.0	
4	2290.739	V	49.0	29.8	-1.0	48.0	28.8	76.0	56.0	28.0	27.2	100.0	214.7	
5	4811.067	V	38.6	25.2	7.6	46.2	32.8	80.0	60.0	33.8	27.2	100.0	168.1	

#### ◆ Calculation

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

Margin(PK/CAV)[dB] = Limit[dB( $\mu$ V/m)] - Result(PK/CAV) [dB( $\mu$ 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

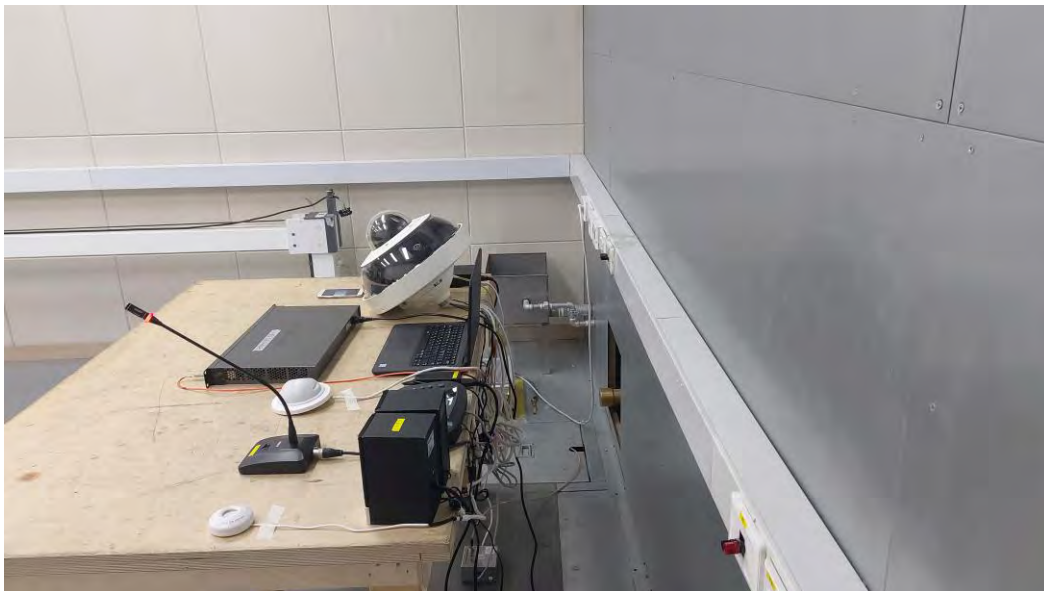
### Conducted Emissions at Mains Power Ports



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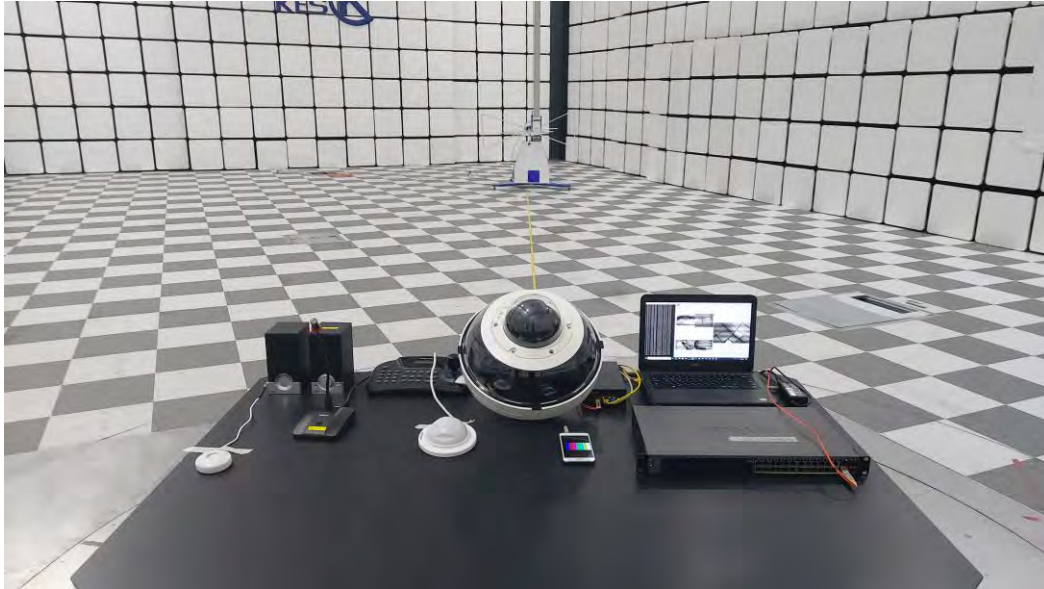


## Conducted Emissions at Telecommunication Ports



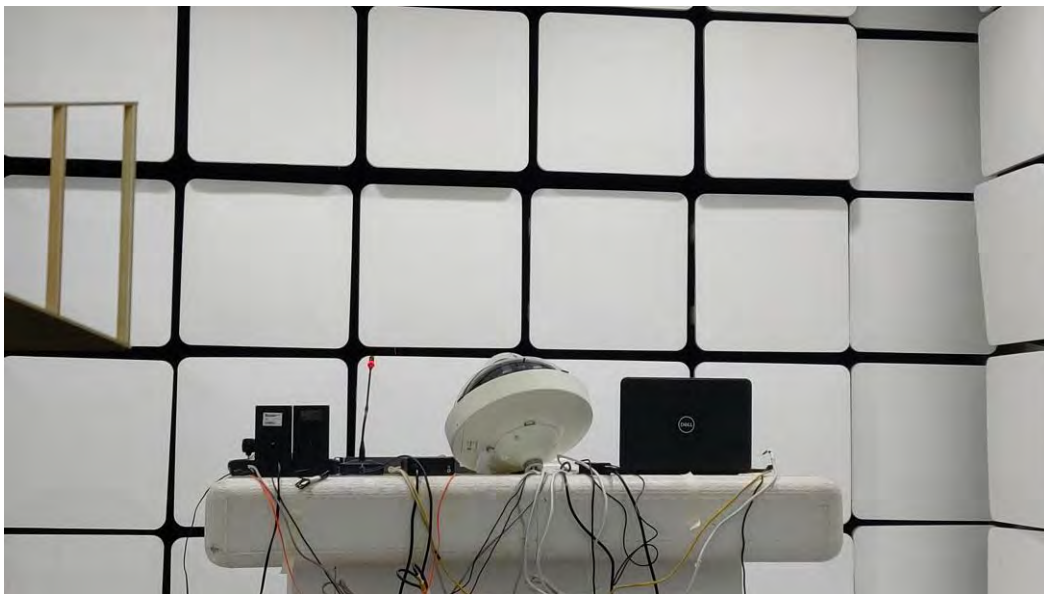
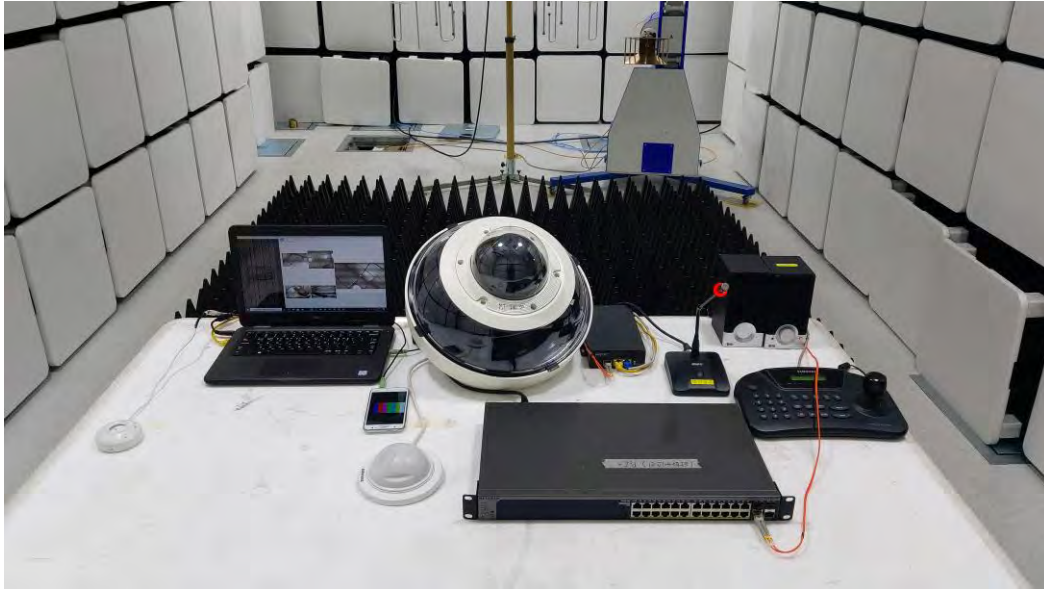
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## Radiated Electric Field Emissions(Below 1 GHz)



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## Radiated Electric Field Emissions(Above 1 GHz)



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## EUT External Photographs

(Top)



(Bottom)



## EUT Internal Photographs

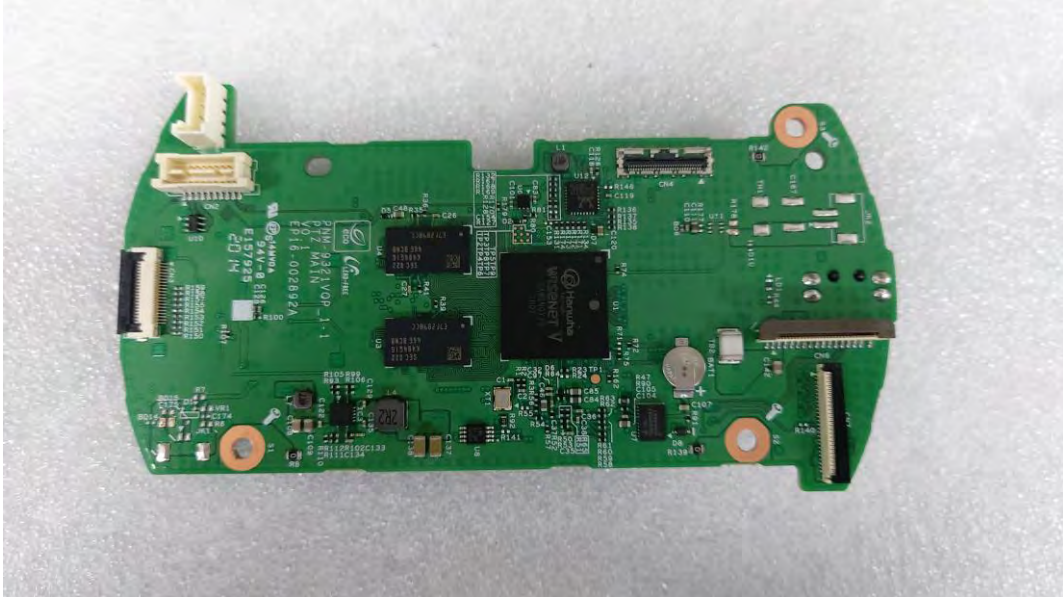
(Internal View)



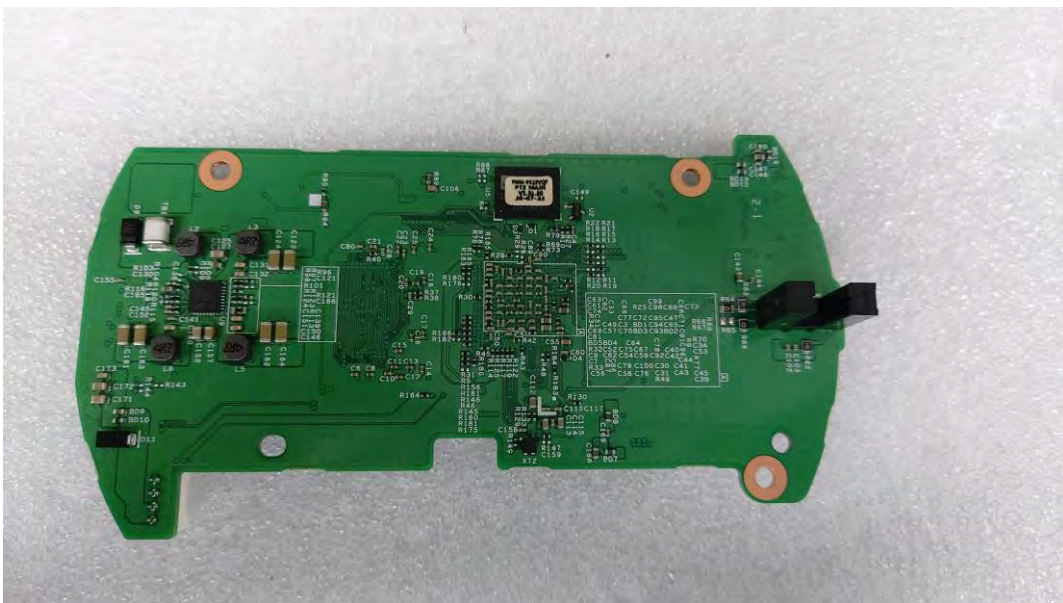
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## EUT Internal View – Main Board

(Top)



(Bottom)



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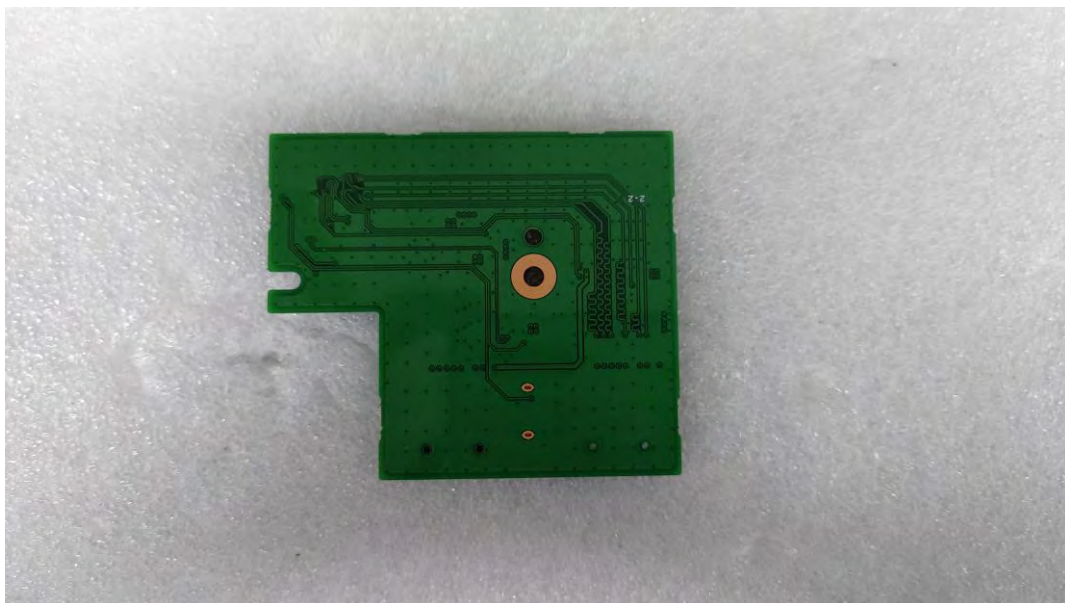


## EUT Internal View – SD Card Board

(Top)



(Bottom)



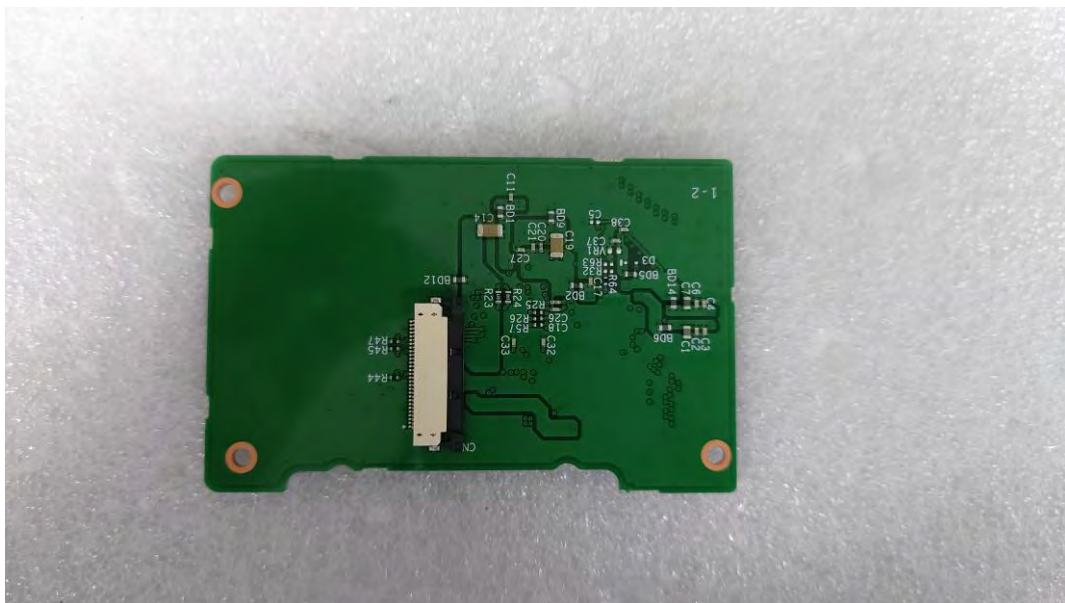


## EUT Internal View – Drive Board

(Top)



(Bottom)



## EUT Internal View – Lens

(Top)



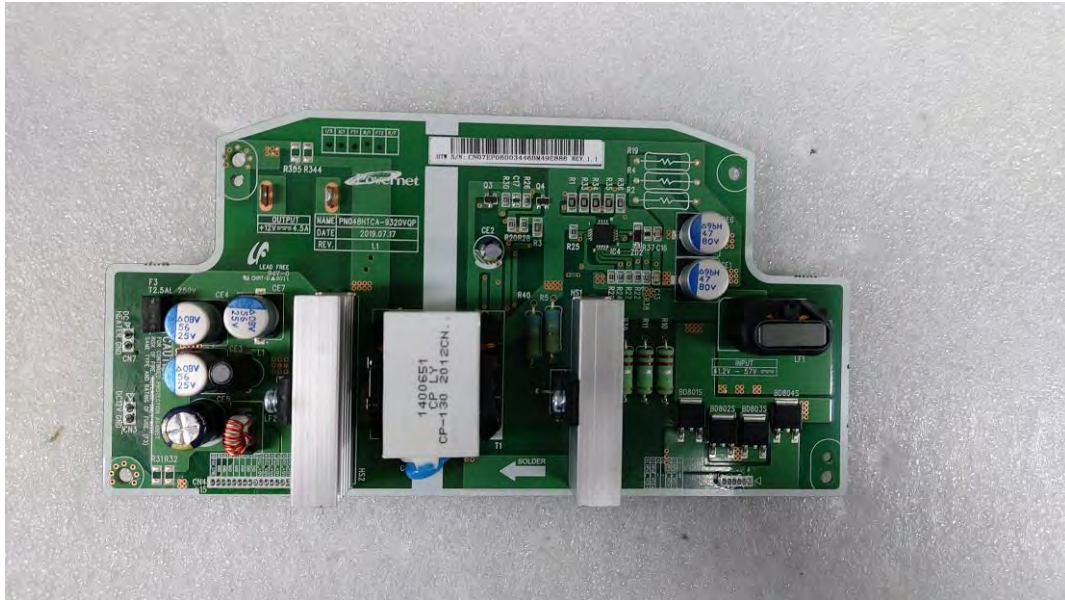
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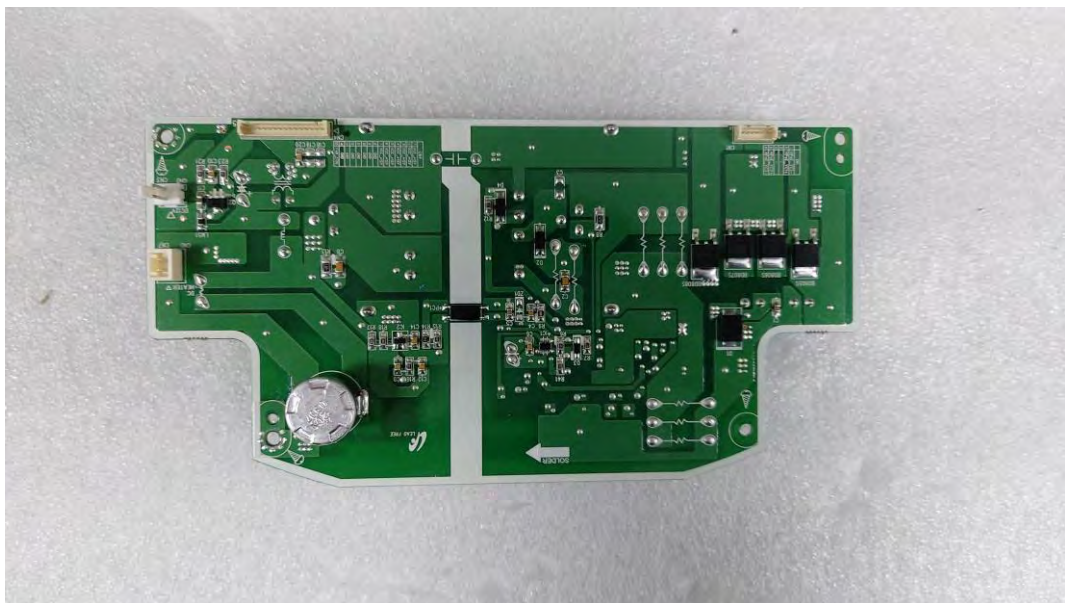


## EUT Internal View – Board 1

(Top)

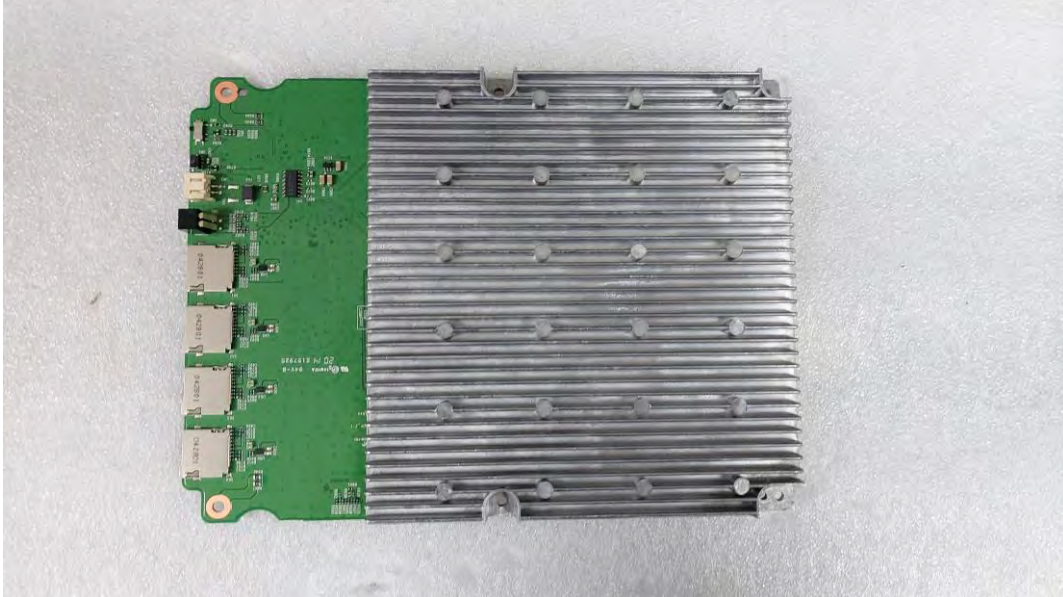


(Bottom)

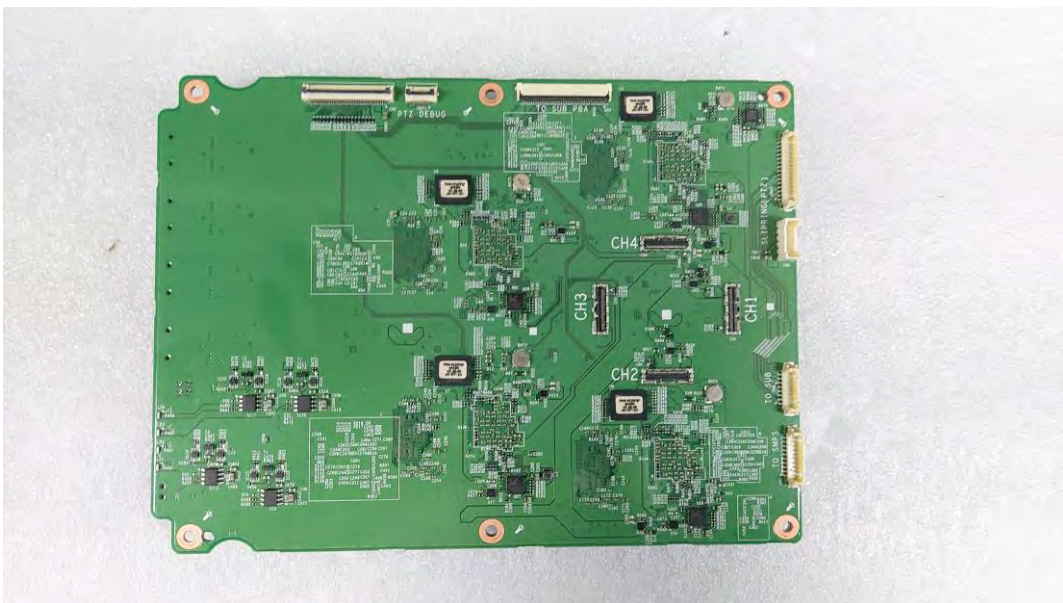


## EUT Internal View – Board 2

(Top)



(Bottom)



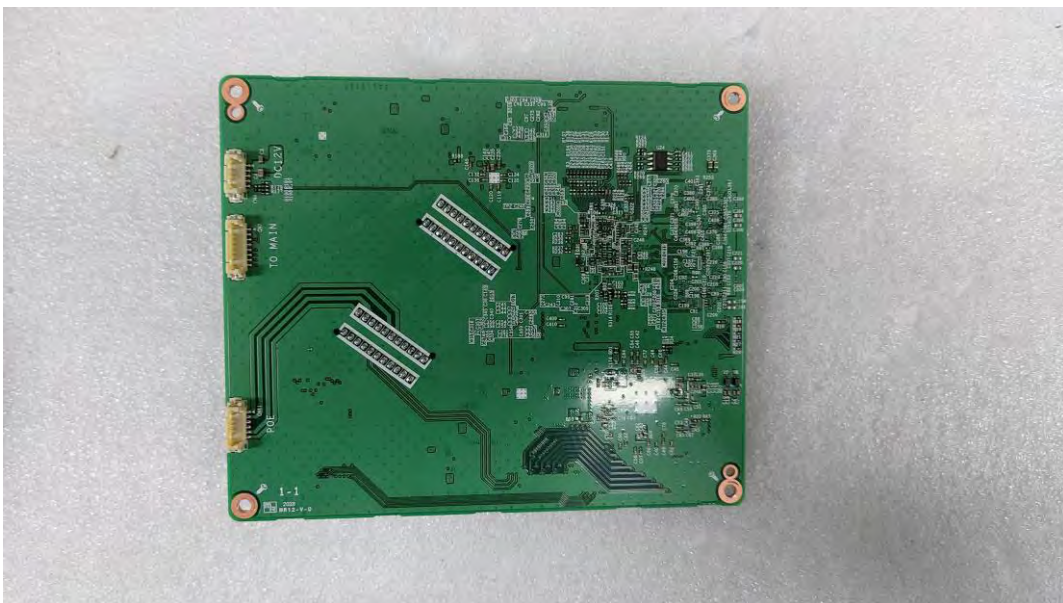


## EUT Internal View – Board 3

(Top)

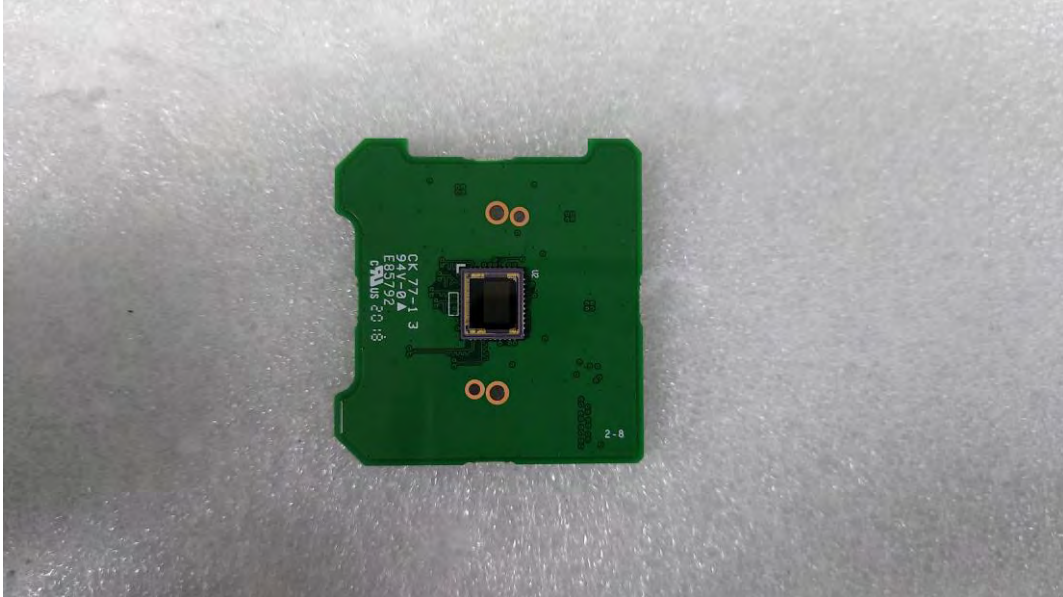


(Bottom)



## EUT Internal View – Camera Board

(Top)



(Bottom)



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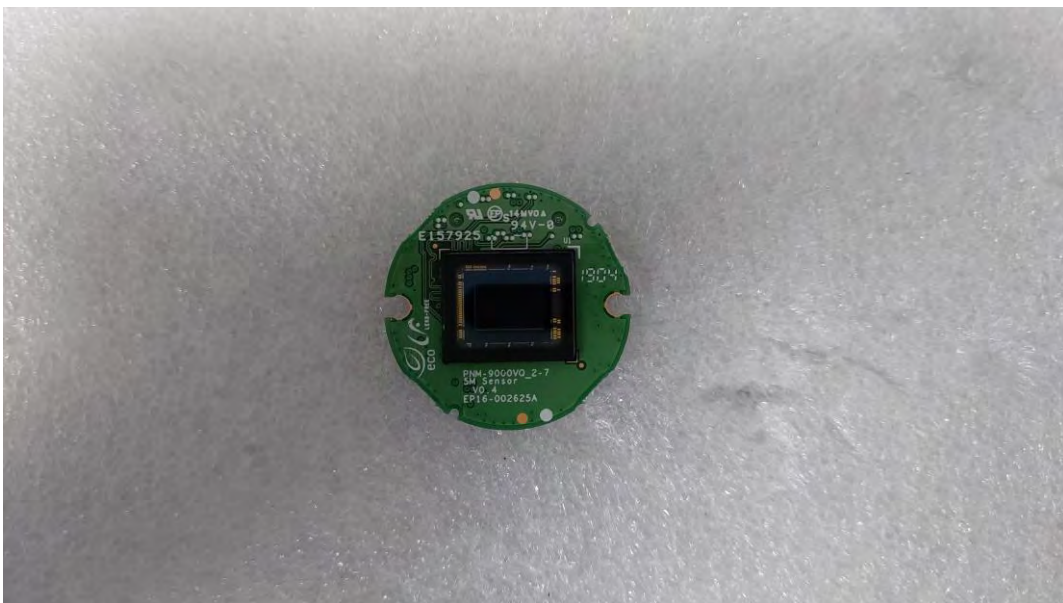


## EUT Internal View – Camera 1 ~ 4

(Top)



(Bottom)





## EUT Internal View – Camera 1~4 Lens Board

(Top)



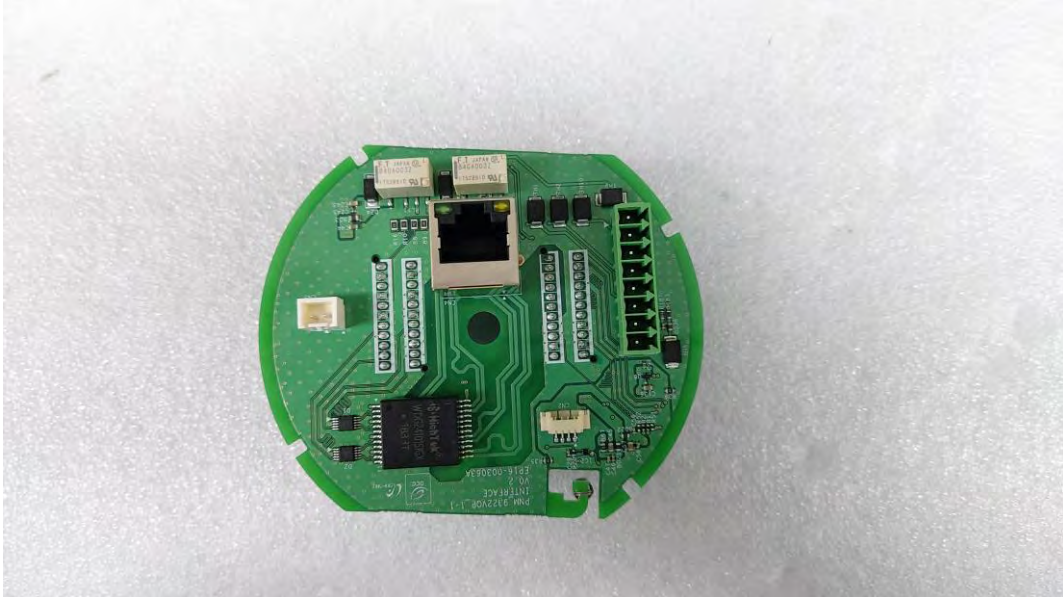
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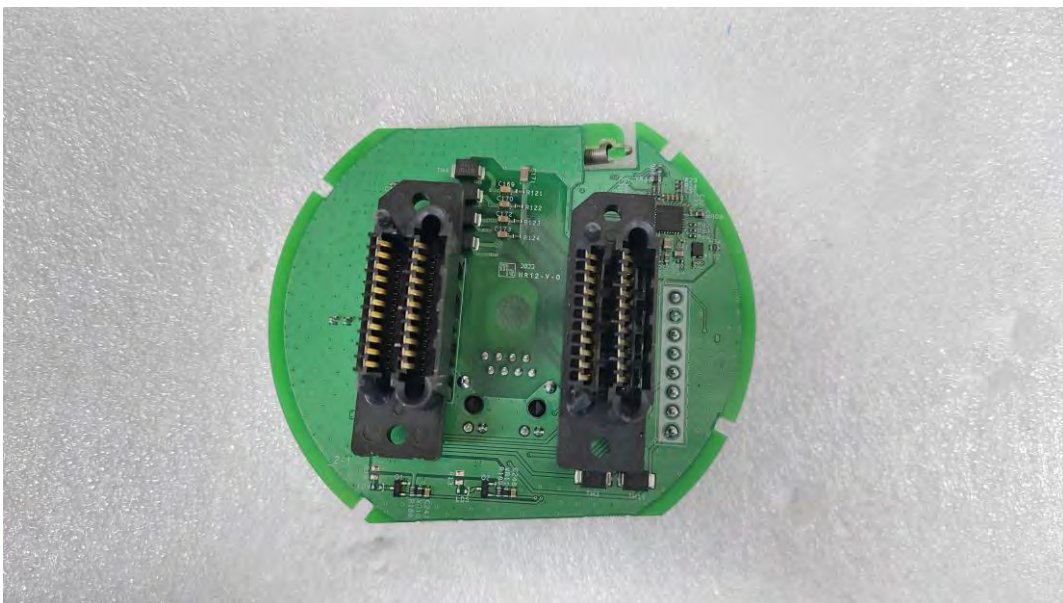
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## EUT Internal View – Power Board

(Top)



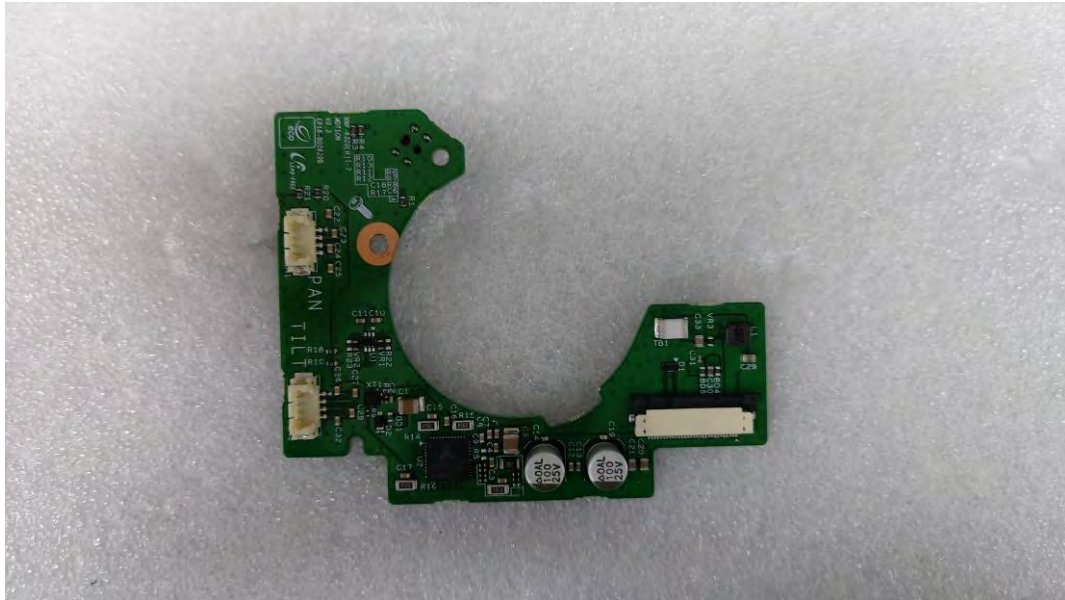
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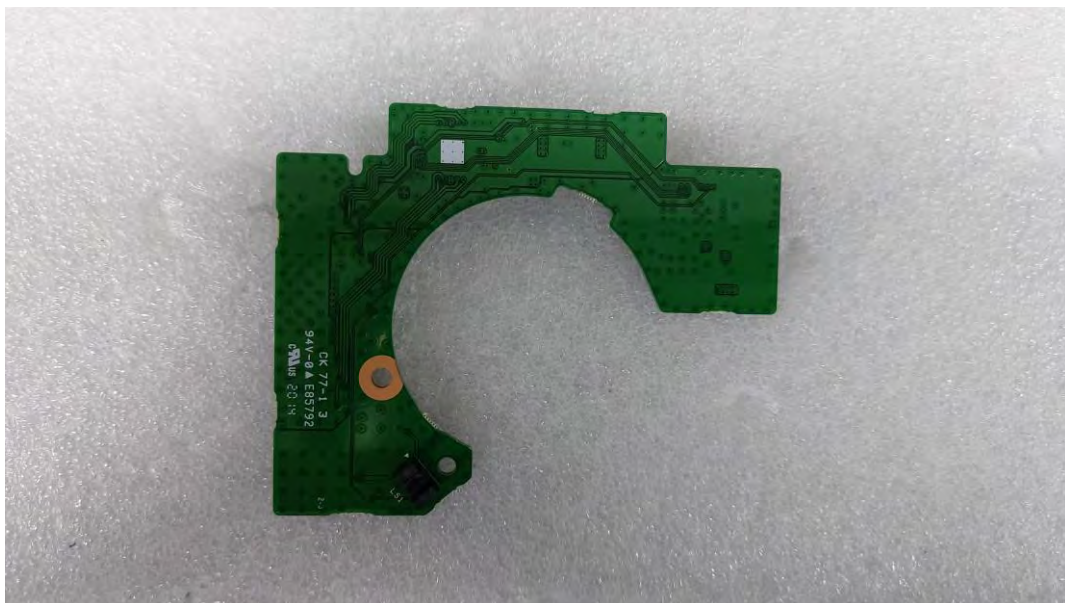


## EUT Internal View – Fan Board

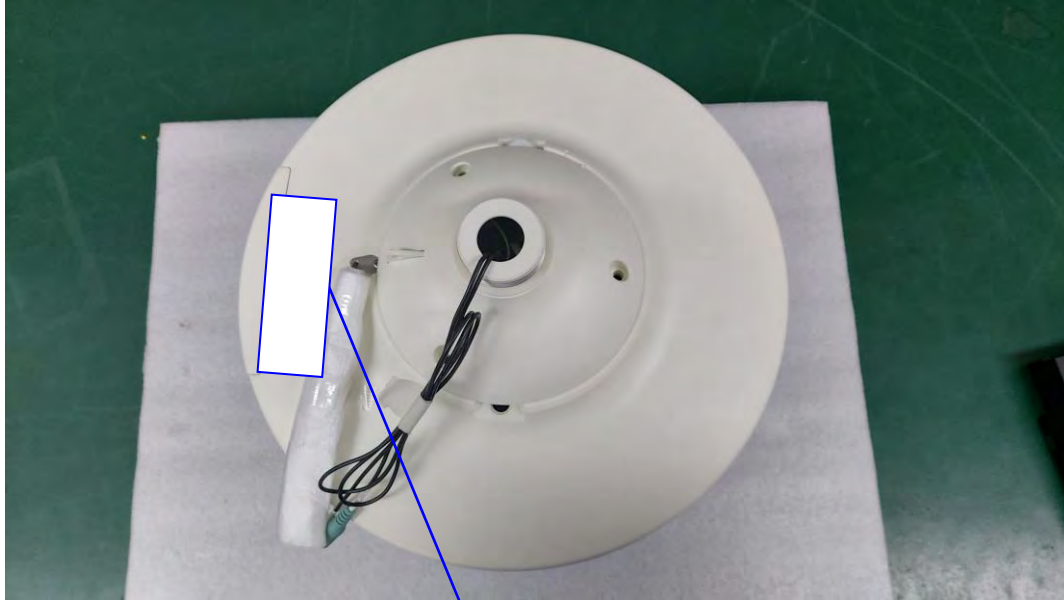
(Top)



(Bottom)



## Label Photographs



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VCCI-A