EMC TEST REPORT

Test Report No.	:	KES-EM-22T0015-R1
Date of Issue	:	Feb. 17, 2022
Product name	:	NETWORK CAMERA
Model/Type No.	:	PNM-9084RQZ
Variant Model	:	PNM-9084RQZ1
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)
Equipment authorization	:	**Supplier's Declaration of Conformity**
Date of Receipt	:	Dec. 22, 2021
Test date	:	Dec. 25, 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
Jan. 05, 2022	KES-EM-22T0015	Issued
Feb. 17, 2022	KES-EM-22T0015-R1	Re-issue due to variant model addition

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1.0 General Product Description

Main Specifications of EUT are:

	PNM-9084RQZ
Video	
Imaging Device	1/2.8" 2MP CMOS: each CH
Effective Pixels	1945(H)x1097(V): each CH
Min. Illumination	Color: 0.05lux(F1.6,30 IRE) BW: 0Lux(IR LED on)
Lens	
Focal Length (Zoom Ratio)	3.2~10mm(3.1x) motorized varifocal
Max. Aperture Ratio	F1.6(Wide)~F2.9(Tele)
Angular Field of View	H: 109.0°(Wide)~33.2°(Tele), V: 57.4°(Wide)~18.7°(Tele), D: 132.0°(Wide)~38.0°(Tele)
Min. Object Distance	0.5m(1.64ft)
Focus Control	Simple focus
Pan / Tilt / Rotate	
Pan / Tilt / Rotate Range	Remote adjustment (Max. 200cycles) Pan : 0~360°, Tilt : 30~90°, Rotate : 0~90°
Operational	
IR Viewable Length	30m
Camera Title	Displayed up to 85 characters
Day & Night	Auto(ICR)
Backlight Compensation	BLC, HLC, WDR, SSDR
Wide Dynamic Range	120dB
Digital Noise Reduction	SSNRⅤ
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

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LDC	Support
Electronic Shutter Speed	Minimum / Maximum / Anti flicker (2~1/12,000sec)
Video Rotation	Flip, Mirror, Hallway view(90°/270°)
Analytics	Defocus detection, Directional detection, Fog detection, Face detection, Motion detection, Appear/Disappear, Enter/Exit, Loitering, Tampering, Virtual line, Audio detection
Alarm I/O	Input 1ea / Output 1ea
Alarm Triggers	Analytics, Network disconnect, Alarm input
Alarm Events	File upload via FTP and e-mail Notification via e-mail SD/SDHC/SDXC at event triggers Alarm output Handover
Audio In	Selectable(mic in/line in) Supply voltage: 2.5VDC(4mA), Input impedance: 2K Ohm
Audio Out	Line out, Max.output level: 1Vrms
Network	
Ethernet	RJ-45(10/100/1000BASE-T)
Video Compression	H.265/H.264: Main/Baseline/High, MJPEG
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)
Smart Codec	Manual(5ea area), WiseStreamⅡ
Bitrate Control	H.264/H.265: CBR or VBR MJPEG: VBR
Streaming	Unicast(20 users) / Multicast Multiple streaming(Up to 10 profiles)
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

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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
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 512GB(Each CH)
Application Programming Interface	ONVIF Profile S/T SUNAPI(HTTP API) Wisenet open platform
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
Environmental	
Operating Temperature / Humidity	-40°C~+55°C(-40°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, NEMA4X
Electrical	
Input Voltage	HPoE, 12VDC
Power Consumption	Max : 42W Typical : 28W
Mechanical	
Color / Material	White / Aluminum
RAL Code	RAL9003
Product dimensions / weight	ϕ315x145.9mm / 5.2kg

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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.

☒ AC 120 V, 60 Hz ☒ DC 12 V ☒ PoE

1.2 Variant Model Differences

GYRO SENSOR Delete

1.3 Device Modifications

Not applicable

1.4 Equipment Under Test

Description	Model Number	Serial Number	Manufacturer	Remarks
NETWORK CAMERA	PNM-9084RQZ	-	HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.	EUT
PoE Injector	PT-PSE109GBRO-AH	PT2138221217	Dongguan PROCET Network Technology co.,Ltd	-

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1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Adapter	2ACB022F	-	Channel Well Technology (Guangzhou) Co., Ltd.	
Notebook	HSN-Q07C	5CD8367KND	HP	-
Notebook Adapter	HSTNN-CA40	WFTKU0ERLB4QCH	HP	-
Smartphone	A1586	-	APPLE .Inc	-
Speaker	BR1000A Cuve Black 2	-	DONGGUAN EDIFIER TECHNOLOGY Co., Ltd	-
Alarm	-	-	-	-
Button Alarm	-	-	-	-
Micro SD Card	-	-	Sandisk	8 GB

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1.6 External I/O Cabling

■ DC Mode

Start		END		Cable Spec.	
Description	**I/O Port**	**Description**	**I/O Port**	**Length**	**Shield**
NETWORK CAMERA (EUT)	DC IN	Adapter	DC OUT	1.0	U
	Audio Out	Speaker	Audio In	2.1	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	-	-
	RJ-45	Notebook	RJ-45	3.0	U
	Audio In		3.5 ㎜	1.7	U
Smartphone	3.5 ㎜			1.1	U
Notebook	DC IN	Notebook Adapter	DC OUT	1.6	U

* Unshielded=U, Shielded=S

■ PoE Mode

Start		END		Cable Spec.	
Description	**I/O Port**	**Description**	**I/O Port**	**Length**	**Shield**
NETWORK CAMERA (EUT)	RJ-45	PoE Injector (EUT)	RJ-45(PoE)	3.0	U
	Audio Out	Speaker	Audio In	2.1	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	-	-
	Audio In	Notebook	3.5 ㎜	1.7	U
Smartphone	3.5 ㎜			1.1	U
PoE Injector (EUT)	RJ-45(LAN)		RJ-45	3.0	U
Notebook	DC IN	Notebook Adapter	DC OUT	1.6	U

* Unshielded=U, Shielded=S

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1.7 EUT Operating Mode(s)

Test Mode	operating
DC Mode	After placing the test equipment and peripheral devices as shown in the layout below, the tests were conducted while checking the 1 kHz tone output from the smartphone, the camera video output from the notebook and verifying that they were operating normally while Ping test.
PoE Mode	

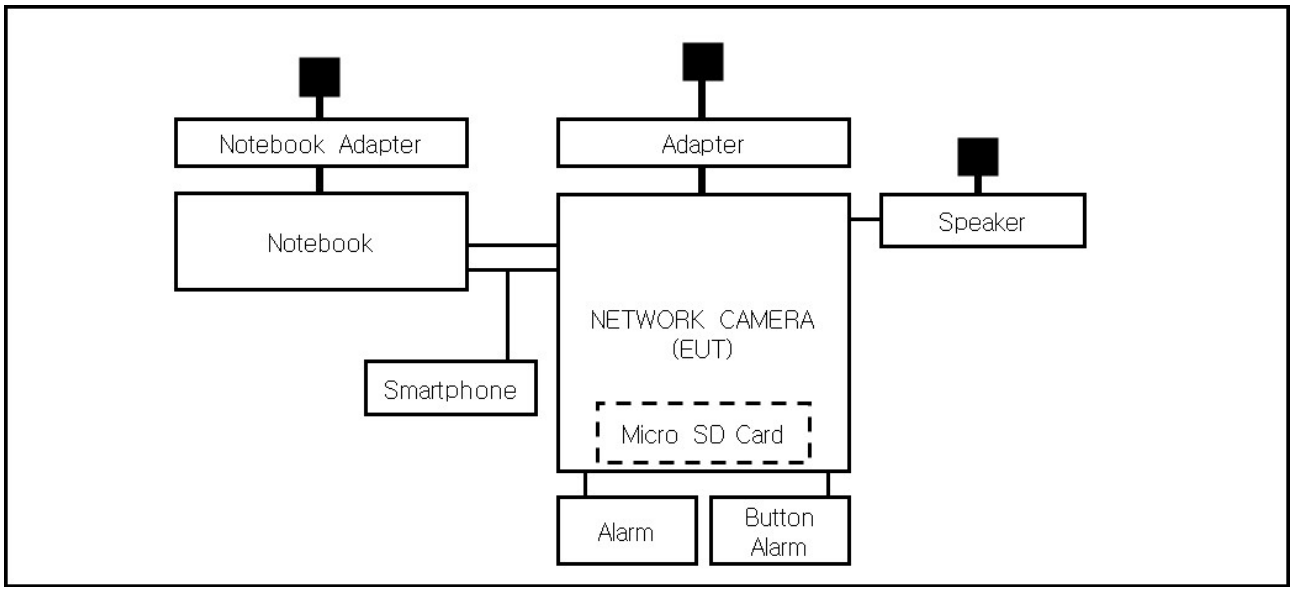
EUT Test operating S/W		
Name	**Version**	**Manufacture Company**
Web Viewer	-	Hanwha Techwin Co., Ltd.

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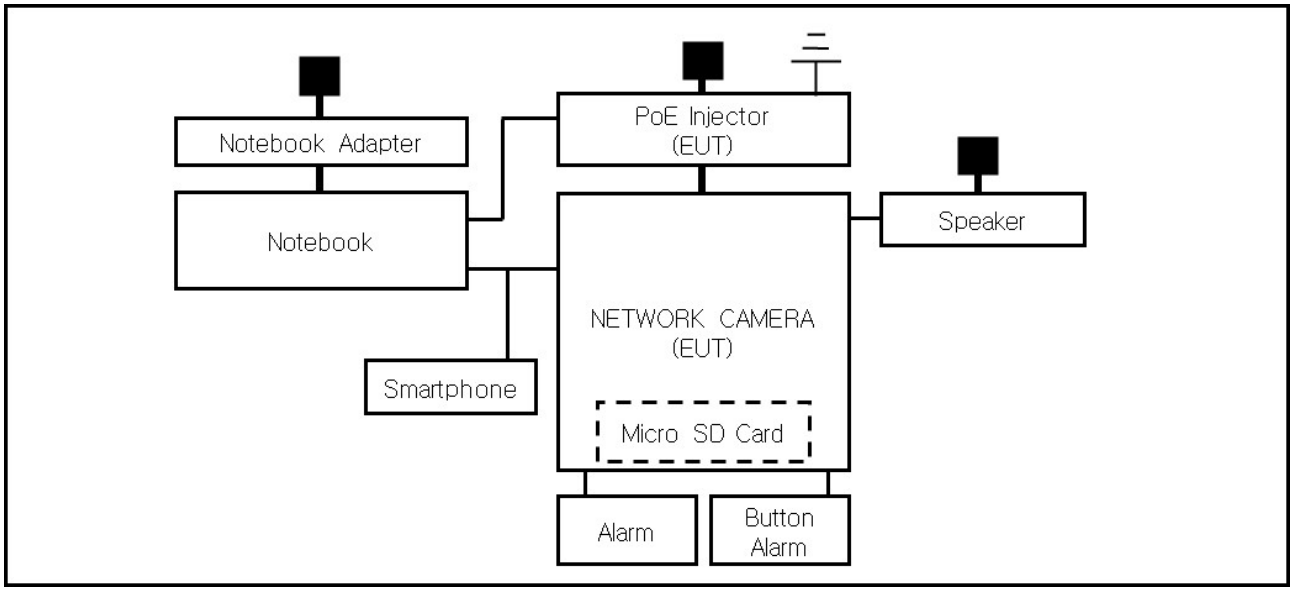
1.8 Configuration

■ AC Main
□ DC Main

■ DC Mode



■ PoE Mode



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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, Yeoju-si, Gyeonggi-do, 12658, Korea. 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 , 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

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2.0 Test Regulations

The emissions tests were performed according to following regulations:

☒ **47 CFR Part 15, Subpart B**

☐ CISPR 22:2009 +A1:2010	☐ Class A	☐ Class B
☒ ANSI C63.4a-2017	☒ Class A	☐ Class B

☒ **IC Regulation ICES-003 Issue 7**

☐ CAN/CSA-CISPR 32:17	☐ Class A	☐ Class B
☒ ANSI C63.4a-2017	☒ Class A	☐ Class B

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2.1 Conducted Emissions at Mains Power Ports

Test Date
Dec. 25, 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

Test Conditions
Temperature: (22,6 ± 0,1) ℃
Relative Humidity: (43,3 ± 0,1) % R.H.

Frequency Range of Measurement
150 ㎑ to 30 ㎒

Instrument Settings
IF Band Width: 9 ㎑

Test Results
The requirements are:

☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks
See Appendix A for test data.

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2.2 Radiated Electric Field Emissions(Below 1 ㎓)

Test Date
Dec. 25, 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, 24, 2022
☒	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	715	12, 08, 2022
☒	ATTENUATOR	8491A	HP	32173	03, 10, 2022

Test Conditions
Temperature: (22,1 ± 0,1) ℃
Relative Humidity: (43,3 ± 0,2) % R.H.

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
Dec. 25, 2021

Test Location
SEMI ANECHOIC CHAMBER #5

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.120	-
☒	EMI TEST RECEIVER	ESU26	Rohde & Schwarz	100552	04, 01, 2022
☒	HORN ANTENNA	BBHA 9120D	SCHWARZBECK	9120D-1802	12, 16, 2022
☒	PREAMPLIFIER	8449B	HP	3008A00538	06, 21, 2022

Test Conditions
Temperature: (22,0 ± 0,1) ℃
Relative Humidity: (43,1 ± 0,2) % R.H.

Frequency Range of Measurement
1 ㎓ to 5 ㎓

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

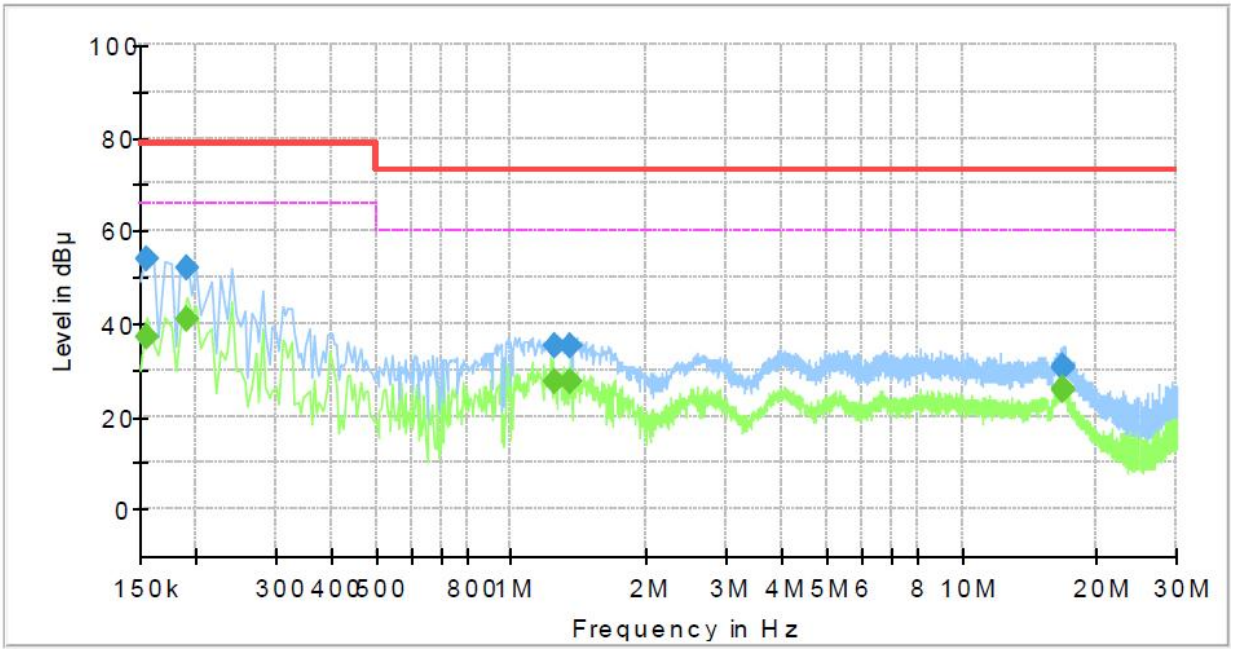
Conducted Emissions at Mains Power Ports

■ DC Mode

HOT LINE

Common Information

Test Description:	Conducted Emission
Model No.:	PNM-9084RQZ
Phase:	L1
Mode:	DC
Operator Name:	KES



Final_Result

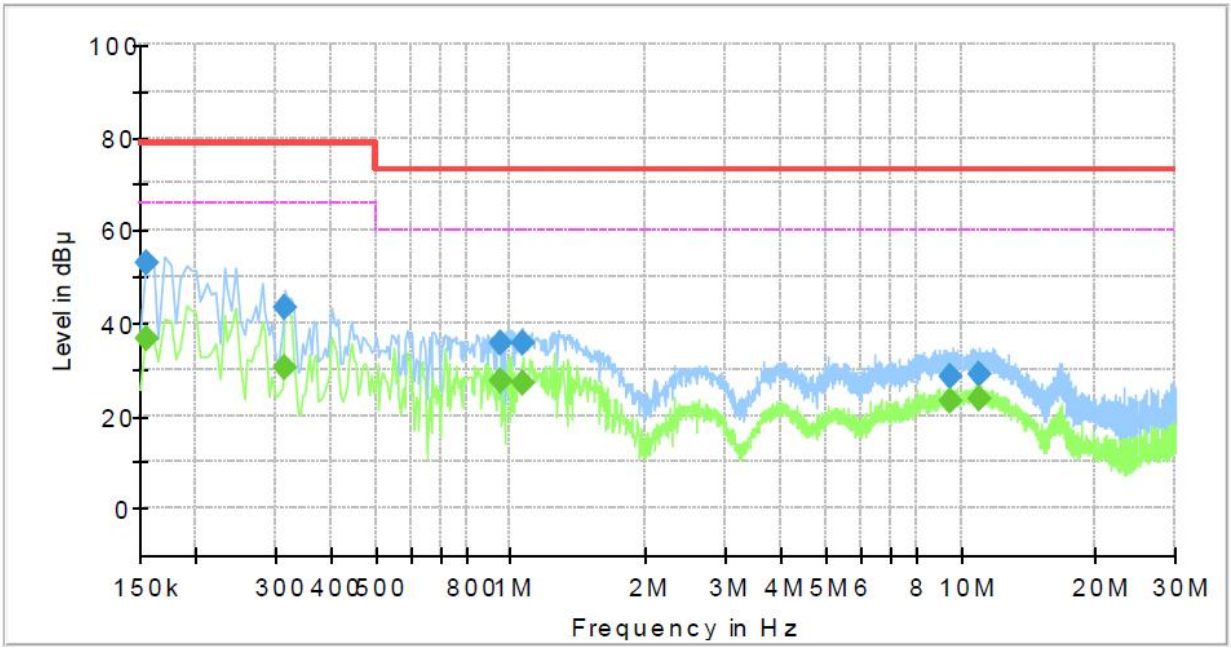
Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.155000	---	36.85	66.00	29.15	1000.0	9.000	L1	19.5
0.155000	53.69	---	79.00	25.31	1000.0	9.000	L1	19.5
0.190000	---	41.11	66.00	24.89	1000.0	9.000	L1	19.5
0.190000	51.90	---	79.00	27.10	1000.0	9.000	L1	19.5
1.250000	---	27.34	60.00	32.66	1000.0	9.000	L1	20.2
1.250000	35.06	---	73.00	37.94	1000.0	9.000	L1	20.2
1.350000	---	27.42	60.00	32.58	1000.0	9.000	L1	20.2
1.350000	35.35	---	73.00	37.65	1000.0	9.000	L1	20.2
16.715000	---	25.82	60.00	34.18	1000.0	9.000	L1	20.0
16.715000	30.97	---	73.00	42.03	1000.0	9.000	L1	20.0
16.810000	---	25.41	60.00	34.59	1000.0	9.000	L1	20.0
16.810000	30.50	---	73.00	42.50	1000.0	9.000	L1	20.0

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NEUTRAL LINE

Common Information

Test Description:	Conducted Emission
Model No.:	PNM-9084RQZ
Phase:	N
Mode:	DC
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	---	36.58	66.00	29.42	1000.0	9.000	N	19.4
0.155000	53.04	---	79.00	25.96	1000.0	9.000	N	19.4
0.315000	---	30.24	66.00	35.76	1000.0	9.000	N	19.6
0.315000	43.52	---	79.00	35.48	1000.0	9.000	N	19.6
0.950000	---	27.35	60.00	32.65	1000.0	9.000	N	20.1
0.950000	35.83	---	73.00	37.17	1000.0	9.000	N	20.1
1.060000	---	27.09	60.00	32.91	1000.0	9.000	N	20.1
1.060000	35.42	---	73.00	37.58	1000.0	9.000	N	20.1
9.455000	---	23.33	60.00	36.67	1000.0	9.000	N	19.8
9.455000	28.64	---	73.00	44.36	1000.0	9.000	N	19.8
11.010000	---	23.63	60.00	36.37	1000.0	9.000	N	20.0
11.010000	28.94	---	73.00	44.06	1000.0	9.000	N	20.0

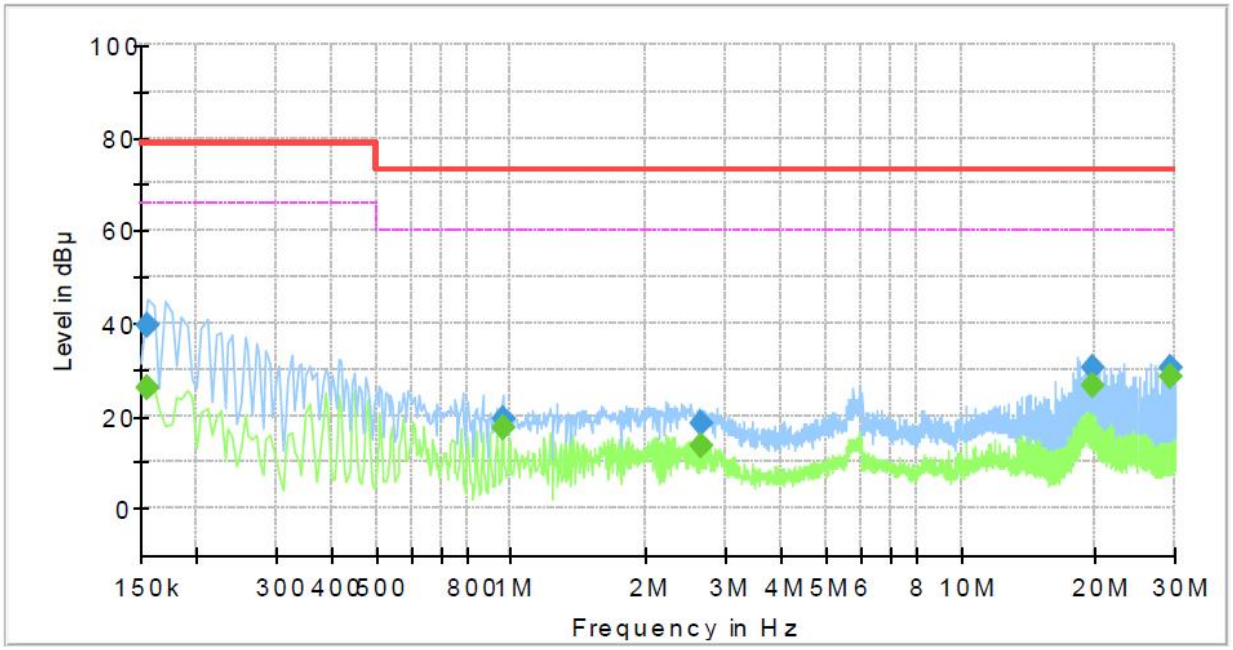
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■ PoE Mode

HOT LINE

Common Information

Test Description:	Conducted Emission
Model No.:	PNM-9084RQZ
Phase:	L1
Mode:	PoE
Operator Name:	KES



Final_Result

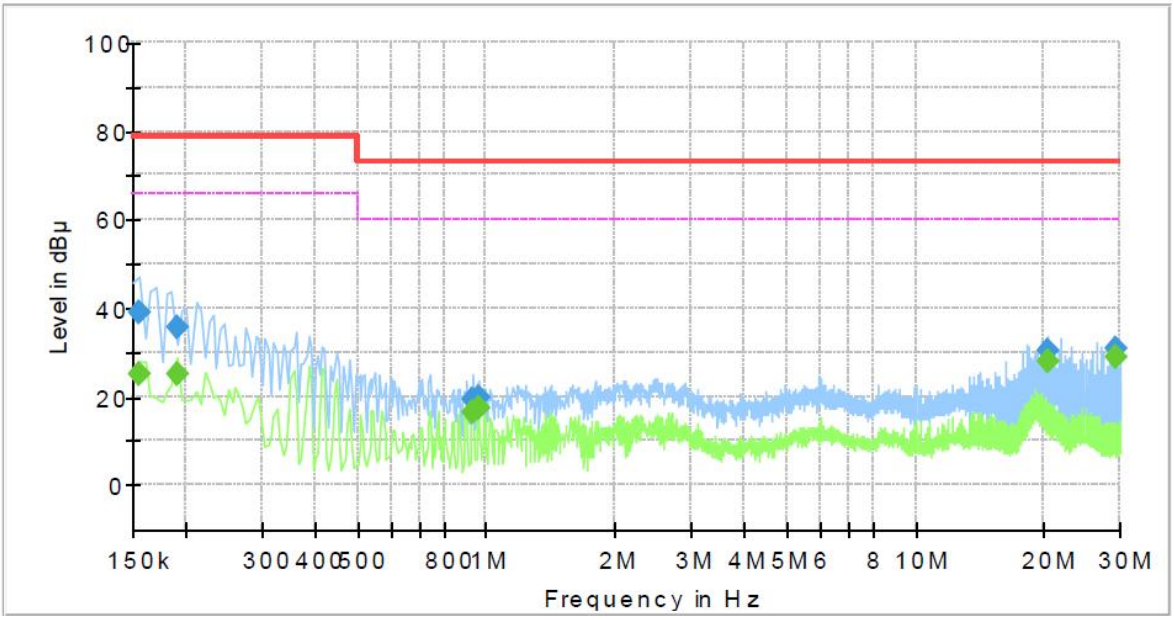
Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.155000	---	25.94	66.00	40.06	1000.0	9.000	L1	19.5
0.155000	39.39	---	79.00	39.61	1000.0	9.000	L1	19.5
0.960000	---	17.29	60.00	42.71	1000.0	9.000	L1	20.1
0.960000	19.31	---	73.00	53.69	1000.0	9.000	L1	20.1
2.655000	---	13.52	60.00	46.48	1000.0	9.000	L1	20.2
2.655000	18.51	---	73.00	54.49	1000.0	9.000	L1	20.2
19.710000	---	26.73	60.00	33.27	1000.0	9.000	L1	20.2
19.710000	30.55	---	73.00	42.45	1000.0	9.000	L1	20.2
29.235000	---	28.64	60.00	31.36	1000.0	9.000	L1	20.4
29.235000	30.47	---	73.00	42.53	1000.0	9.000	L1	20.4

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NEUTRAL LINE

Common Information

Test Description:	Conducted Emission
Model No.:	PNM-9084RQZ
Phase:	N
Mode:	PoE
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	---	25.30	66.00	40.70	1000.0	9.000	N	19.4
0.155000	39.18	---	79.00	39.82	1000.0	9.000	N	19.4
0.190000	---	25.08	66.00	40.92	1000.0	9.000	N	19.4
0.190000	35.65	---	79.00	43.35	1000.0	9.000	N	19.4
0.930000	---	16.28	60.00	43.72	1000.0	9.000	N	20.1
0.930000	19.19	---	73.00	53.81	1000.0	9.000	N	20.1
0.960000	---	17.48	60.00	42.52	1000.0	9.000	N	20.1
0.960000	19.78	---	73.00	53.22	1000.0	9.000	N	20.1
20.260000	---	27.79	60.00	32.21	1000.0	9.000	N	20.2
20.260000	30.41	---	73.00	42.59	1000.0	9.000	N	20.2
29.235000	---	28.88	60.00	31.12	1000.0	9.000	N	20.4
29.235000	30.71	---	73.00	42.29	1000.0	9.000	N	20.4

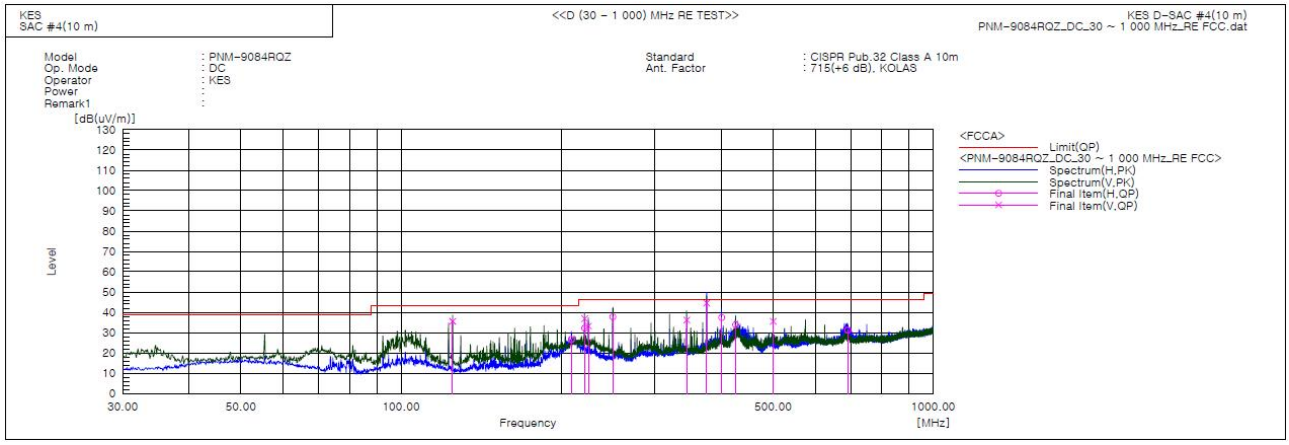
◆ Calculation
QuasiPeak[dBuV] / CAverage [dBuV] = Reading Value[dBuV] + Corr. [dB]
QuasiPeak / CAverage : The Final Value
Reading Value : Not shown in the table.
Corr. : Correction values (LISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))

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Radiated Electric Field Emissions(Below 1 ㎓)

- 47 CFR Part 15, Subpart B

■ DC Mode

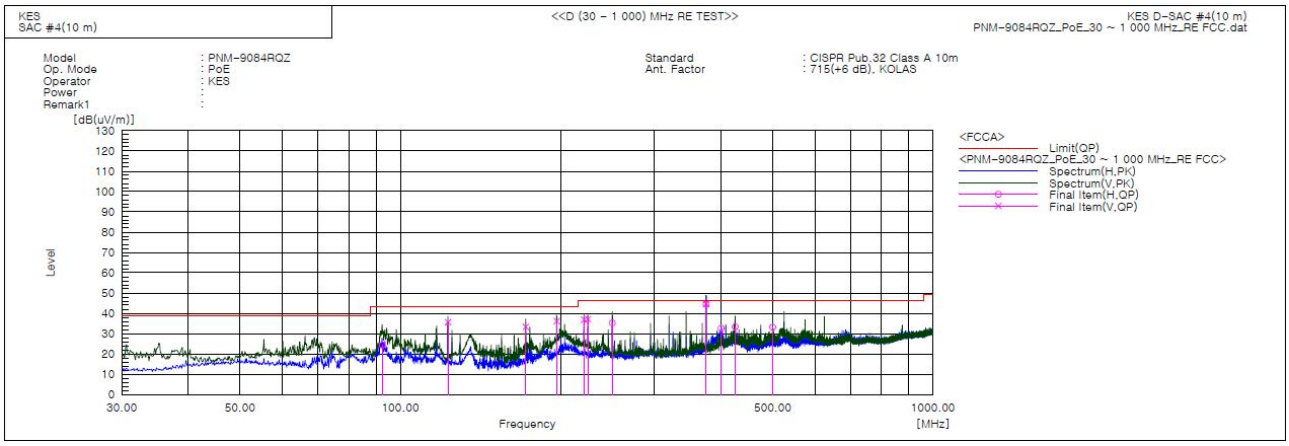


Final Result

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	124.952	V	60.4	-24.8	35.6	40.0	4.4	124.0	173.0	
2	208.982	H	47.3	-20.6	26.7	43.5	16.8	382.0	258.0	
3	221.249	V	57.1	-20.2	36.9	40.0	3.1	162.0	350.0	
4	221.282	H	52.4	-20.2	32.2	40.0	7.8	372.0	310.0	
5	224.982	V	53.4	-20.1	33.3	46.5	13.2	115.0	207.0	
6	249.982	H	56.9	-19.1	37.8	47.0	9.2	385.0	99.0	
7	344.102	V	51.5	-15.3	36.2	46.5	10.3	136.0	169.0	
8	374.982	V	59.2	-14.6	44.6	47.0	2.4	121.0	120.0	
9	400.101	H	51.4	-14.0	37.4	47.0	9.6	345.0	151.0	
10	425.129	H	47.4	-13.5	33.9	46.5	12.6	344.0	103.0	
11	499.989	V	46.9	-11.3	35.6	46.5	10.9	148.0	68.0	
12	689.988	H	38.9	-7.6	31.3	46.5	15.2	382.0	246.0	

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■ PoE Mode



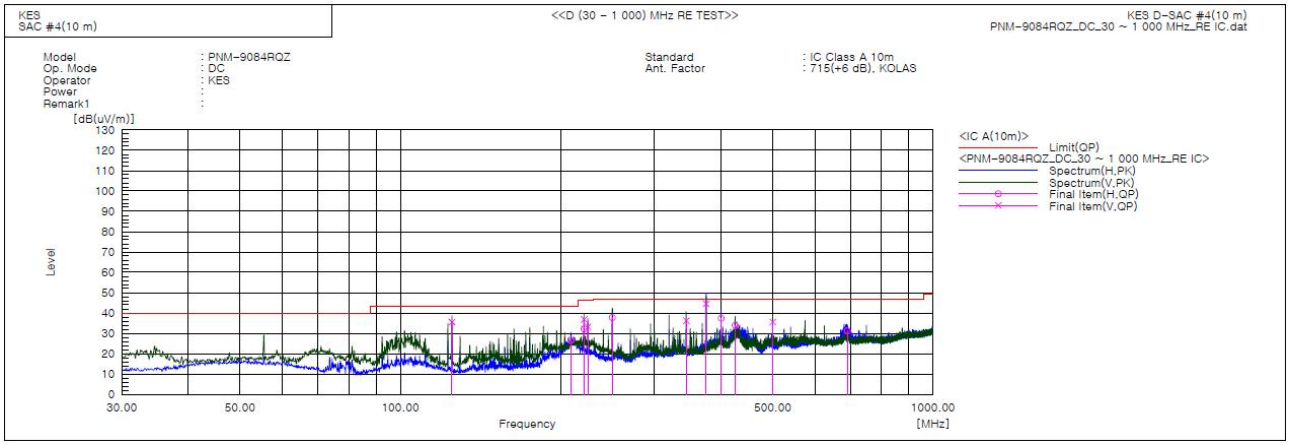
Final Result

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	92.482	H	48.1	-23.7	24.4	43.5	19.1	359.0	243.0	
2	122.891	V	60.2	-24.5	35.7	40.0	4.3	151.0	187.0	
3	171.992	V	57.4	-24.0	33.4	43.5	10.1	156.0	47.0	
4	196.622	V	57.1	-21.0	36.1	40.0	3.9	139.0	183.0	
5	221.222	V	57.1	-20.2	36.9	40.0	3.1	109.0	350.0	
6	224.982	V	57.2	-20.1	37.1	40.0	2.9	129.0	213.0	
7	249.968	H	54.4	-19.1	35.3	46.5	11.2	394.0	172.0	
8	374.981	H	59.1	-14.6	44.5	47.0	2.5	399.0	145.0	
9	374.989	V	59.4	-14.6	44.8	47.0	2.2	161.0	221.0	
10	400.128	H	46.6	-14.0	32.6	46.5	13.9	388.0	344.0	
11	425.128	H	46.9	-13.5	33.4	46.5	13.1	391.0	198.0	
12	499.941	H	44.5	-11.3	33.2	46.5	13.3	391.0	336.0	

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- IC Regulation ICES-003 Issue 7

■ DC Mode

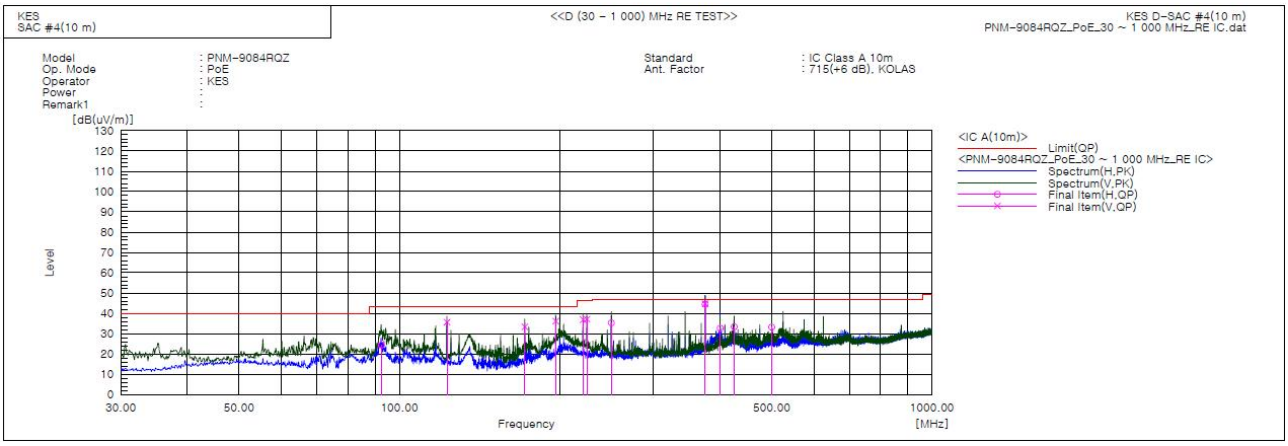


Final Result

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	124.952	V	60.4	-24.8	35.6	43.5	7.9	124.0	173.0	
2	208.982	H	47.3	-20.6	26.7	43.5	16.8	382.0	258.0	
3	221.249	V	57.1	-20.2	36.9	46.4	9.5	162.0	350.0	
4	221.282	H	52.4	-20.2	32.2	46.4	14.2	372.0	310.0	
5	224.982	V	53.4	-20.1	33.3	46.4	13.1	115.0	207.0	
6	249.982	H	56.9	-19.1	37.8	47.0	9.2	385.0	99.0	
7	344.102	V	51.5	-15.3	36.2	47.0	10.8	136.0	169.0	
8	374.982	V	59.2	-14.6	44.6	47.0	2.4	121.0	120.0	
9	400.101	H	51.4	-14.0	37.4	47.0	9.6	345.0	151.0	
10	425.129	H	47.4	-13.5	33.9	47.0	13.1	344.0	103.0	
11	499.989	V	46.9	-11.3	35.6	47.0	11.4	148.0	68.0	
12	689.988	H	38.9	-7.6	31.3	47.0	15.7	382.0	246.0	

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■ PoE Mode



Final Result

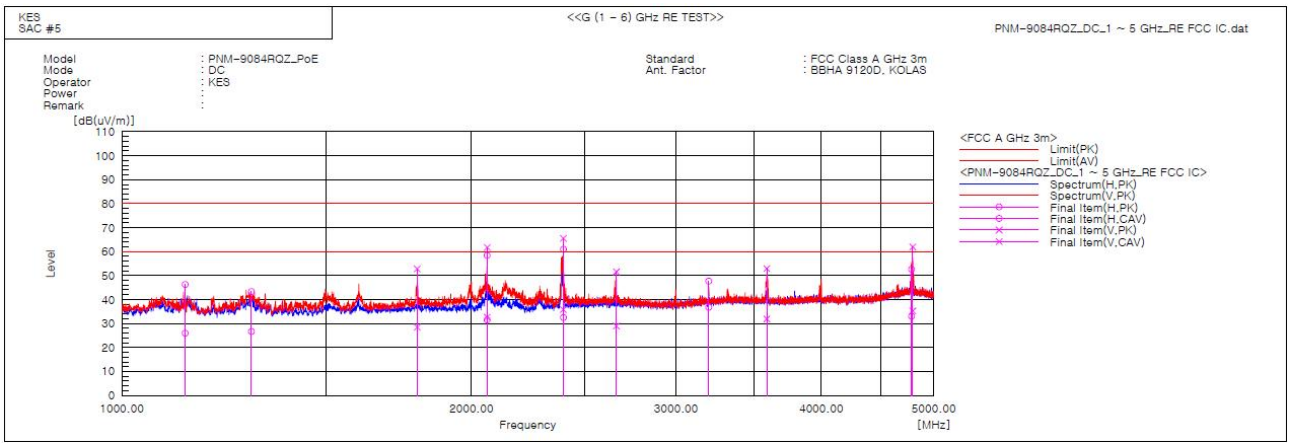
No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Remark
1	92.482	H	48.1	-23.7	24.4	43.5	19.1	359.0	243.0	
2	122.891	V	60.2	-24.5	35.7	43.5	7.8	151.0	187.0	
3	171.992	V	57.4	-24.0	33.4	43.5	10.1	156.0	47.0	
4	196.622	V	57.1	-21.0	36.1	43.5	7.4	139.0	183.0	
5	221.222	V	57.1	-20.2	36.9	46.4	9.5	109.0	350.0	
6	224.982	V	57.2	-20.1	37.1	46.4	9.3	129.0	213.0	
7	249.968	H	54.4	-19.1	35.3	47.0	11.7	394.0	172.0	
8	374.981	H	59.1	-14.6	44.5	47.0	2.5	399.0	145.0	
9	374.989	V	59.4	-14.6	44.8	47.0	2.2	161.0	221.0	
10	400.128	H	46.6	-14.0	32.6	47.0	14.4	388.0	344.0	
11	425.128	H	46.9	-13.5	33.4	47.0	13.6	391.0	198.0	
12	499.941	H	44.5	-11.3	33.2	47.0	13.8	391.0	336.0	

♦ Calculation – SAC #4(10 m)
Result(QP) [dB(㎶/m)] = (Reading(QP)[dB(㎶)] + c.f[dB(1/m)]
Margin(QP)[dB] = Limit[dB(㎶/m)] - Result(QP) [dB(㎶/m)]
Reading(QP) : Reading value, Result(QP) : Reading value + Factor value
Limit(QP) : Limit value, c.f : (ANT Factor + Cable Loss - Preamp Factor), Margin: Margin value

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Radiated Electric Field Emissions(Above 1 ㎓)

■ DC Mode

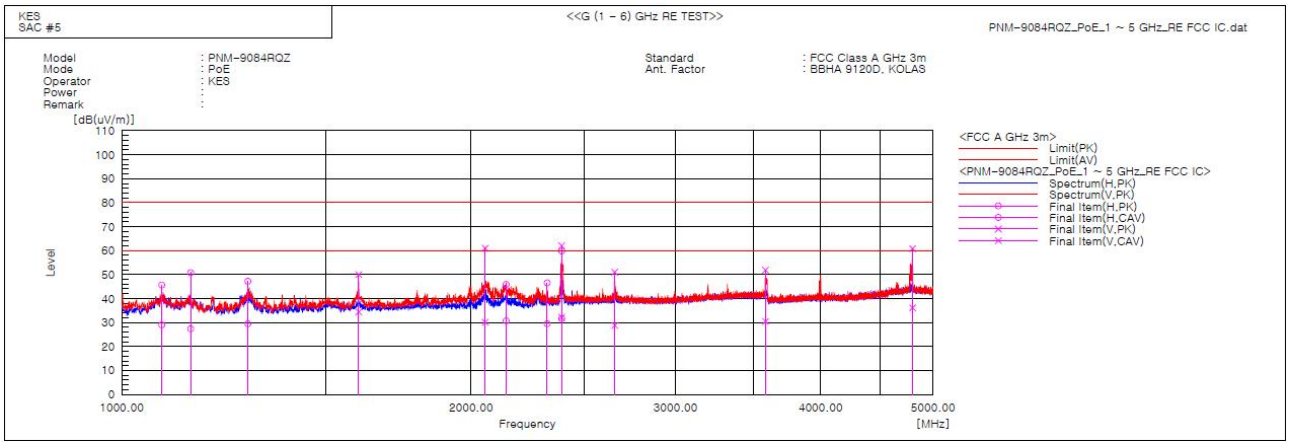


Final Result

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	1133.541	H	53.6	33.3	-7.3	46.3	26.0	80.0	60.0	33.7	34.0	351.0	327.2	
2	1292.544	H	49.7	33.1	-6.4	43.3	26.7	80.0	60.0	36.7	33.3	377.0	180.4	
3	1795.312	V	56.9	32.6	-4.1	52.8	28.5	80.0	60.0	27.2	31.5	113.0	205.9	
4	2062.492	V	65.1	36.0	-3.3	61.8	32.7	80.0	60.0	18.2	27.3	152.0	123.7	
5	2063.052	H	61.7	34.8	-3.3	58.4	31.5	80.0	60.0	21.6	28.5	366.0	258.6	
6	2399.129	V	67.6	37.9	-2.0	65.6	35.9	80.0	60.0	14.4	24.1	99.8	135.6	
7	2399.622	H	63.0	34.5	-2.0	61.0	32.5	80.0	60.0	19.0	27.5	379.0	331.7	
8	2665.104	V	52.4	29.8	-0.8	51.6	29.0	80.0	60.0	28.4	31.0	144.0	124.2	
9	3200.295	H	47.2	36.3	0.5	47.7	36.8	80.0	60.0	32.3	23.2	398.0	356.2	
10	3590.574	V	52.1	31.1	0.9	53.0	32.0	80.0	60.0	27.0	28.0	162.0	44.3	
11	4784.194	H	47.6	28.0	5.1	52.7	33.1	80.0	60.0	27.3	26.9	379.0	352.8	
12	4794.533	V	56.8	30.1	5.2	62.0	35.3	80.0	60.0	18.0	24.7	102.0	158.8	

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■ PoE Mode



Final Result

No.	Frequency	(P)	Reading PK	Reading CAV	c.f	Result PK	Result CAV	Limit PK	Limit AV	Margin PK	Margin CAV	Height	Angle	Remark
	[MHz]		[dB(uV)]	[dB(uV)]	[dB(1/m)]	[dB(uV/m)]	[dB(uV/m)]	[dB(uV/m)]	[dB(uV/m)]	[dB]	[dB]	[cm]	[deg]	
1	1082.392	H	53.2	36.5	-7.5	45.7	29.0	80.0	60.0	34.3	31.0	361.0	215.2	
2	1146.119	H	58.0	34.6	-7.2	50.8	27.4	80.0	60.0	29.2	32.6	398.0	79.4	
3	1284.359	H	53.7	36.0	-6.5	47.2	29.5	80.0	60.0	32.8	30.5	356.0	17.7	
4	1599.511	V	54.9	39.4	-4.9	50.0	34.5	80.0	60.0	30.0	25.5	129.0	156.0	
5	2055.594	V	64.4	33.6	-3.4	61.0	30.2	80.0	60.0	19.0	29.8	153.0	97.1	
6	2143.621	H	48.9	33.7	-3.0	45.9	30.7	80.0	60.0	34.1	29.3	342.0	16.1	
7	2325.566	H	48.8	31.8	-2.3	46.5	29.5	80.0	60.0	33.5	30.5	387.0	339.0	
8	2393.086	V	64.1	34.2	-2.0	62.1	32.2	80.0	60.0	17.9	27.8	149.0	197.4	
9	2393.523	H	61.8	33.7	-2.0	59.8	31.7	80.0	60.0	20.2	28.3	381.0	335.5	
10	2659.101	V	51.9	29.7	-0.9	51.0	28.8	80.0	60.0	29.0	31.2	131.0	166.7	
11	3584.614	V	51.0	29.6	0.9	51.9	30.5	80.0	60.0	28.1	29.5	165.0	42.3	
12	4800.539	V	55.6	31.0	5.2	60.8	36.2	80.0	60.0	19.2	23.8	139.0	148.5	

♦ 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

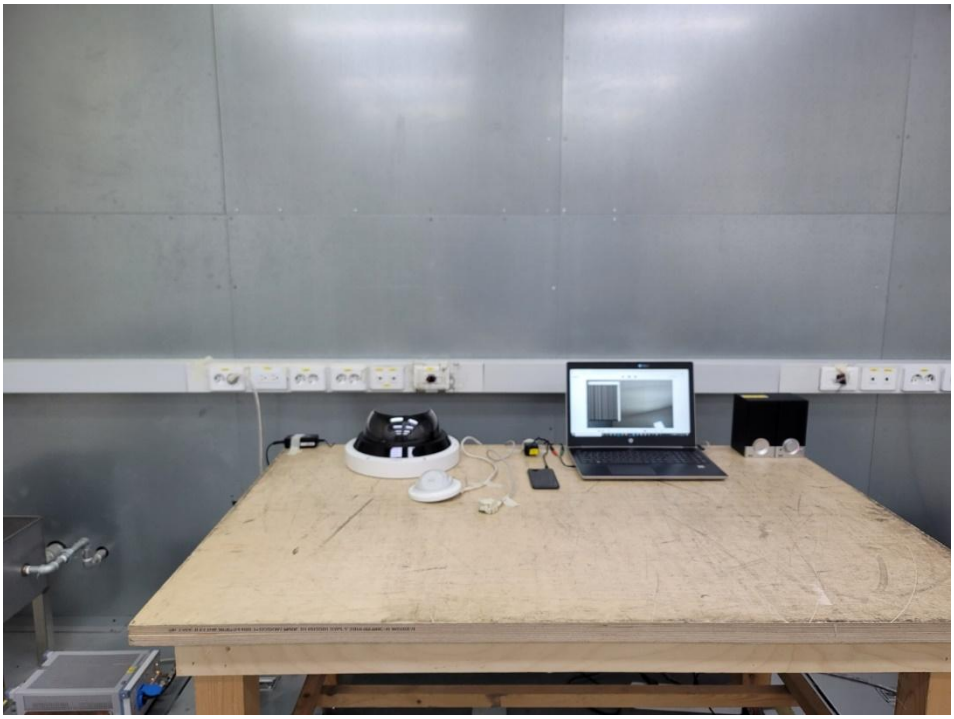
Limit(QP) : Limit value, c.f : (ANT Factor + Cable Loss - Preamp Factor), Margin: Margin value

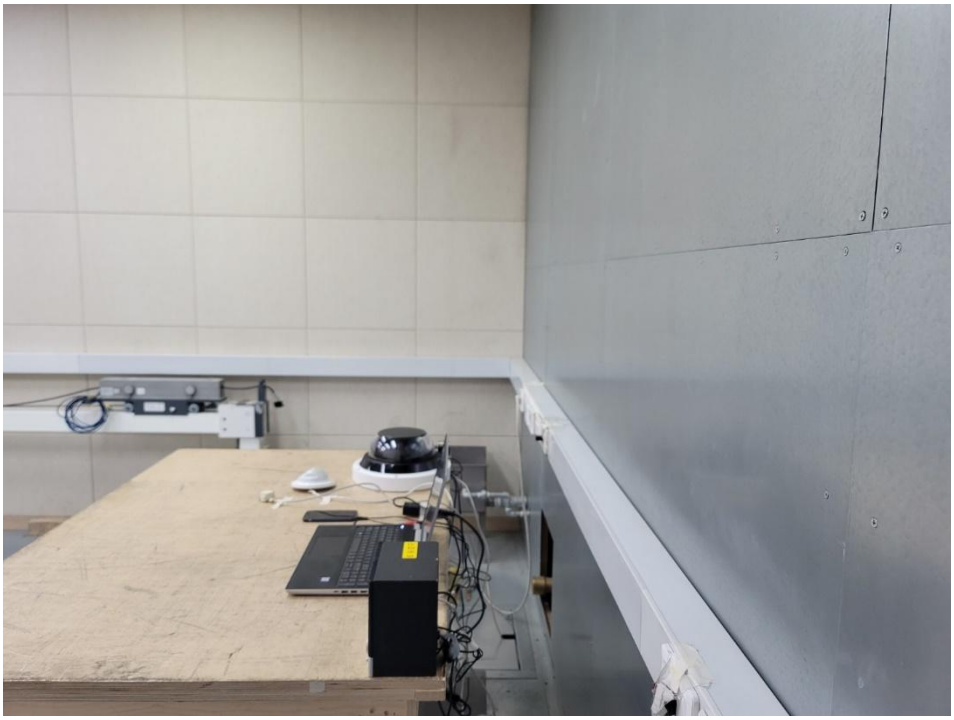
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Test Setup Photos and Configuration

Conducted Emissions at Mains Power Ports

■ DC Mode





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■ PoE Mode





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Radiated Electric Field Emissions(Below 1 ㎓)

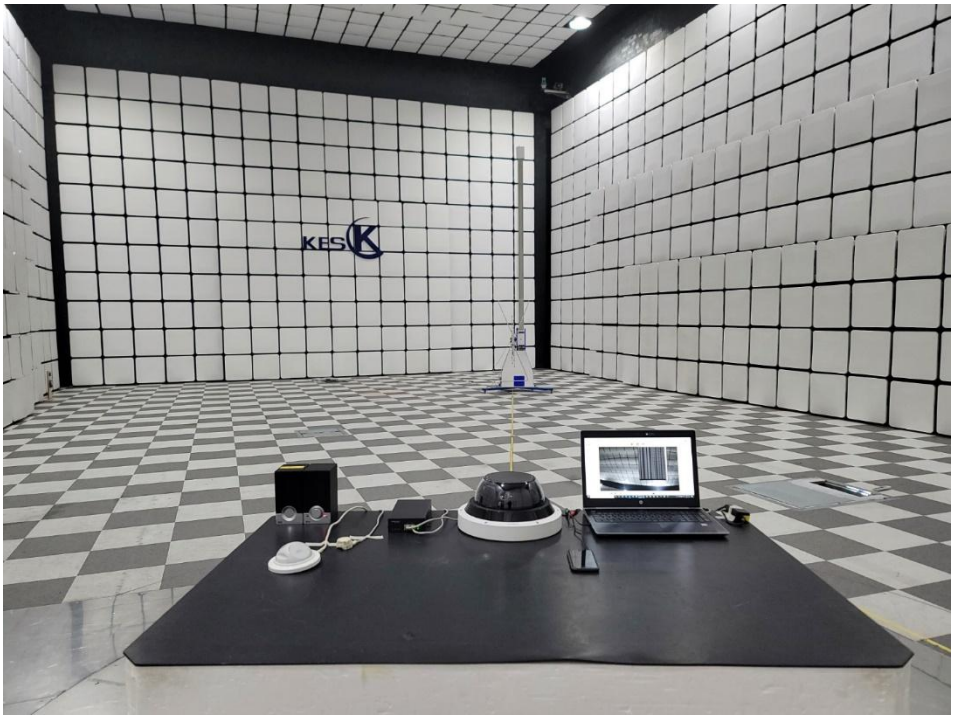
■ DC Mode

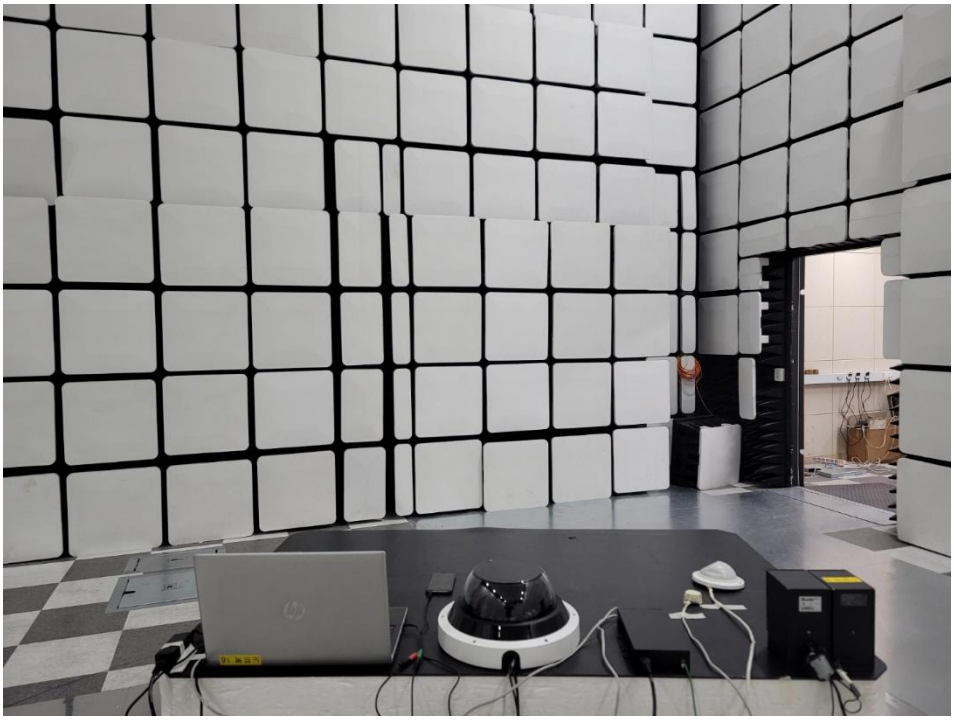




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■ PoE Mode

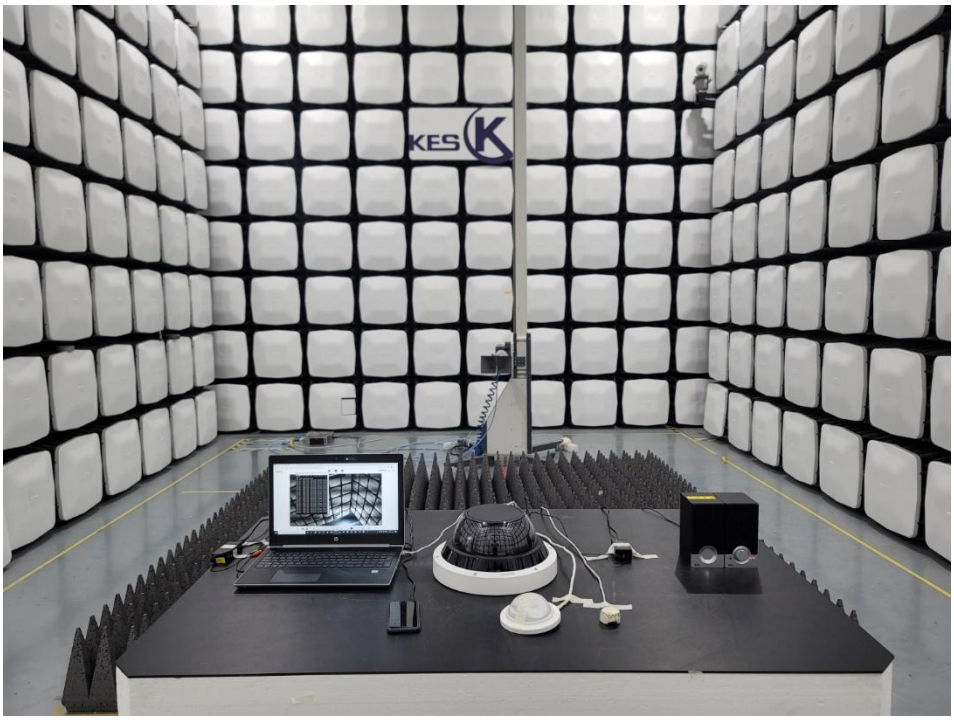


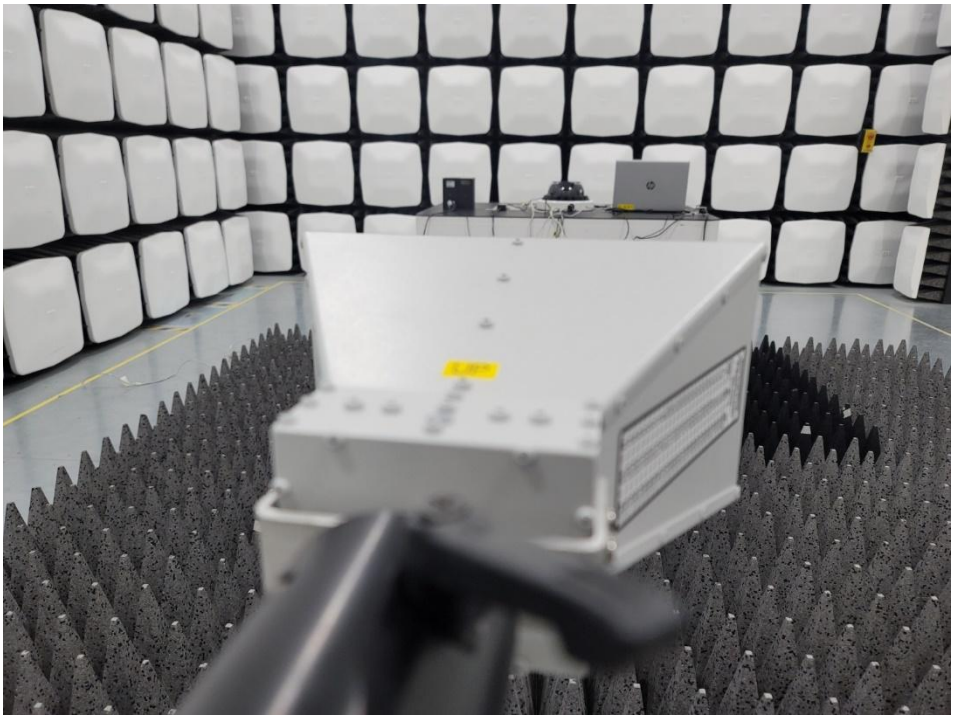


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Radiated Electric Field Emissions(Above 1 ㎓)

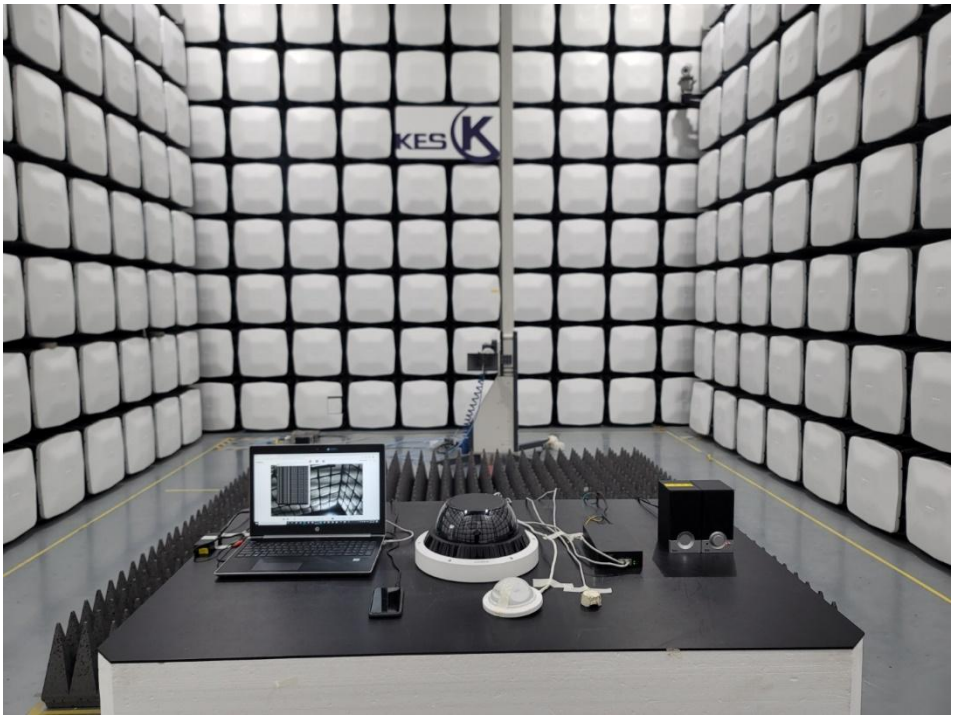
■ DC Mode

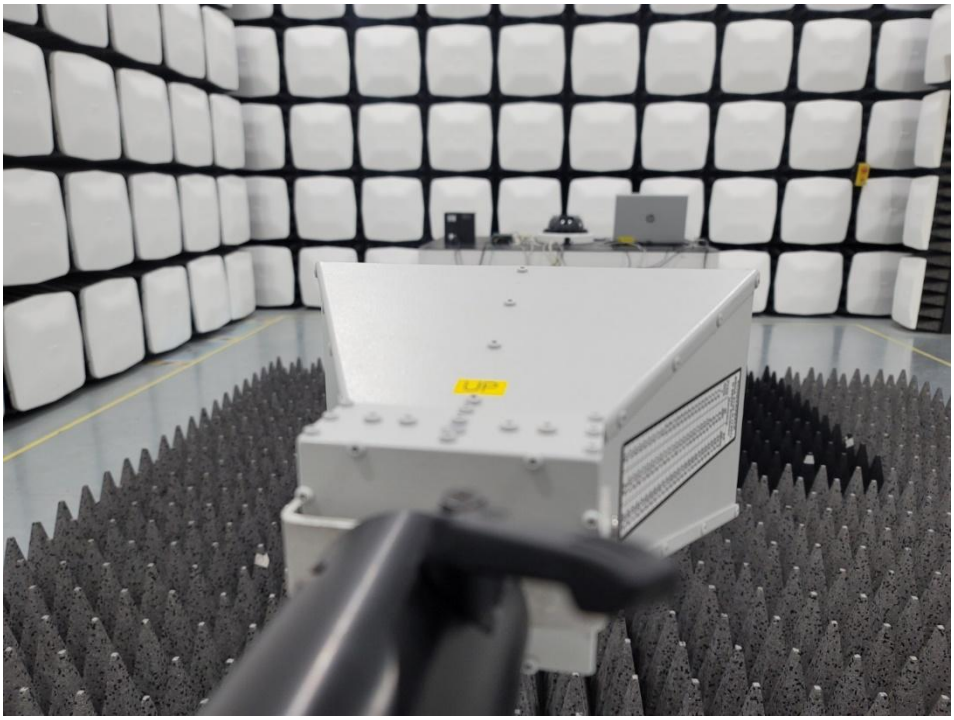




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■ PoE Mode





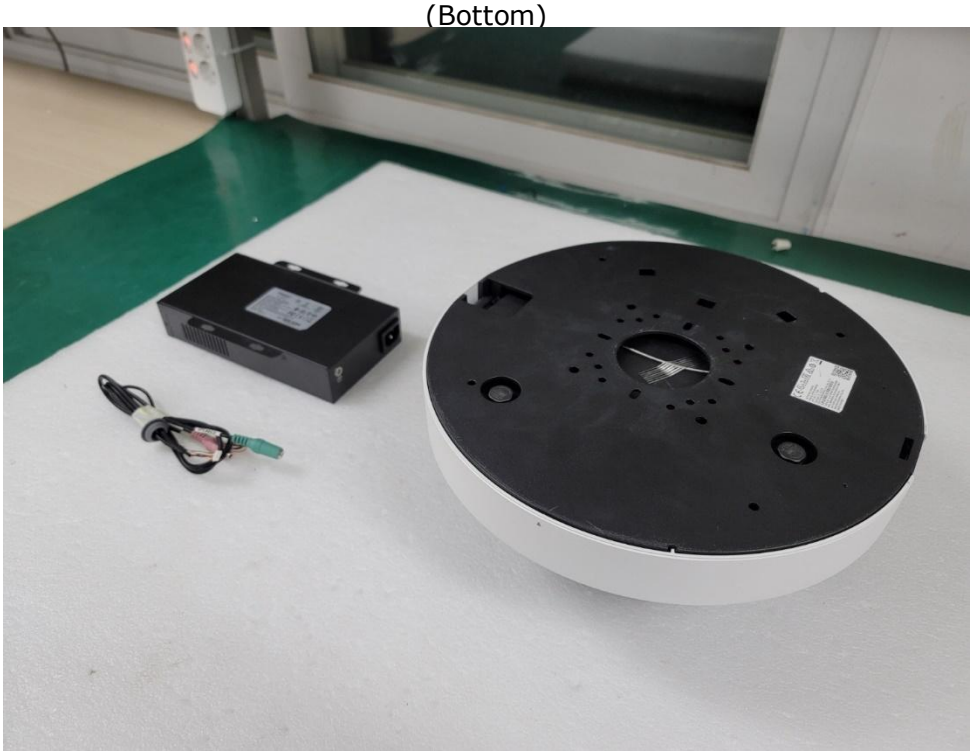
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EUT External Photographs

(Top)



(Bottom)



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EUT Internal Photographs

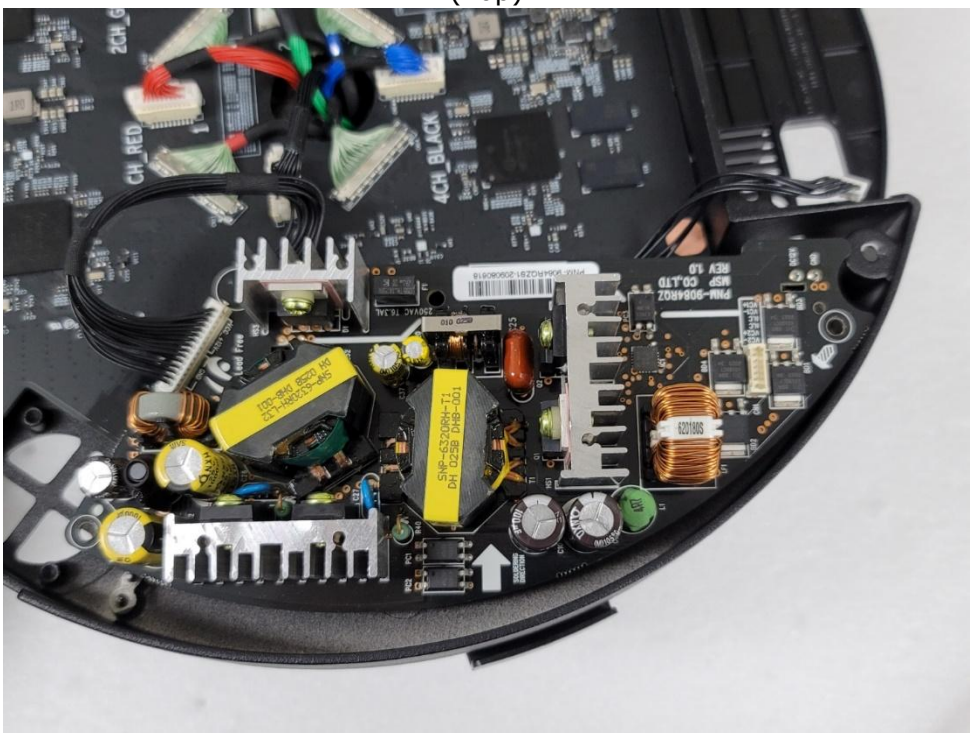
(Internal View)



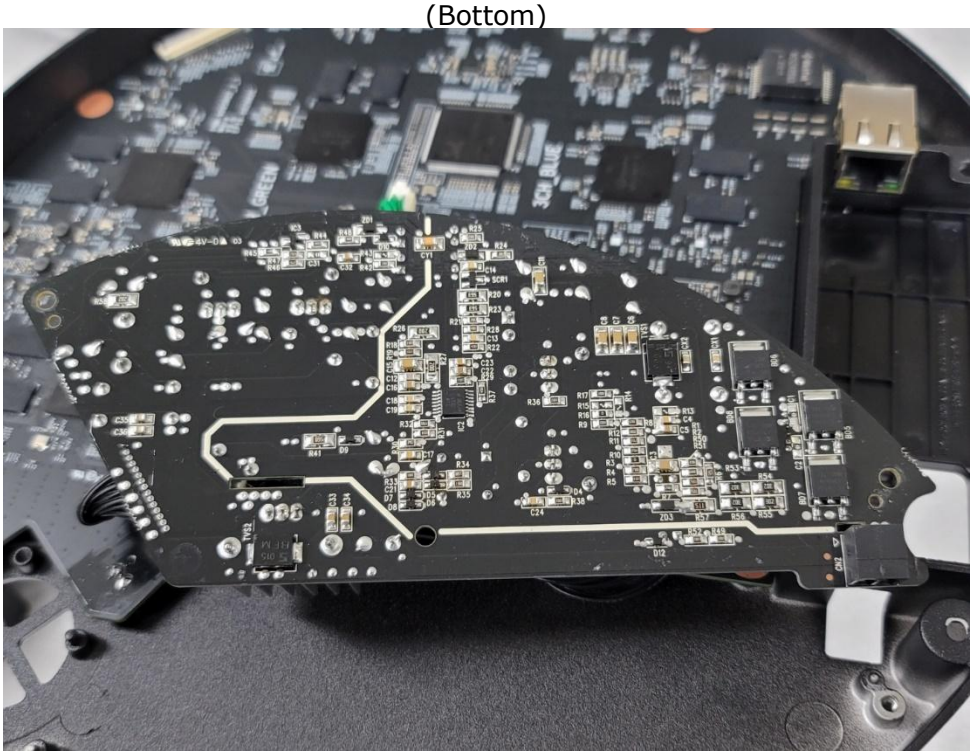
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EUT Internal View – Board 1

(Top)



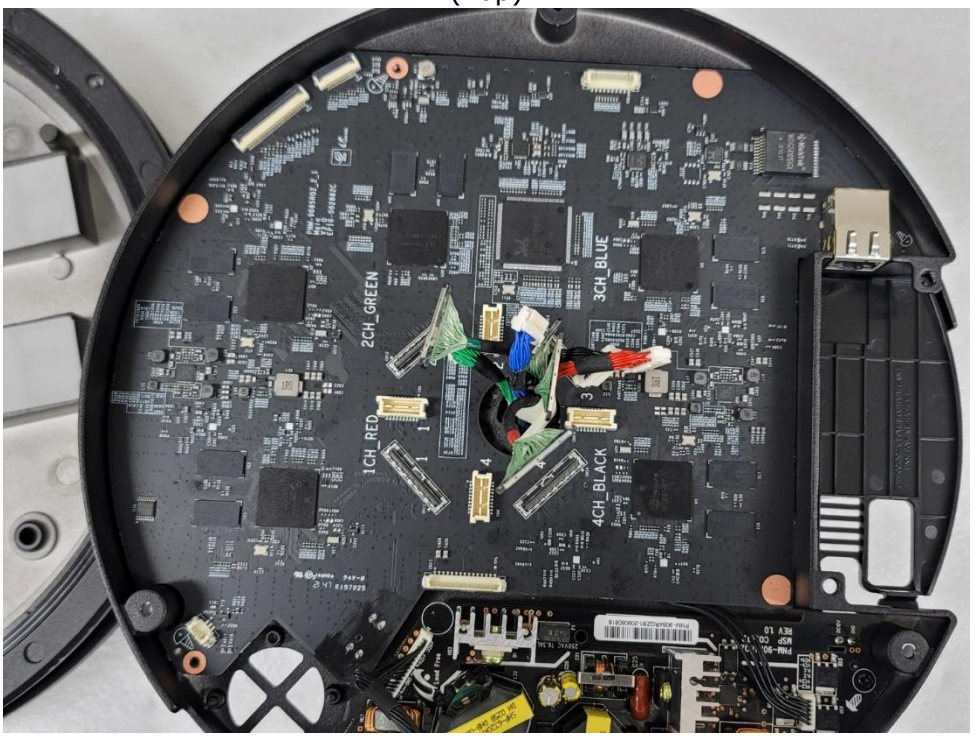
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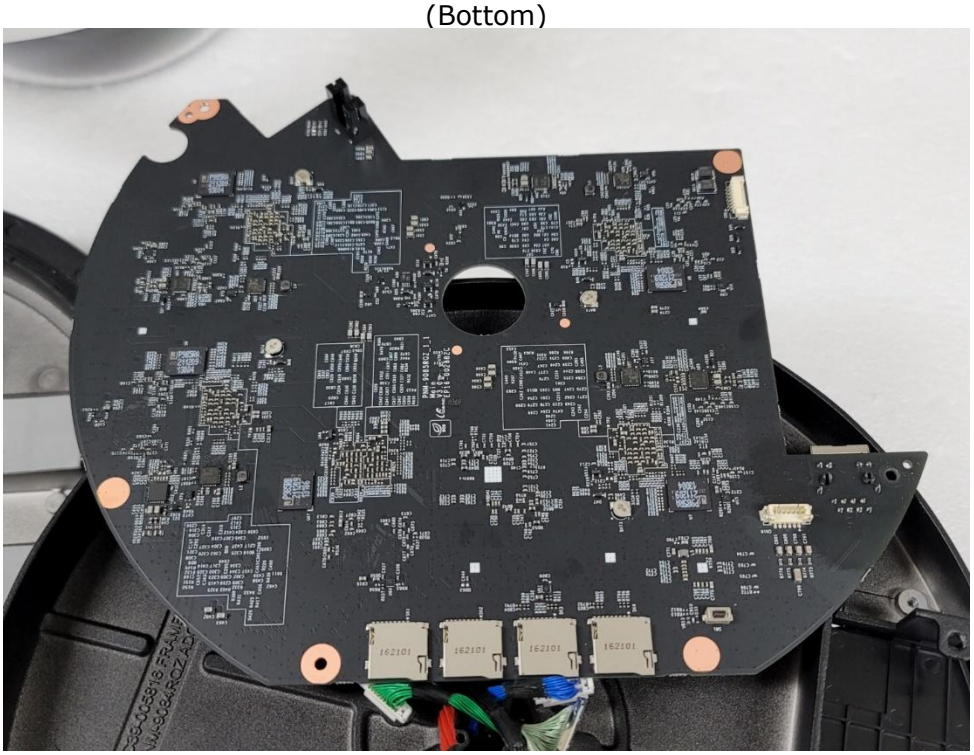
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EUT Internal View – Board 2

(Top)



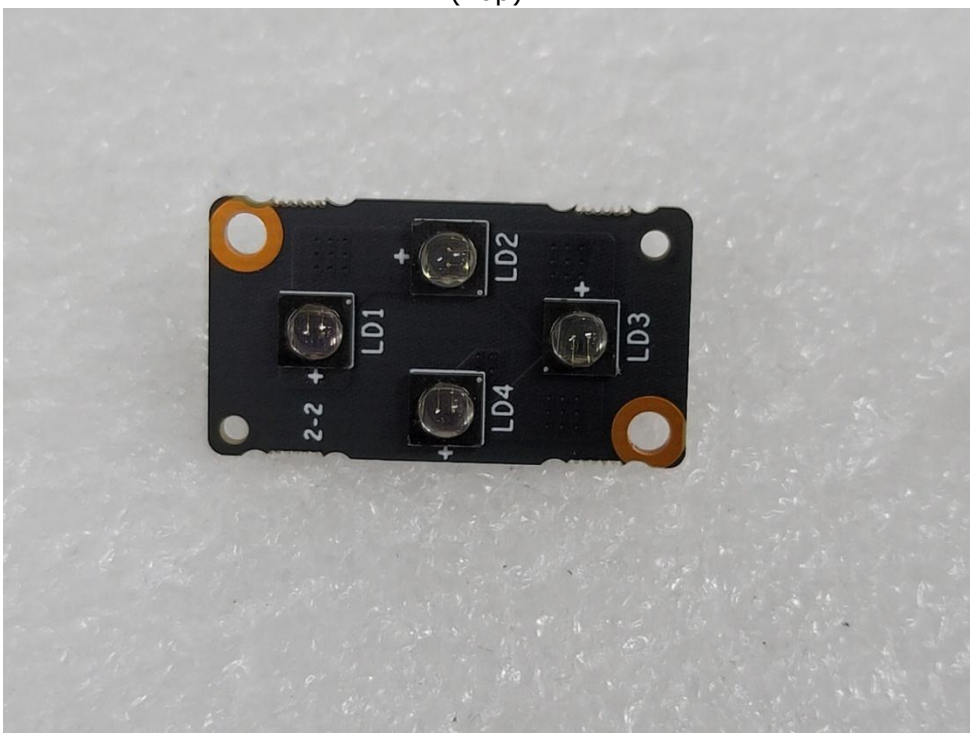
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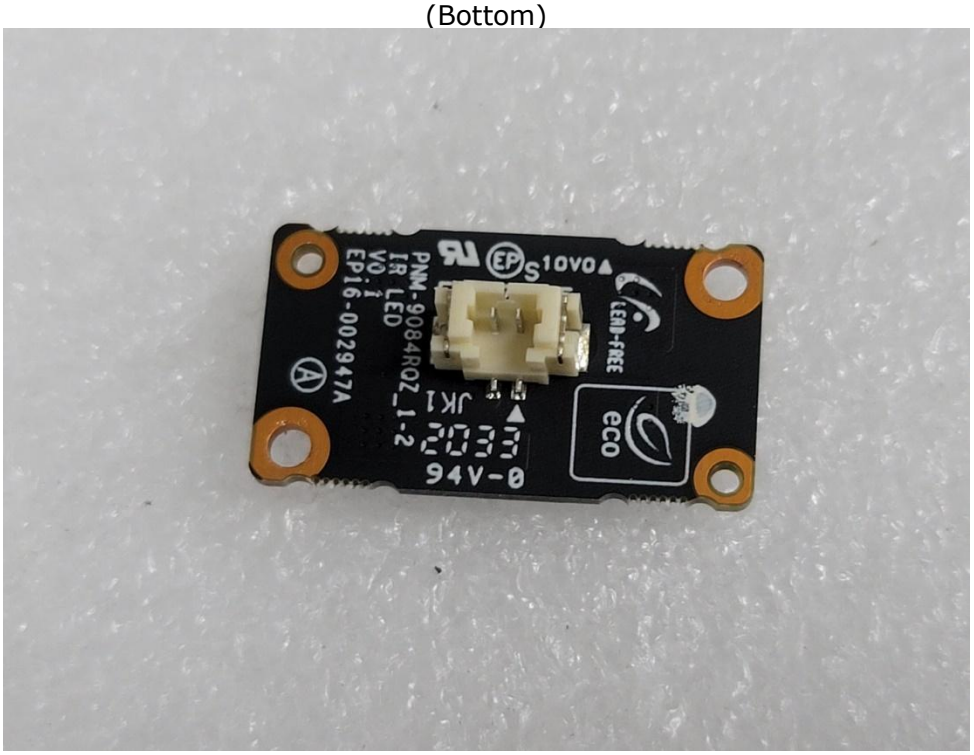
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EUT Internal View – Board 3

(Top)



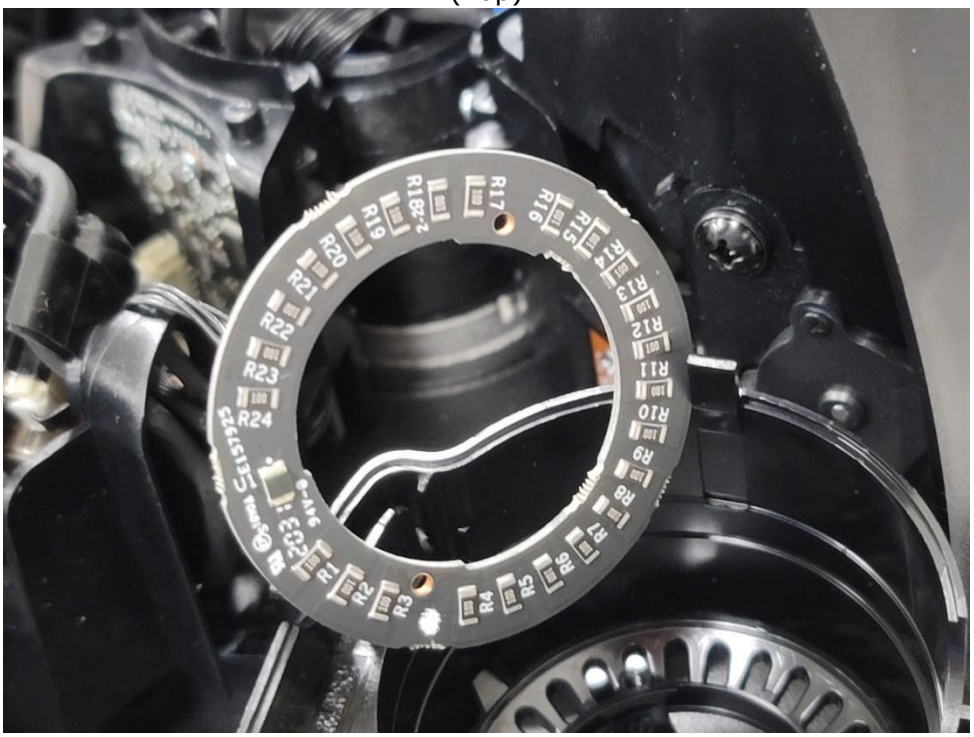
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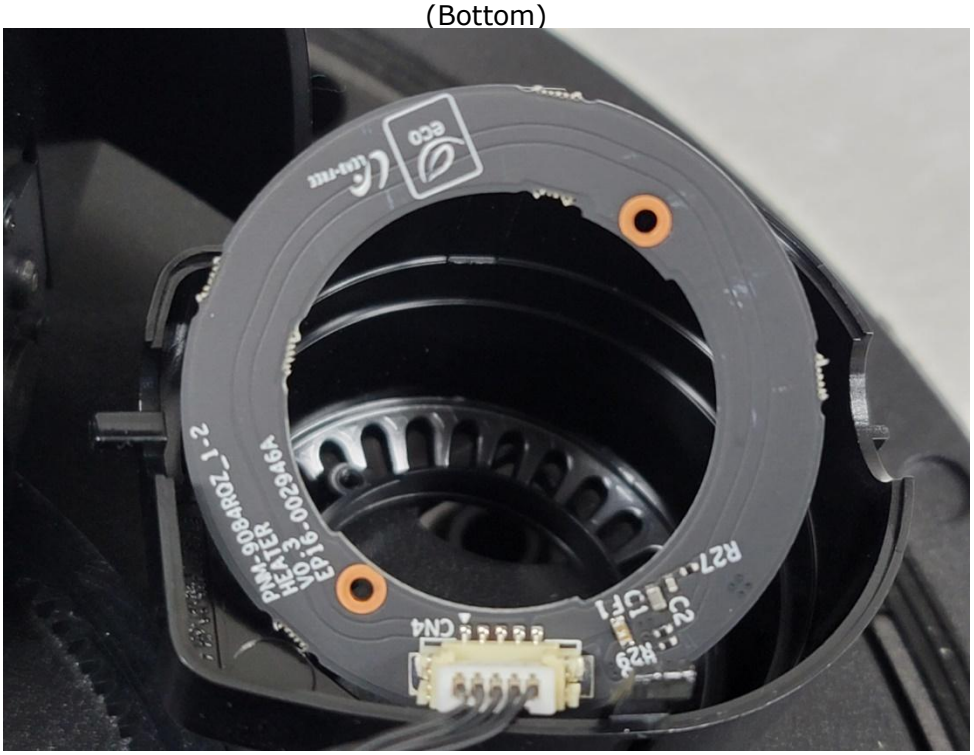
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EUT Internal View – Board 4

(Top)



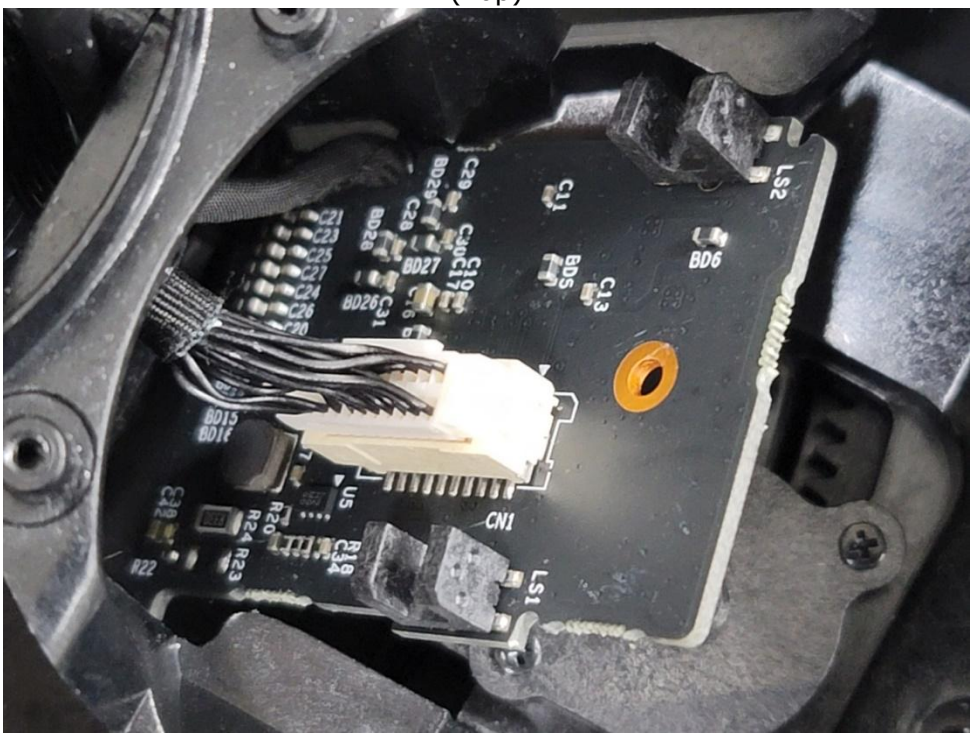
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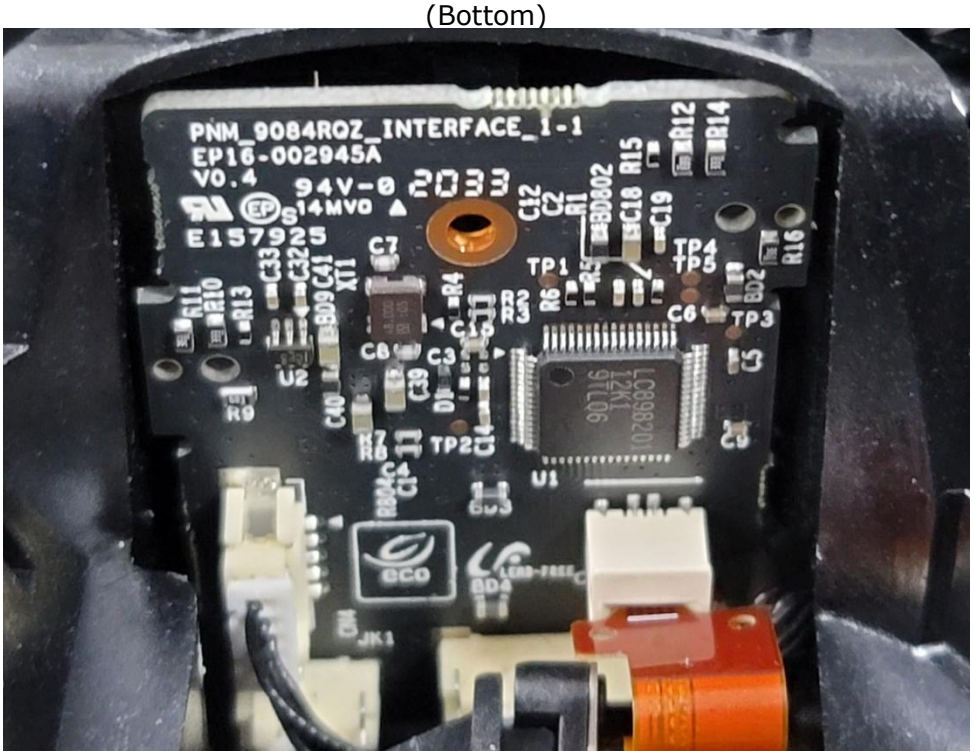
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EUT Internal View – Board 5

(Top)



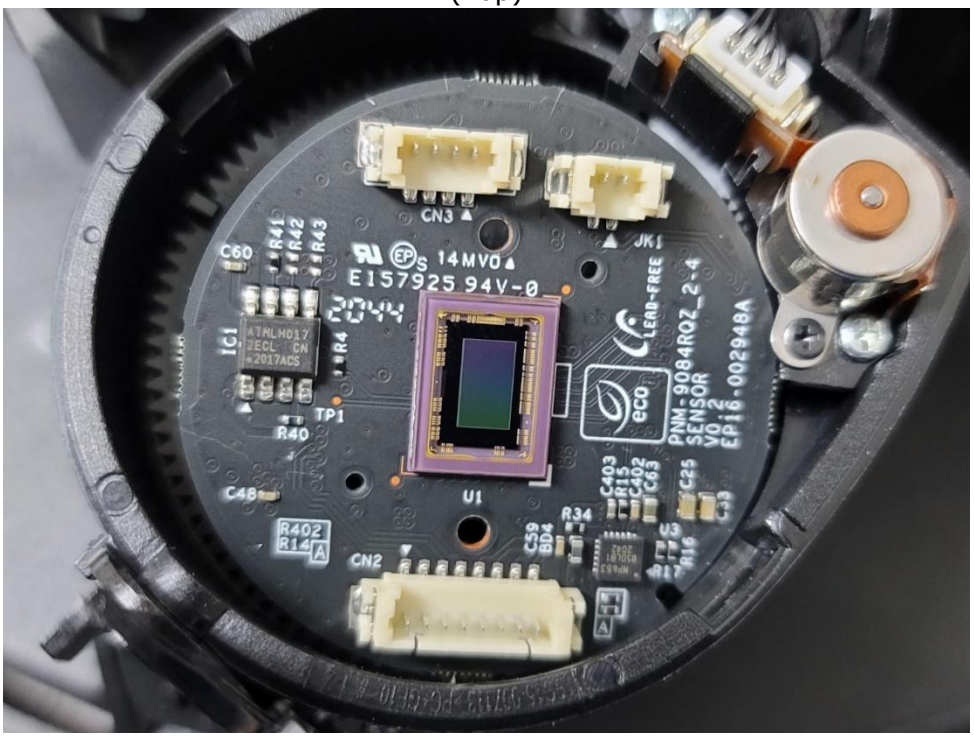
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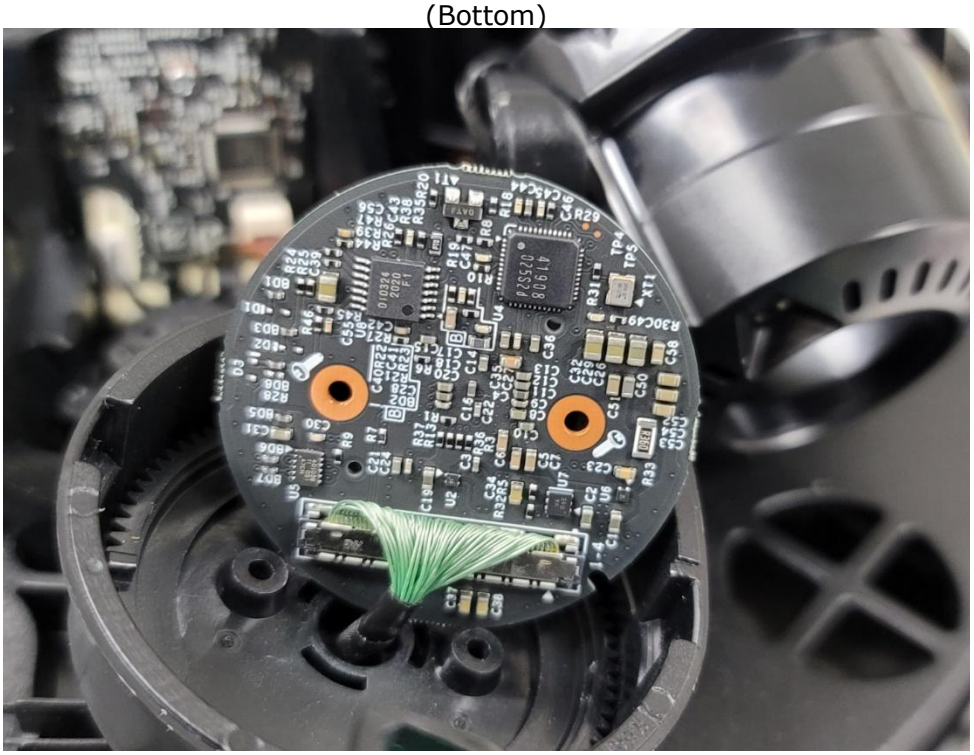
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EUT Internal View – Board 6

(Top)



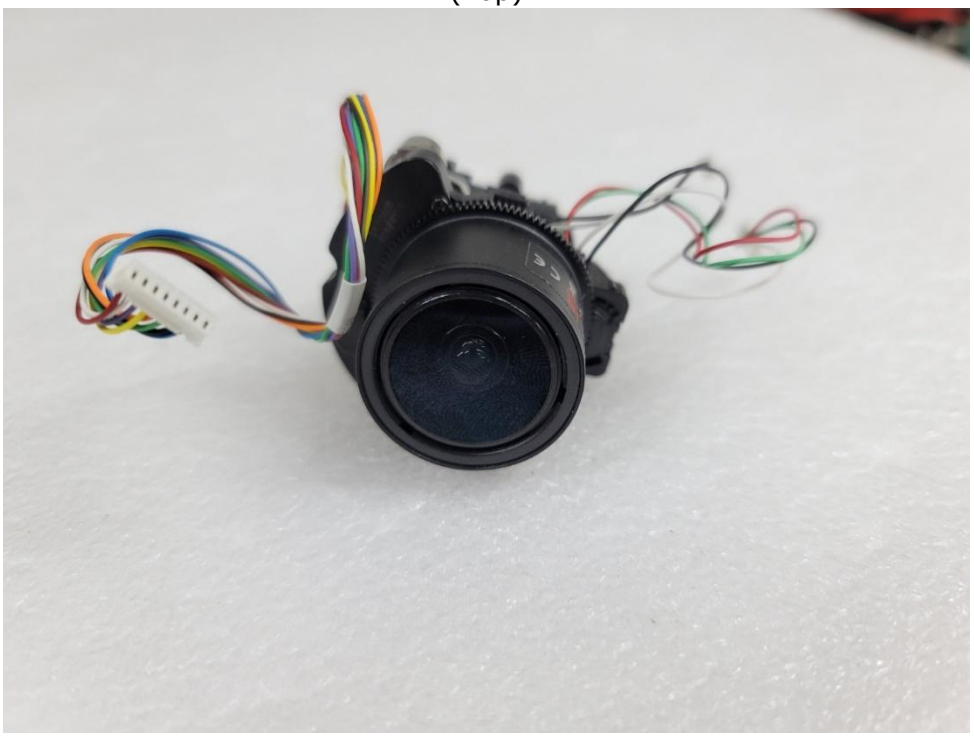
(Bottom)



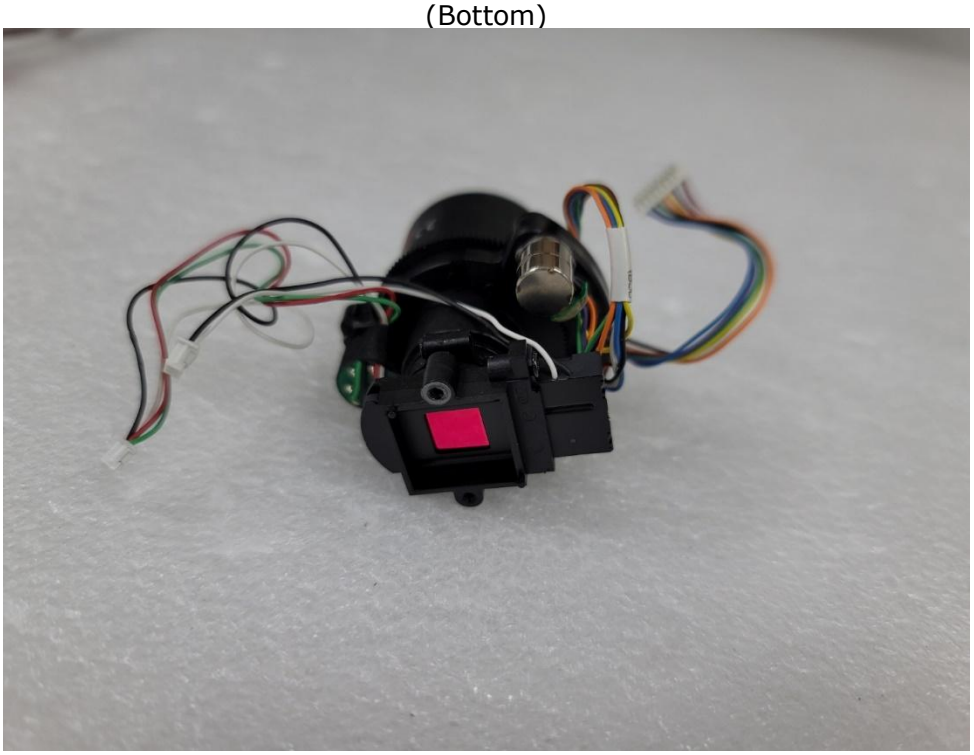
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EUT Internal View – Lens

(Top)

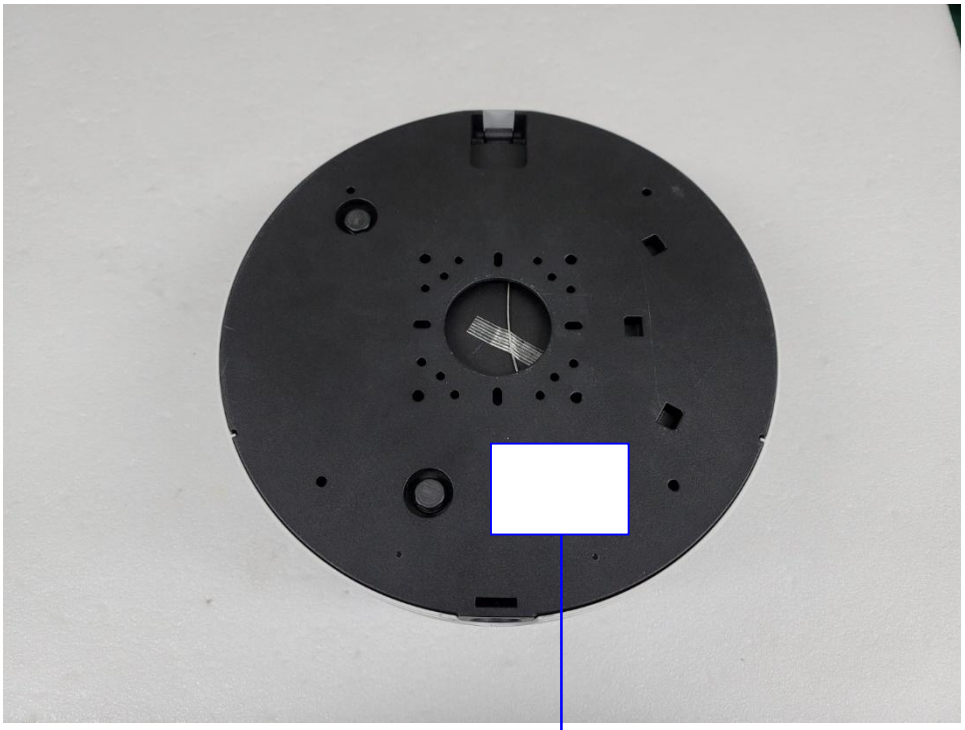


(Bottom)



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Label Photographs



CAN ICES-3(A) / NMB-3(A)

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.
Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :
(1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

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