



KES Co., Ltd.

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Report No.:

KES-EM-22T0020-R2

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EMC TEST REPORT For VCCI

Test Report No. : KES-EM-22T0020-R2
Date of Issue : Feb. 24, 2023
Product name : NETWORK CAMERA
Model/Type No. : PNM-9085RQZ
Variant Model : PNM-9085RQZ1
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 : Dec. 22, 2021
Test date : Dec. 28, 2021
Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Kang Hyeon, Kim
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. 07, 2022	KES-EM-22T0020	Issued
Feb. 17, 2022	KES-EM-22T0020-R1	Reissuance due to the addition of a derivative
Feb. 24, 2023	KES-EM-22T0020-R2	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:

Video	
Imaging Device	1/1.8" 5MP CMOS: each CH
Effective Pixels	2616(H)x1976(V): each CH
Min. Illumination	Color: 0.11lux(F1.6,30 IRE) BW: 0Lux(IR LED on)
Lens	
Focal Length (Zoom Ratio)	4.13~9.4mm(2.3x)motorized varifocal
Max. Aperture Ratio	F1.92(Wide)~F2.67(Tele)
Angular Field of View	H: 87.58°(Wide)~37.34°(Tele) / V: 64.58°(Wide)~28.04°(Tele) / D: 112.46°(Wide)~46.85°(Tele)
Min. Object Distance	1.2m
Focus Control	Simple focus
Pan / Tilt / Rotate	
Pan / Tilt / Rotate Range	Remote adjustment (Max. 200cycles) 0~360° / 30~90° / 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
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 or 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

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Network	
Ethernet	RJ-45(10/100/1000BASE-T)
Video Compression	H.265/H.264: Main/Baseline/High, MJPEG
Resolution	2560x1920, 2560x1440, 1920x1080, 1600x1200, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240
Max. Framerate	H.265/H.264 : Max. 30fps/25fps(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
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 256GB(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 10.13 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 : 45W Typical : 32W
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 100 V, 60 Hz

1.2 Variant Model Differences

Adding derivatives due to the deletion of GYRO SENSOR.

1.3 Device Modifications

Not applicable

1.4 Equipment Under Test

Description	Model Number	Serial Number	Manufacturer	Remarks
NETWORK CAMERA	PNM-9085RQZ	-	HANWHA VISION VIETNAM COMPANY LIMITED	EUT
PoE INJECTOR	PT-PSE109GBRO-AH	PT2138221217	Dongguan PROCET Network Technology Co.,Ltd	EUT

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
AC/DC Adaptor	2ACB022F	-	Channel Well Technology Co., Ltd.	-
Notebook	HSN-Q07C	5CD8367KND	HP	-
Notebook Adaptor	HSTNN-CA40	WFTKU0ERLB4Q CH	HP	-
MIC	MP1000	-	-	-
Speaker	BR1000A Cuve Black 2	-	DONGGUAN EDIFIER TECHNOLOGY Co., Ltd	-
Alarm	PRO-SL	-	SENSOR PRO	-
Button Alarm	-	-	-	-
Micro SD Card	-	-	Sandisk	8 GB
Smart Phone	-	-	Apple	-



1.6 External I/O Cabling

■ AC/DC Adaptor Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (EUT)	DC 2Pin	AC/DC Adaptor	DC 2Pin	1.3	U
	RJ-45 (LAN)	Notebook	RJ-45 (LAN)	4.0	S
	3.5 mm	MIC	3.5 mm	2.0	U
	3.5 mm	Speaker	3.5 mm	1.5	U
	Alarm IN	Alarm	Alarm OUT	3.5	U
	Alarm OUT	Button Alarm	Alarm IN	3.0	U
	Card Slot	Micro SD Card	Card Slot	-	-
Notebook	3.5 mm	Smart Phone	3.5 mm	2.0	U
	DC Jack	Notebook Adaptor	DC Jack	1.5	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)	PoE INJECTOR (EUT)	RJ-45 (PoE)	2.8	S
	3.5 mm	MIC	3.5 mm	2.0	U
	3.5 mm	Speaker	3.5 mm	1.5	U
	Alarm IN	Alarm	Alarm OUT	3.5	U
	Alarm OUT	Button Alarm	Alarm IN	3.0	U
	Card Slot	Micro SD Card	Card Slot	-	-
Notebook	RJ-45 (LAN)	PoE INJECTOR (EUT)	RJ-45 (LAN)	3.0	S
	3.5 mm	Smart Phone	3.5 mm	2.0	U
	DC Jack	Notebook Adaptor	DC Jack	1.5	U

* Unshielded=U, Shielded=S

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1.7 EUT Operating Mode(s)

operating
EUT Monitoring, Ping Test

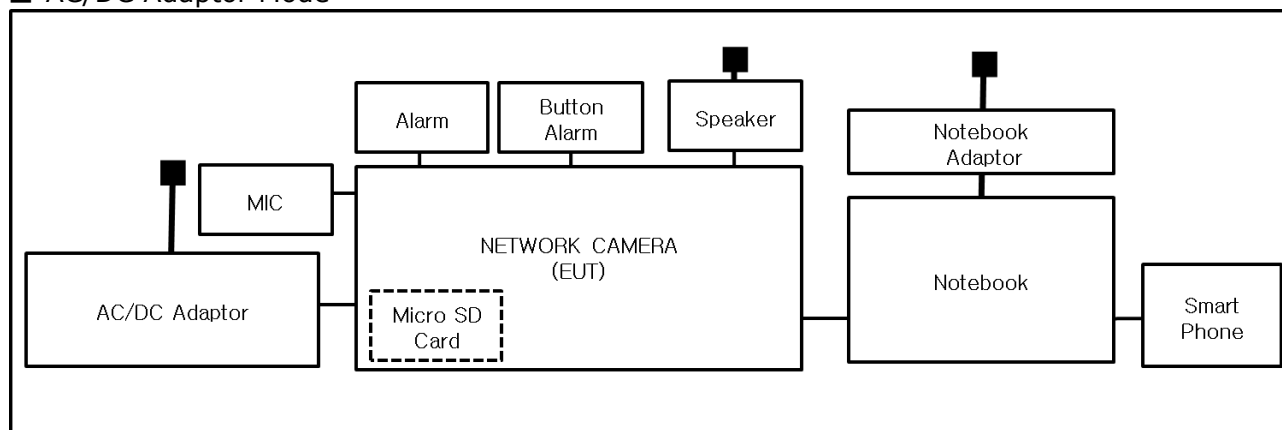
EUT Test operating S/W		
Name	Version	Manufacture Company
Web Viewer	-	Hanwha Vision Co., Ltd

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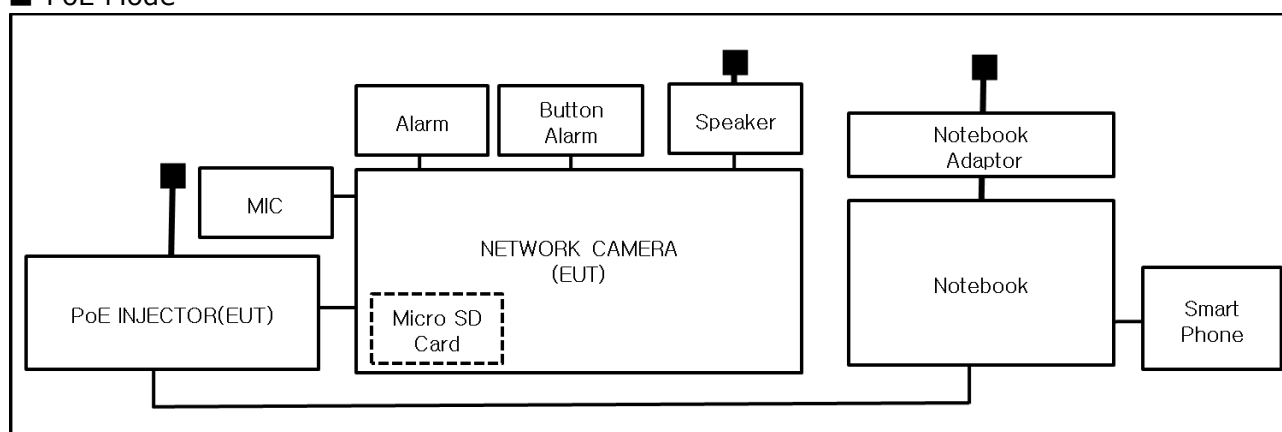
1.8 Configuration

■ AC Main
 □ DC Main

■ AC/DC Adaptor Mode



■ PoE Mode



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



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2.0 Test Regulations

The emissions tests were performed according to following regulations:

☒ **VCCI-CISPR 32:2016**

☒ Class A

☐ Class B

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2.1 Conducted Emissions Mains Power Ports

Test Date

Dec. 28, 2021

Test Location

Electro wave Shieldroom #3

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	EMC32	R & S	9.12.00	-
☒	EMI TEST RECEIVER	ESU26	R & S	100517	08, 05, 2022
☒	LISN	ENV216	R & S	101786	01, 19, 2022
☒	LISN	ENV216	R & S	101137	01, 19, 2022

Test Conditions

Temperature: (22,9 ± 0,3) °C

Relative Humidity: (43,4 ± 0,3) % 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.



2.2 Conducted Emissions at Telecommunication Ports

Test Date

Dec. 28, 2021

Test Location

Electro wave Shieldroom #3

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	EMC32	R & S	9.12.00	-
☒	EMI TEST RECEIVER	ESU26	R & S	100517	08, 05, 2022
☒	LISN	ENV216	R & S	101786	01, 19, 2022
☒	LISN	ENV216	R & S	101137	01, 19, 2022
☐	8-WIRE ISN CAT3	CAT3 8158	SCHWARZBECK	8158-0019	03, 10, 2022
☐	8-WIRE ISN CAT6	NTFM 8158	SCHWARZBECK	8158-0029	03, 10, 2022
☒	ISN	ISN S8	SCHWARZBECK	ISN-S8-0019	03, 10, 2022

Test Conditions

Temperature: (23,1 ± 0,3) °C

Relative Humidity: (43,5 ± 0,2) % 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.
- For Ethernet interfaces, measurements are required at the highest data rate supported by the interface.



2.3 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Dec. 28, 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: (22,4 ± 0,4) °C

Relative Humidity: (43,6 ± 0,3) % 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

Dec. 28, 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, 03, 2022
☒	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: (22,3 ± 0,4) °C

Relative Humidity: (43,4 ± 0,4) % 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

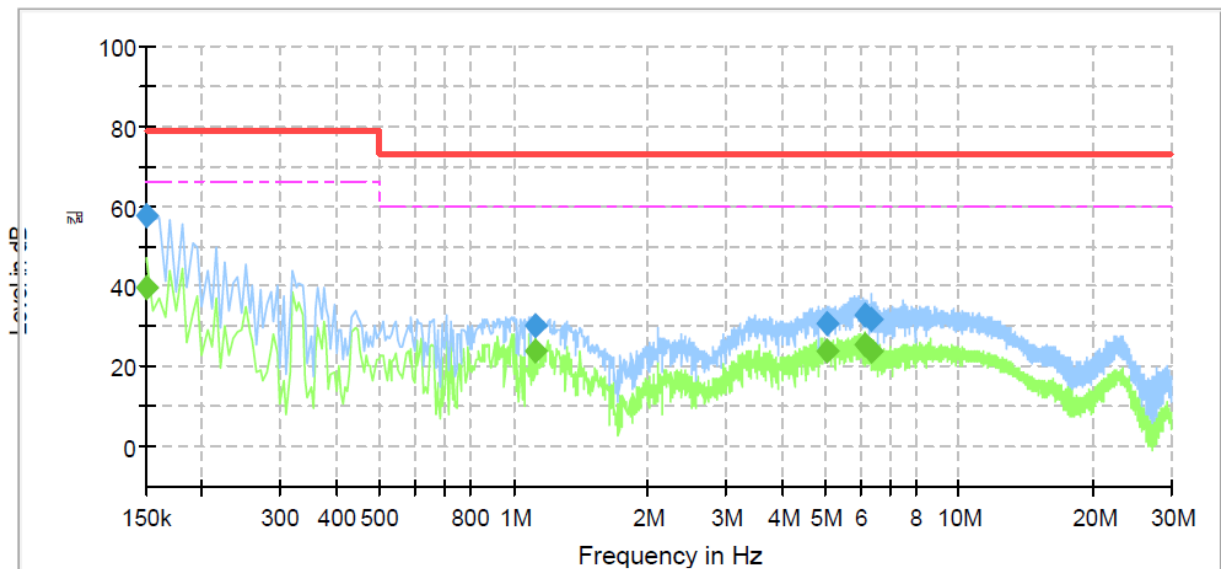
Conducted Emissions at Mains Power Ports

■ AC/DC Adaptor Mode

HOT LINE

Common Information

Test Description:	Conducted Emission
Model No.:	PNM-9085RQZ
Mode	DC VCCI
Operator Name:	KES



Final Result

Frequency (MHz)	QuasiPeak (dB μ V)	CAverage (dB μ V)	Limit (dB μ V)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.150000	---	39.67	66.00	26.33	1000.0	9.000	L1	9.6
0.150000	57.58	---	79.00	21.42	1000.0	9.000	L1	9.6
1.120000	---	23.79	60.00	36.21	1000.0	9.000	L1	9.9
1.120000	30.45	---	73.00	42.55	1000.0	9.000	L1	9.9
5.045000	---	24.09	60.00	35.91	1000.0	9.000	L1	9.9
5.045000	30.92	---	73.00	42.08	1000.0	9.000	L1	9.9
6.135000	---	25.18	60.00	34.82	1000.0	9.000	L1	9.8
6.135000	32.71	---	73.00	40.29	1000.0	9.000	L1	9.8
6.385000	---	23.67	60.00	36.33	1000.0	9.000	L1	9.8
6.385000	31.73	---	73.00	41.27	1000.0	9.000	L1	9.8



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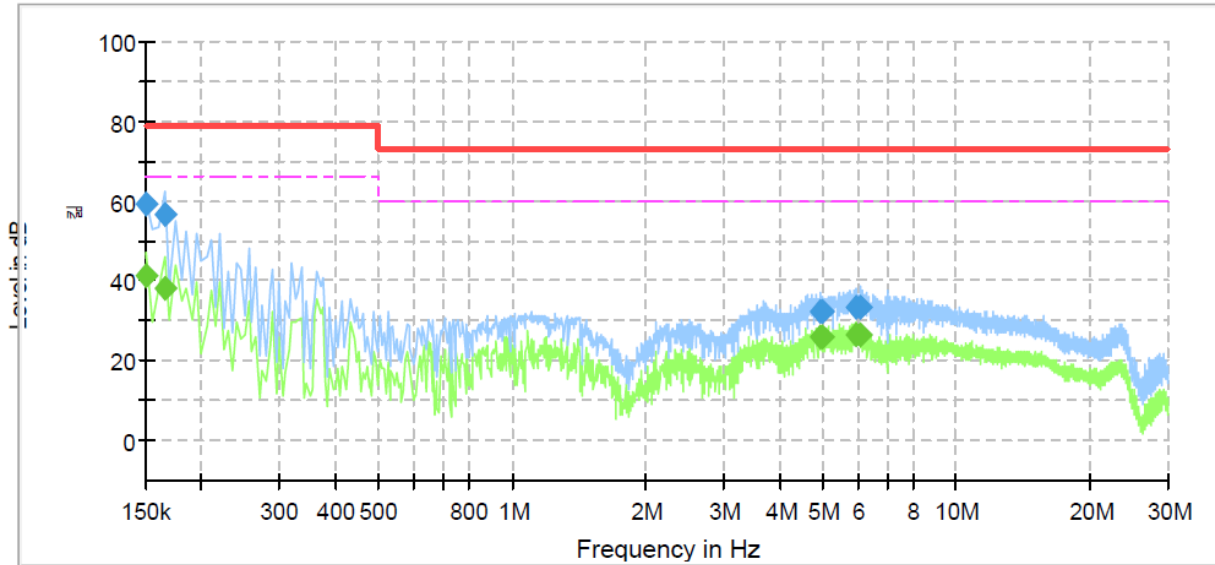
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NEUTRAL LINE

Common Information

Test Description: Conducted Emission
Model No.: PNM-9085RQZ
Mode: DC VCCI
Operator Name: KES



Final Result

Frequency (MHz)	QuasiPeak (dB μ V)	CAverage (dB μ V)	Limit (dB μ V)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.150000	---	41.37	66.00	24.63	1000.0	9.000	N	9.5
0.150000	59.32	---	79.00	19.68	1000.0	9.000	N	9.5
0.165000	---	38.06	66.00	27.94	1000.0	9.000	N	9.5
0.165000	56.83	---	79.00	22.17	1000.0	9.000	N	9.5
4.955000	---	25.92	60.00	34.08	1000.0	9.000	N	9.9
4.955000	32.36	---	73.00	40.64	1000.0	9.000	N	9.9
4.995000	---	25.89	60.00	34.11	1000.0	9.000	N	9.9
4.995000	32.50	---	73.00	40.50	1000.0	9.000	N	9.9
5.925000	---	26.31	60.00	33.69	1000.0	9.000	N	9.8
5.925000	33.19	---	73.00	39.81	1000.0	9.000	N	9.8
6.080000	---	26.29	60.00	33.71	1000.0	9.000	N	9.8
6.080000	33.29	---	73.00	39.71	1000.0	9.000	N	9.8

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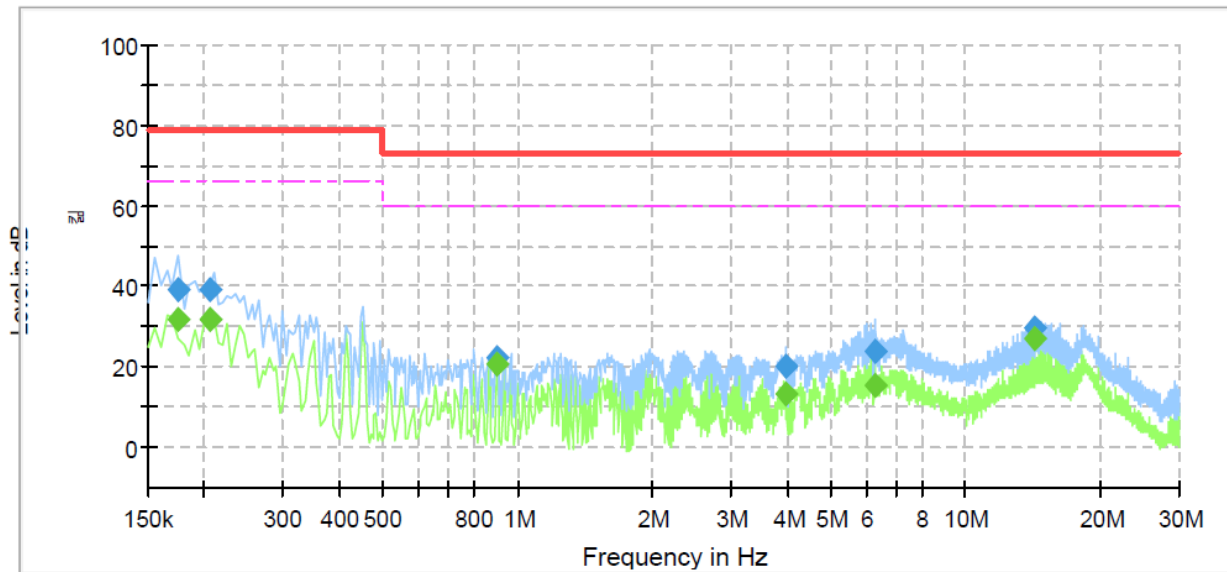
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■ PoE Mode

[HOT]

Common Information

Test Description: Conducted Emission
Model No.: PNM-9085RQZ
Mode: PoE VCCI
Operator Name: KES



Final Result

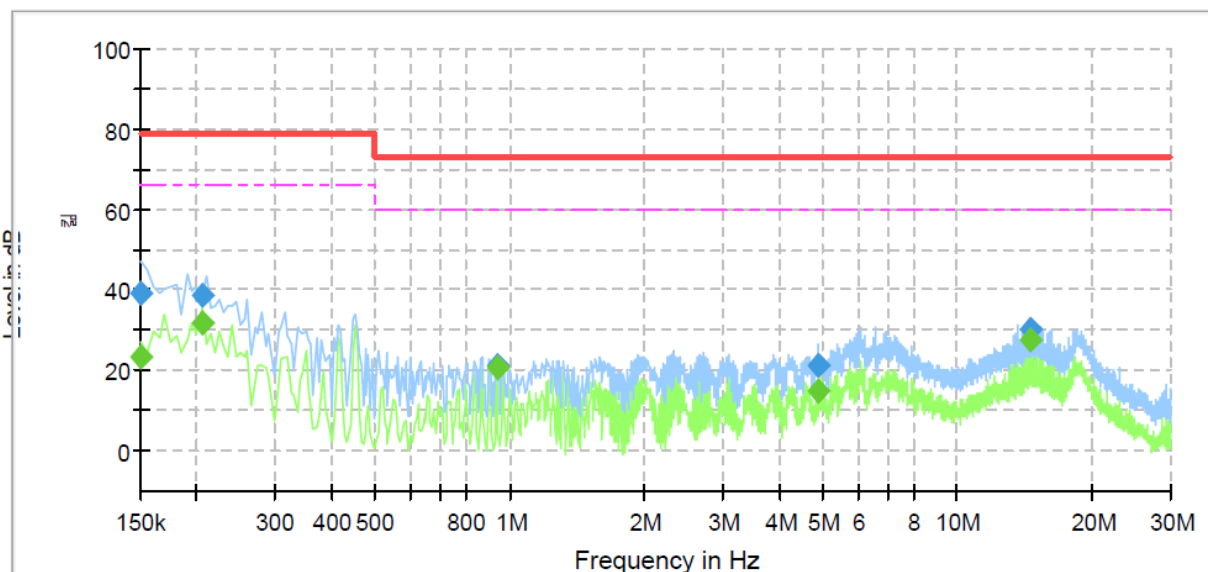
Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.175000	---	31.75	66.00	34.25	1000.0	9.000	L1	9.6
0.175000	39.38	---	79.00	39.62	1000.0	9.000	L1	9.6
0.205000	---	31.91	66.00	34.09	1000.0	9.000	L1	9.5
0.205000	38.99	---	79.00	40.01	1000.0	9.000	L1	9.5
0.900000	---	20.82	60.00	39.18	1000.0	9.000	L1	9.9
0.900000	22.05	---	73.00	50.95	1000.0	9.000	L1	9.9
3.985000	---	13.52	60.00	46.48	1000.0	9.000	L1	10.0
3.985000	19.98	---	73.00	53.02	1000.0	9.000	L1	10.0
6.295000	---	15.37	60.00	44.63	1000.0	9.000	L1	9.8
6.295000	23.73	---	73.00	49.27	1000.0	9.000	L1	9.8
14.275000	---	27.00	60.00	33.00	1000.0	9.000	L1	9.8
14.275000	29.89	---	73.00	43.11	1000.0	9.000	L1	9.8

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[NEUTRAL]

Common Information

Test Description:	Conducted Emission
Model No.:	PNM-9085RQZ
Mode	PoE VCCI
Operator Name:	KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.150000	---	23.42	66.00	42.58	1000.0	9.000	N	9.5
0.150000	39.38	---	79.00	39.62	1000.0	9.000	N	9.5
0.205000	---	31.77	66.00	34.23	1000.0	9.000	N	9.5
0.205000	38.75	---	79.00	40.25	1000.0	9.000	N	9.5
0.935000	---	20.48	60.00	39.52	1000.0	9.000	N	9.8
0.935000	21.36	---	73.00	51.64	1000.0	9.000	N	9.8
4.885000	---	14.74	60.00	45.26	1000.0	9.000	N	9.9
4.885000	21.01	---	73.00	51.99	1000.0	9.000	N	9.9
14.535000	---	27.66	60.00	32.34	1000.0	9.000	N	9.8
14.535000	30.16	---	73.00	42.84	1000.0	9.000	N	9.8

◆ 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))

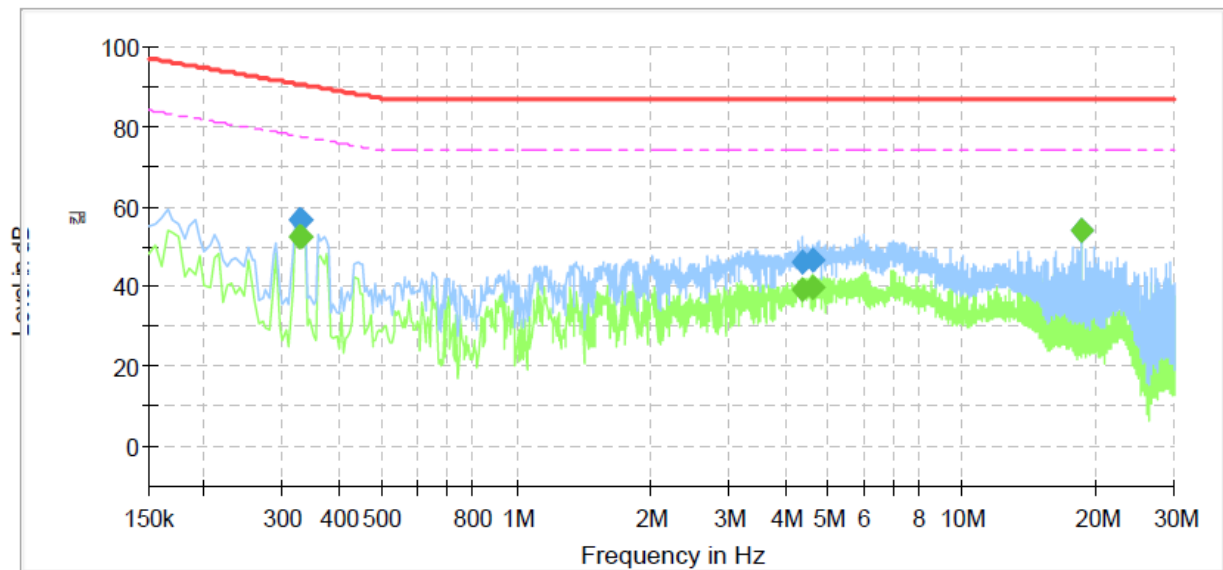
Conducted Emissions at Telecommunication Ports

■ AC/DC Adaptor Mode

[1 000 Mbps]

Common Information

Test Description:	Telecommunication Emission
Model No.:	PNM-9085RQZ
Mode	DC VCCI 1000
Operator Name:	KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.325000	---	52.36	77.58	25.22	1000.0	9.000	Single Line	9.5
0.325000	56.61	---	90.58	33.97	1000.0	9.000	Single Line	9.5
0.330000	---	52.18	77.45	25.27	1000.0	9.000	Single Line	9.5
0.330000	56.46	---	90.45	33.99	1000.0	9.000	Single Line	9.5
4.400000	---	39.03	74.00	34.97	1000.0	9.000	Single Line	9.8
4.400000	45.88	---	87.00	41.12	1000.0	9.000	Single Line	9.8
4.610000	---	39.52	74.00	34.48	1000.0	9.000	Single Line	9.8
4.610000	46.48	---	87.00	40.52	1000.0	9.000	Single Line	9.8
18.500000	---	54.14	74.00	19.86	1000.0	9.000	Single Line	9.9
18.500000	54.20	---	87.00	32.80	1000.0	9.000	Single Line	9.9

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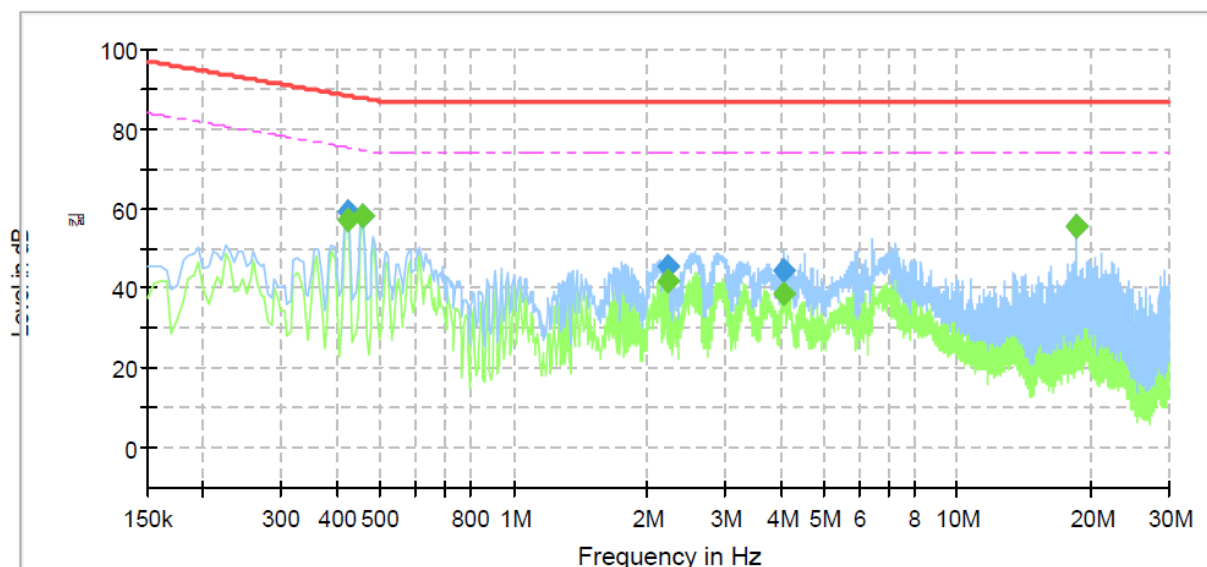
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■ PoE Mode

[1 000 Mbps]

Common Information

Test Description: Telecommunication Emission
 Model No.: PNM-9085RQZ
 Mode: PoE VCCI 1000
 Operator Name: KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.425000	---	57.18	75.35	18.17	1000.0	9.000	Single Line	9.6
0.425000	59.29	---	88.35	29.06	1000.0	9.000	Single Line	9.6
0.455000	---	58.15	74.78	16.63	1000.0	9.000	Single Line	9.6
0.455000	58.46	---	87.78	29.32	1000.0	9.000	Single Line	9.6
2.240000	---	41.86	74.00	32.14	1000.0	9.000	Single Line	10.0
2.240000	45.52	---	87.00	41.48	1000.0	9.000	Single Line	10.0
4.055000	---	38.50	74.00	35.50	1000.0	9.000	Single Line	9.9
4.055000	44.32	---	87.00	42.68	1000.0	9.000	Single Line	9.9
18.500000	---	55.47	74.00	18.53	1000.0	9.000	Single Line	9.9
18.500000	55.44	---	87.00	31.56	1000.0	9.000	Single Line	9.9

◆ 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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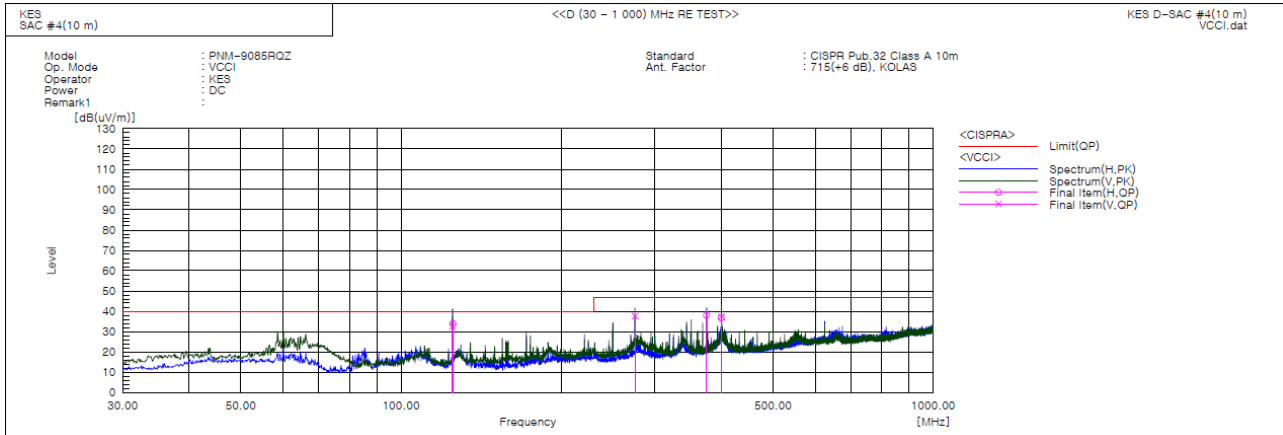
Report No.:

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Radiated Electric Field Emissions(Below 1 GHz)

■ AC/DC Adaptor 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	124.939	V	57.4	-24.8	32.6	40.0	7.4	147.0	133.0	
2	125.159	H	58.7	-24.8	33.9	40.0	6.1	400.0	143.0	
3	275.046	V	56.2	-18.6	37.6	47.0	9.4	159.0	137.0	
4	374.956	H	52.7	-14.6	38.1	47.0	8.9	375.0	143.0	
5	399.457	H	50.8	-14.1	36.7	47.0	10.3	396.0	249.0	
6	400.055	V	51.3	-14.0	37.3	47.0	9.7	100.0	52.0	

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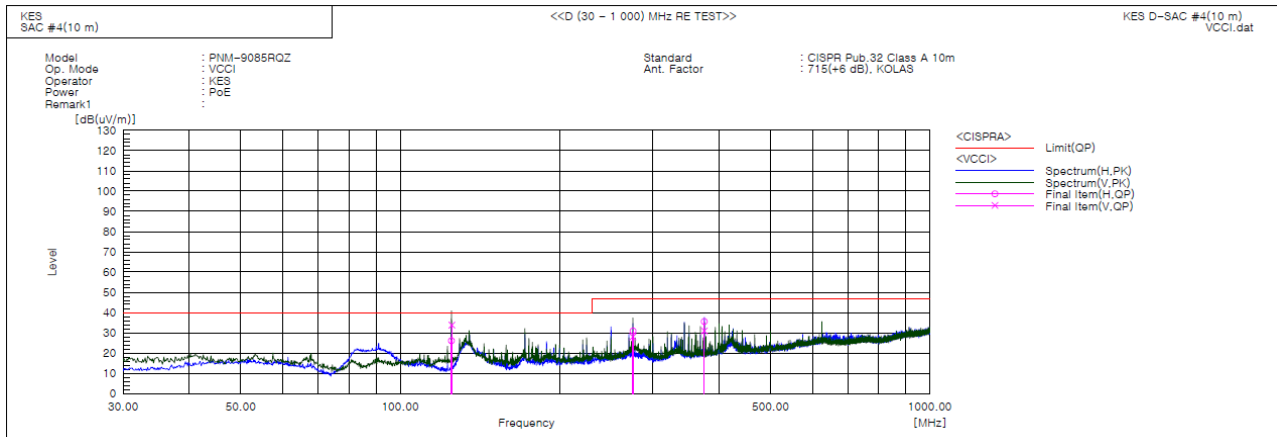
3701, 40, Simin-daero 365beon-gil,
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Report No.:

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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	124.939	H	50.9	-24.8	26.1	40.0	13.9	326.0	10.0	
2	125.163	V	58.6	-24.8	33.8	40.0	6.2	100.0	309.0	
3	274.925	V	46.6	-18.6	28.0	47.0	19.0	107.0	143.0	
4	275.046	H	49.5	-18.6	30.9	47.0	16.1	400.0	182.0	
5	374.956	H	50.2	-14.6	35.6	47.0	11.4	368.0	136.0	
6	375.052	V	45.6	-14.6	31.0	47.0	16.0	100.0	165.0	

◆ 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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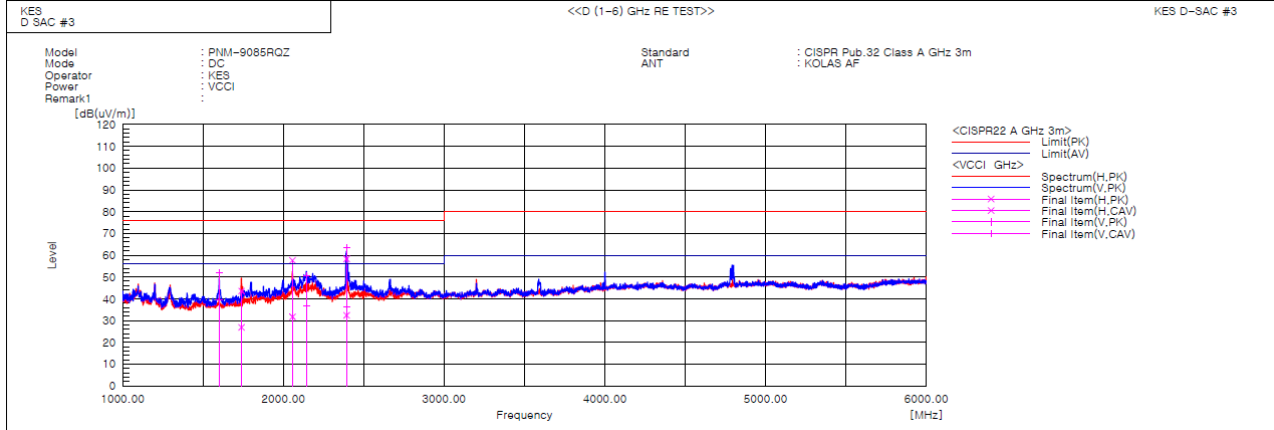
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Radiated Electric Field Emissions(Above 1 GHz)

■ AC/DC Adaptor 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	1600.000	V	57.2	44.9	-5.3	51.9	39.6	76.0	56.0	24.1	16.4	100.0	22.5	
2	1739.190	H	47.3	30.7	-3.8	43.5	26.9	76.0	56.0	32.5	29.1	100.0	60.9	
3	2056.180	H	58.4	32.5	-0.8	57.6	31.7	76.0	56.0	18.4	24.3	100.0	135.5	
4	2142.443	V	51.1	37.4	-0.5	50.6	36.9	76.0	56.0	25.4	19.1	100.0	22.5	
5	2392.660	V	63.1	36.1	0.2	63.3	36.3	76.0	56.0	12.7	19.7	100.0	220.6	
6	2393.490	H	58.1	32.2	0.2	58.3	32.4	76.0	56.0	17.7	23.6	100.0	349.0	

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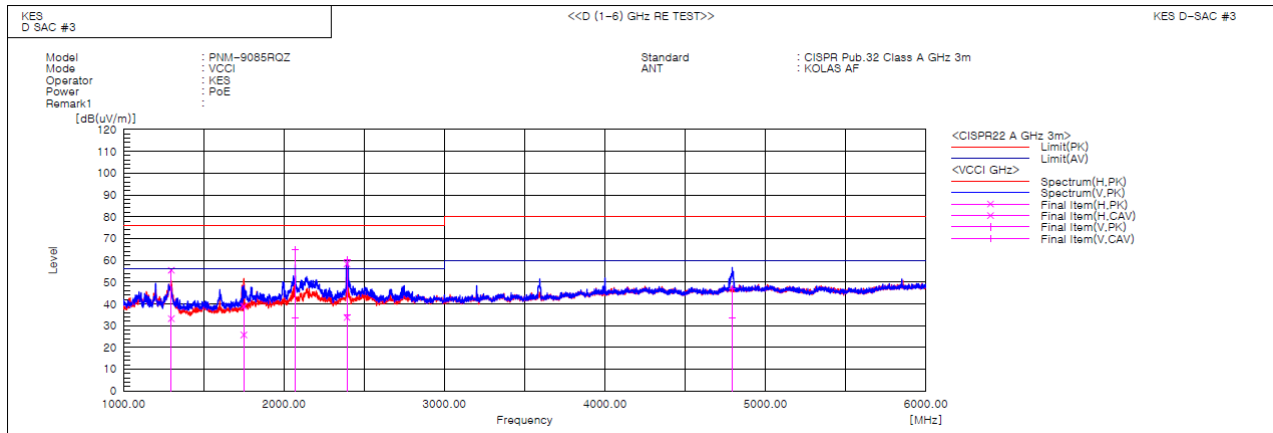
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PoE Mode



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	1298.001	H	63.0	40.8	-7.6	55.4	33.2	76.0	56.0	20.6	22.8	100.0	21.7	
2	1749.668	H	42.5	29.4	-3.7	38.8	25.7	76.0	56.0	37.2	30.3	100.0	311.3	
3	2070.283	V	65.5	34.2	-0.7	64.8	33.5	76.0	56.0	11.2	22.5	100.0	113.6	
4	2392.370	H	58.1	33.5	0.2	58.3	33.7	76.0	56.0	17.7	22.3	100.0	356.3	
5	2393.251	V	60.2	34.6	0.2	60.4	34.8	76.0	56.0	15.6	21.2	100.0	234.0	
6	4793.320	V	38.9	25.6	7.9	46.8	33.5	80.0	60.0	33.2	26.5	100.0	184.7	

◆ 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 Emissions at Mains Power Ports

■ AC/DC Adaptor Mode



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■ PoE Mode



Conducted Emissions at Telecommunication Ports

■ AC/DC Adaptor Mode



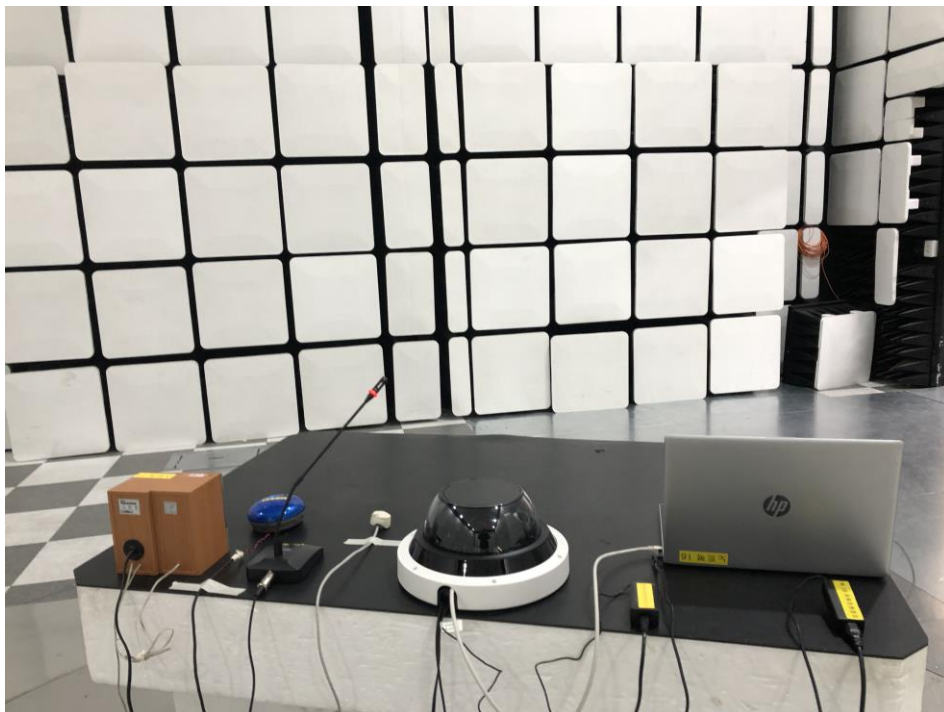
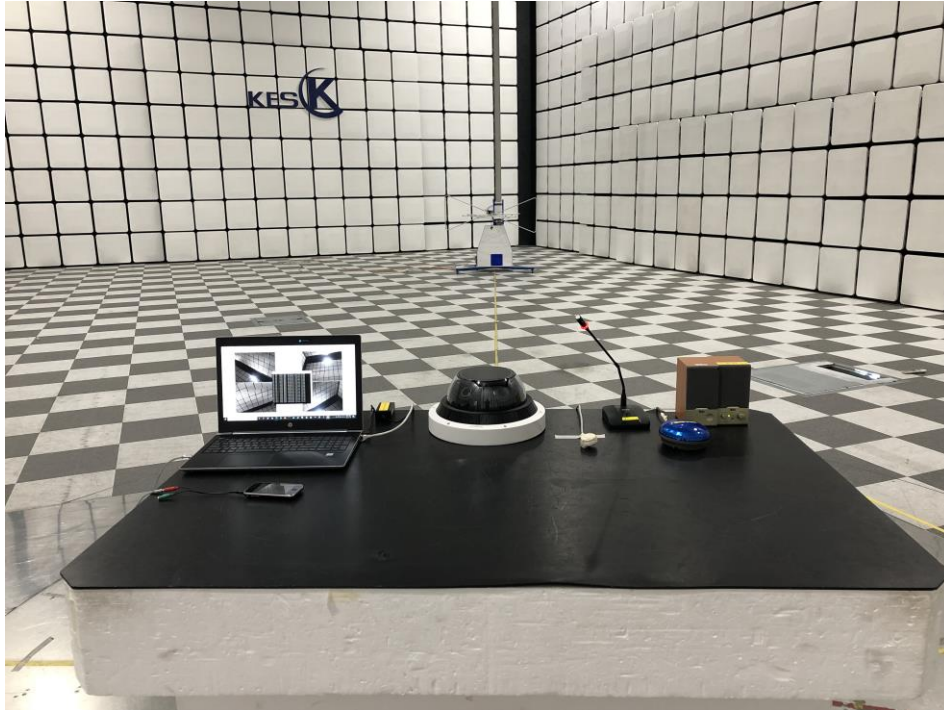
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■ PoE Mode



Radiated Electric Field Emissions(Below 1 GHz)

■ AC/DC Adaptor Mode



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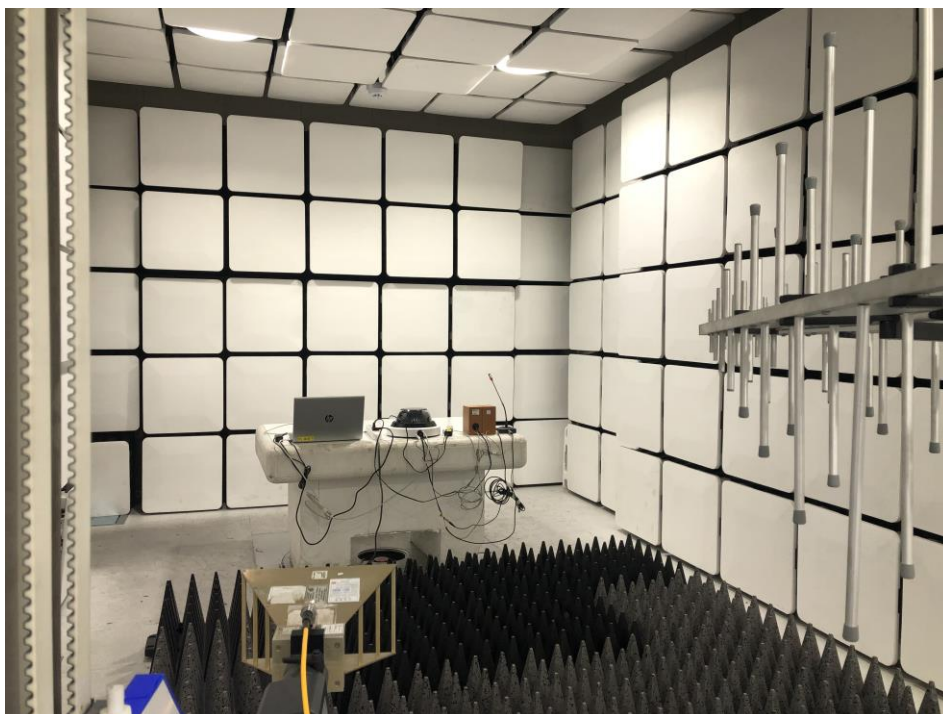
■ PoE Mode



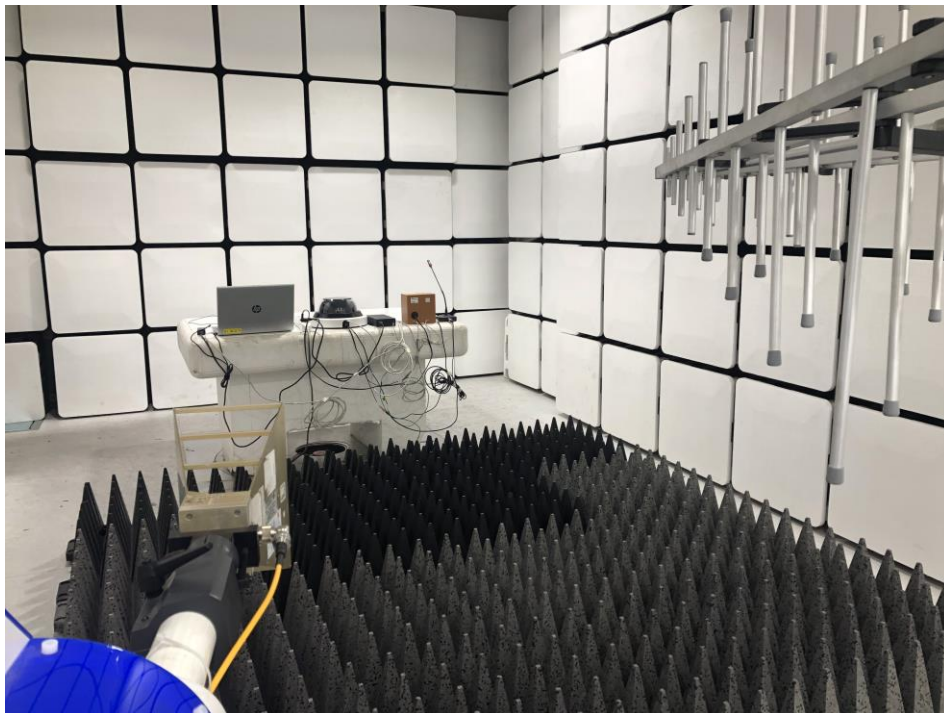
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Radiated Electric Field Emissions(Above 1 GHz)

■ AC/DC Adaptor Mode



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■ PoE Mode

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EUT External Photographs

(Top)



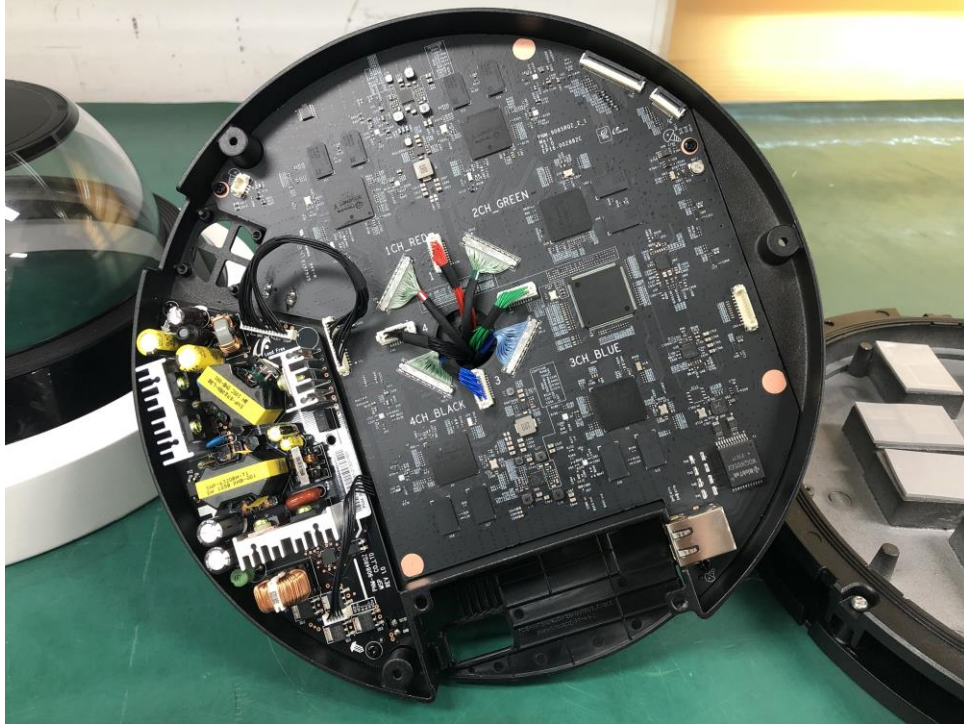
(Bottom)



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EUT Internal Photographs

(Internal View)



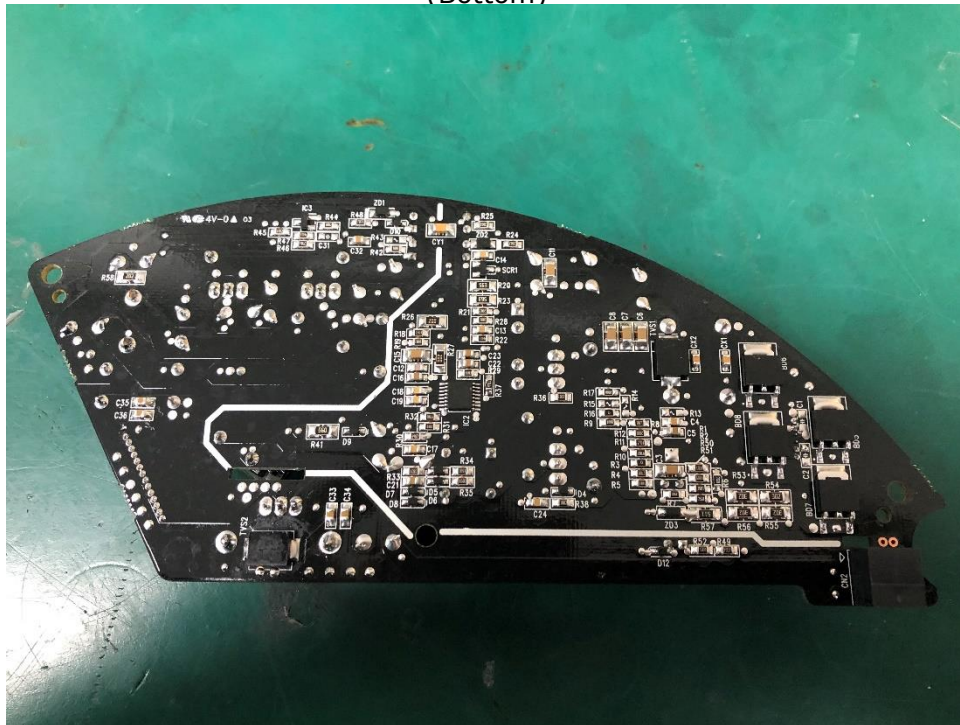
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EUT Internal View – Board 1

(Top)



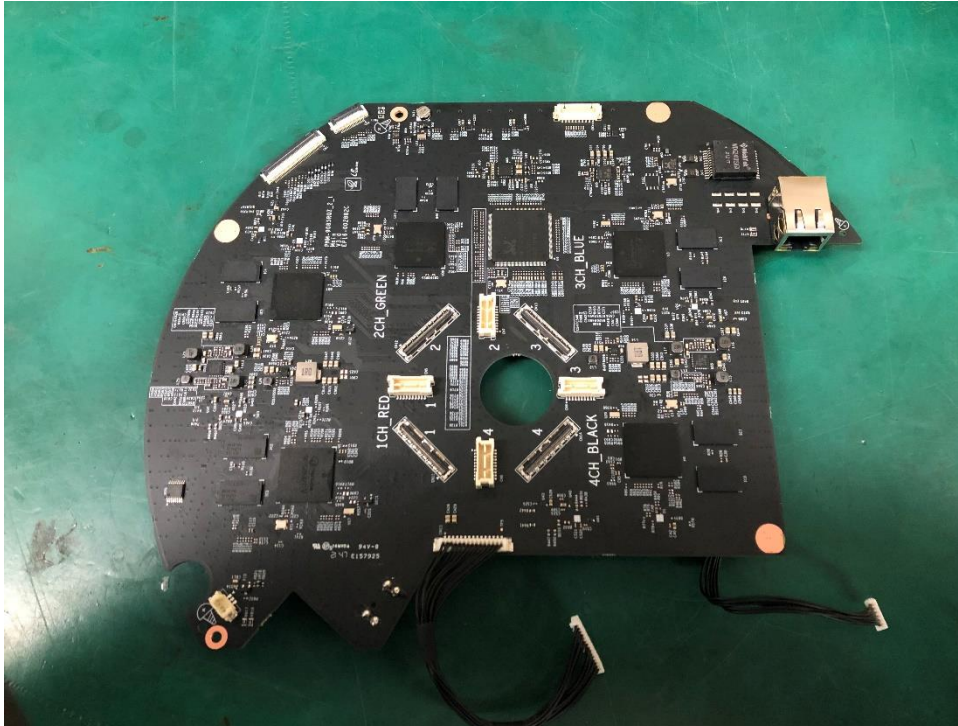
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EUT Internal View – Board 2

(Top)



(Bottom)



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EUT Internal View – Board 3

(Top)



(Bottom)



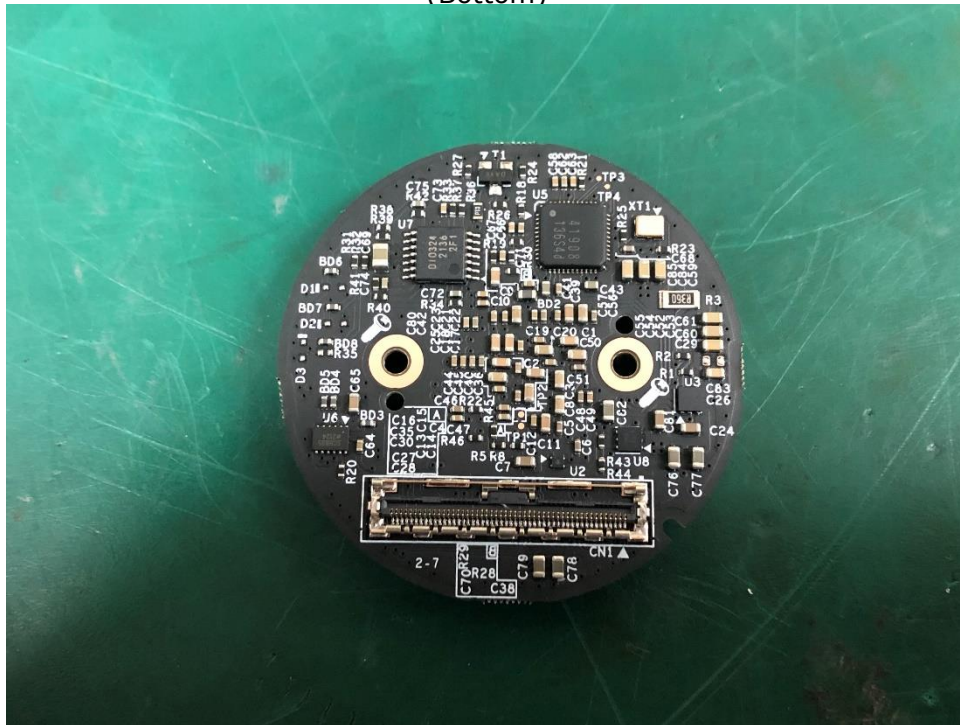
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EUT Internal View – Board 4

(Top)



(Bottom)



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EUT Internal View – Board 5

(Top)



(Bottom)



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Label Photographs



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