

EMC TEST REPORT

Test Report No. : KES-EM-21T0487-R1
Date of Issue : Feb. 24, 2023
Product name : NETWORK CAMERA
Model/Type No. : PNM-9031RV
Variant Model : -
Applicant : Hanwha Vision Co., Ltd
Applicant Address : 6, Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si,
Gyeonggi-do, Republic of Korea
Manufacturer : 1. HANWHA VISION VIETNAM COMPANY LIMITED
2. D-TECH CO.,LTD.
Manufacturer Address : 1. Lot O-2, Que Vo Industrial Zone extended area,
Nam Son commune, Bac Ninh city, Bac Ninh province, Vietnam
2. 173-25, Saneop-ro, Gwonseon-gu, Suwon-si, Gyeonggi- do,
Korea (Suwon Industrial Complex)
Equipment authorization : **Supplier's Declaration of Conformity**
Date of Receipt : May. 17, 2021
Test date : May. 21, 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
Jun. 23, 2021	KES-EM-21T0487	Issued
Feb. 24, 2023	KES-EM-21T0487-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:

Video	
Imaging Device	1/2.8" 5MP CMOS (x4)
Resolution	6720x2240, 5952x1984, 4992x1664, 3840x1280, 3072x1024, 1920x640, 1152x384
Max. Framerate	H.265/H.264: Max. 20fps/20fps(60Hz/50Hz)@15MP MJPEG: Max. 15fps(60Hz/50Hz)
Min. Illumination	TBD
Video Out	USB : Micro USB Type B, 1280x720 for installation
Lens	
Focal Length (Zoom Ratio)	4.3mm Fixed
Max. Aperture Ratio	F1.6
Angular Field of View	192°(H) x 65°(V) [TBD] / 180°(H) x 70°(V) [TBD]
Min. Object Distance	3m(9.84ft)
Focus Control	Fixed
Pan / Tilt / Rotate	
Pan / Tilt / Rotate Range	0~355° / 0~60° / -
Operational	
Camera Title	Displayed up to 85 characters
Day & Night	Auto(ICR)
Backlight Compensation	BLC, WDR, SSDR
Wide Dynamic Range	120dB
Digital Noise Reduction	SSNR V
Defog	Not Support
Motion Detection	8ea, 8point polygonal zones
Privacy Masking	6ea, rectangular zones - Color: Grey/Green/Red/Blue/Black/White
Gain Control	Low / Middle / High
White Balance	ATW / AWC / Manual / Indoor / Outdoor
LDC	None
Electronic Shutter Speed	Minimum / Maximum / Anti flicker (2~1/12,000sec)
Digital PTZ	None
Video Rotation	Flip, Mirror

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Analytics	Defocus detection, Motion detection, Appear/Disappear, Enter/Exit, Tampering, Virtual line, Audio detection
Business Intelligence	Heatmap
Alarm I/O	Selectable 2 port
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
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	Min. 20m(65.6ft), Wise IR
Network	
Ethernet	Metal shielded RJ-45(10/100/1000BASE-T)
Video Compression	H.265/H.264: Main/High, 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(15 users) / Multicast Multicast Multiple streaming(Up to 4 profiles, Up to 3 with different resolution)
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) Device Certificate(Hanwha Techwin Root CA) TPM 2.0 with FIPS 140-2 level2
Application Programming Interface	ONVIF Profile S/G/T SUNAPI(HTTP API)
General	
Webpage Language	English, Korean, Chinese, French, Italian, Spanish, German, Japanese, Russian, Portuguese, Czech, Polish, Turkish, Dutch, Hungarian, Greek
Edge Storage	Micro SD/SDHC/SDXC 2slots 512GB (256GBx2)
Memory	8GB RAM, 4GB Flash
Environmental & Electrical	
Operating Temperature / Humidity	- Normal : -40°C~+55°(-40°F ~ +131°F) / - Intermittent : -40°C~+60°C(-40°F ~ +140°F), 8Hrs - Less than 95% RH(Non-condensing) * Startup should be above -30°C "
Storage Temperature / Humidity	-50°C~+60°C(-58°F~+140°F) / Less than 90% RH
Certification	IP66, IK10, NEMA4X
Input Voltage	PoE+ (IEEE802.3at, Class4), 12VDC
Power Consumption	PoE+: Max 23.5W, Typical 18.0W 12VDC: Max 20.5W, Typical 16.0W
Mechanical	
Color / Material	White / Aluminum
RAL Code	RAL9003
Product Dimensions / Weight	Ø253x170mm / 2.6Kg

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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 ☒ PoE

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-9031RV	-	HANWHA VISION VIETNAM COMPANY LIMITED	EUT

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
Notebook	P89F	21599158359	DELL	-
Notebook Adaptor	LA240PM190	0D0X04	LITE-ON TECHNOLOGY CO.,LTD.	-
Alarm1	-	-	-	-
Alarm2	-	-	-	-
Micro SD Card	-	-	SanDisk	32 GB
Smartphone	SHV-E210L	R33D713KA3F	Samsung	-
Headset	K550	-	Britz®	-
AC/DC Adaptor	2ACB022F	-	Channel Well Technology Co.,Ltd.	-
PoE Adaptor	PT-PSE109GBRO-AH	-	Dongguan PROCET Network Technology Co.,Ltd	-

1.6 External I/O Cabling

■ AC/DC Adaptor

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (EUT)	RJ-45	Notebook	RJ-45	3.5	S
	Alarm OUT	Alarm1	Alarm IN	3.0	U
	Alarm IN	Alarm2	Alarm OUT	3.0	U
	Audio OUT	Headset	Audio IN	1.4	U
	Audio IN	Headset	Audio OUT	1.6	U
	Slot	Micro SD Card	Slot	-	-
Notebook	Audio IN	Smartphone	Audio OUT	1.0	U

* Unshielded=U, Shielded=S

■ PoE Adaptor

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (EUT)	RJ-45(PoE)	PoE Adaptor	RJ-45(PoE)	3.5	S
	Alarm OUT	Alarm1	Alarm IN	3.0	U
	Alarm IN	Alarm2	Alarm OUT	3.0	U
	Audio OUT	Headset	Audio IN	1.4	U
	Audio IN	Headset	Audio OUT	1.6	U
	Slot	Micro SD Card	Slot	-	-
Notebook	Audio IN	Smartphone	Audio OUT	1.0	U
	RJ-45(LAN)	PoE Adaptor	RJ-45(LAN)	3.0	U

* Unshielded=U, Shielded=S



1.7 EUT Operating Mode(s)

Test Mode	operating
Operation (AC/DC Adaptor, PoE Adaptor)	the test was conducted while checking the camera video output from the laptop and making sure that they operate normally while performing a ping test.

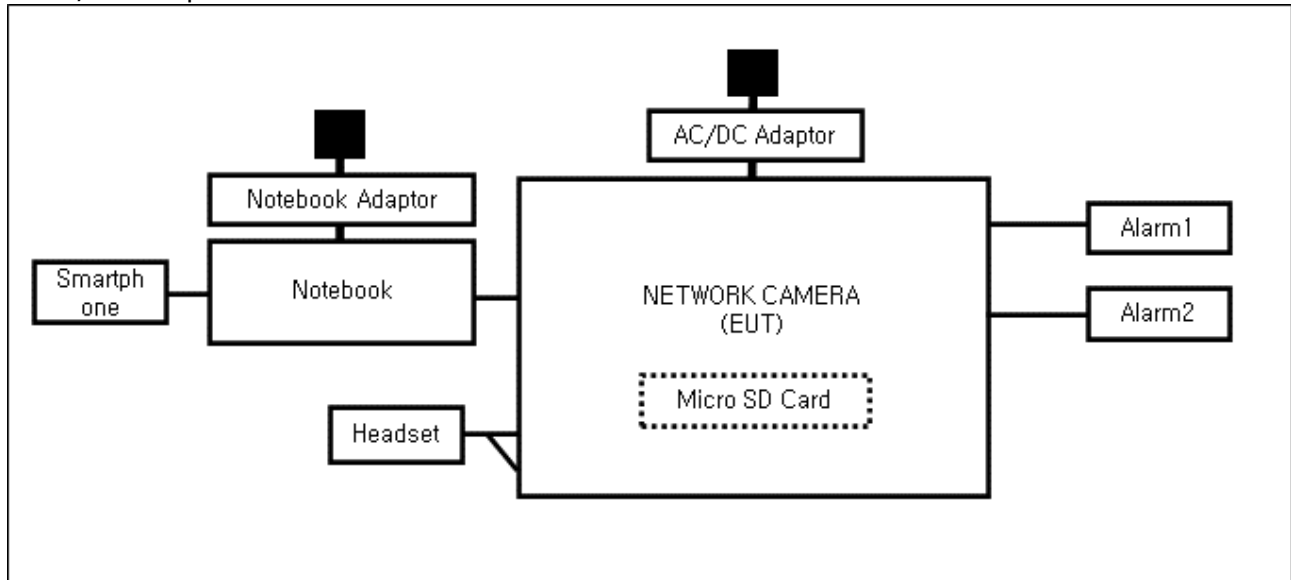
EUT Test operating S/W		
Name	Version	Manufacture Company
Web Viewer	-	Hanwha Vision Co., Ltd

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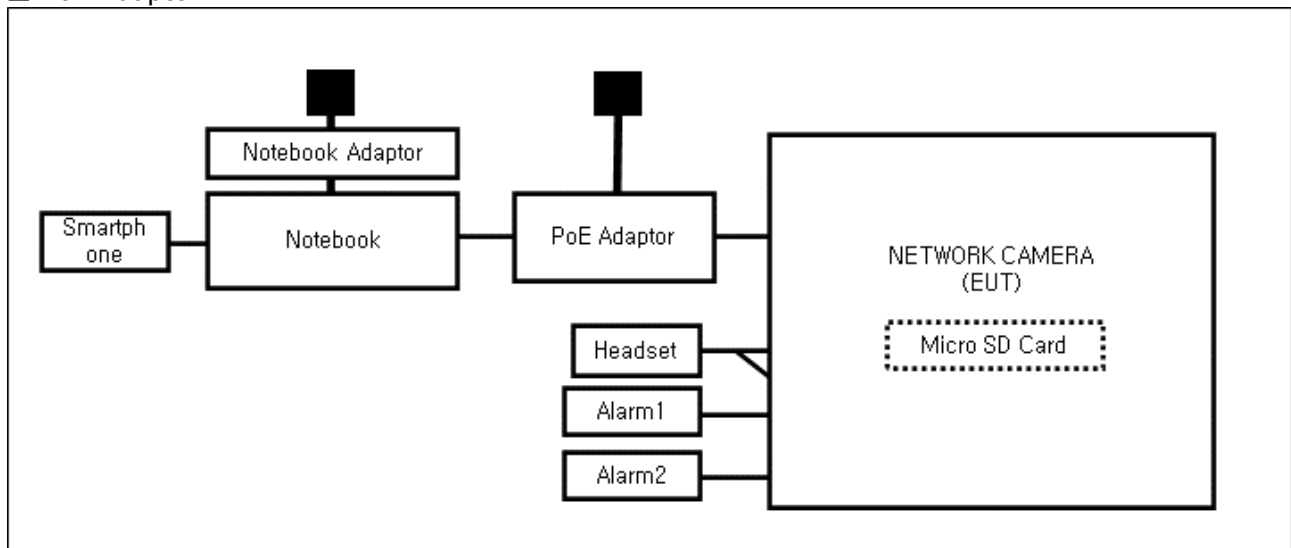
1.8 Configuration

■ AC Main
 □ DC Main

■ AC/DC Adaptor



■ PoE Adaptor



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:

☐ **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 55032:2015

☐ Class A

☐ Class B

☐ EN 55024:2010

☐ EN 50130-4:2011 +A1:2014

☐ EN 61000-3-2:2014

☐ EN 61000-3-3:2013

☐ EN 61326-1:2013

☐ **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 C63.4-2017☒ Class A☐ Class B☒ **IC Regulation ICES-003 Issue 7**☒ CAN/CSA CISPR 32:17☒ Class A☐ Class B☐ ANSI C63.4-2017☐ Class A☐ Class B☐ **RE- Directive 2014/53/EU**☐ EN 301 489-1 V2.2.3☐ 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 at Mains Power Ports

Test Date

May. 21, 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: (23,9 ± 0,4) °C

Relative Humidity: (44,3 ± 0,4) % 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 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

May. 21, 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: (23,7 ± 0,5) °C
Relative Humidity: (44,2 ± 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.



2.3 Radiated Electric Field Emissions(Above 1 GHz)

Test Date

May. 21, 2021

Test Location

SEMI ANECHOIC CHAMBER #4(10 m)

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
☒	PREAMPLIFIER	8449B	AGILENT	3008A01742	12, 29, 2021
☐	ATTENUATOR	8491A	HP	35496	03, 10, 2022
☒	HORN ANTENNA	BBHA 9120D	SCHWARZBECK	9120D-1802	12, 14, 2021

Test Conditions

Temperature: (24,0 ± 0,4) °C

Relative Humidity: (44,4 ± 0,4) % R.H.

Frequency Range of Measurement

1 GHz to 5 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.

APPENDIX A – TEST DATA

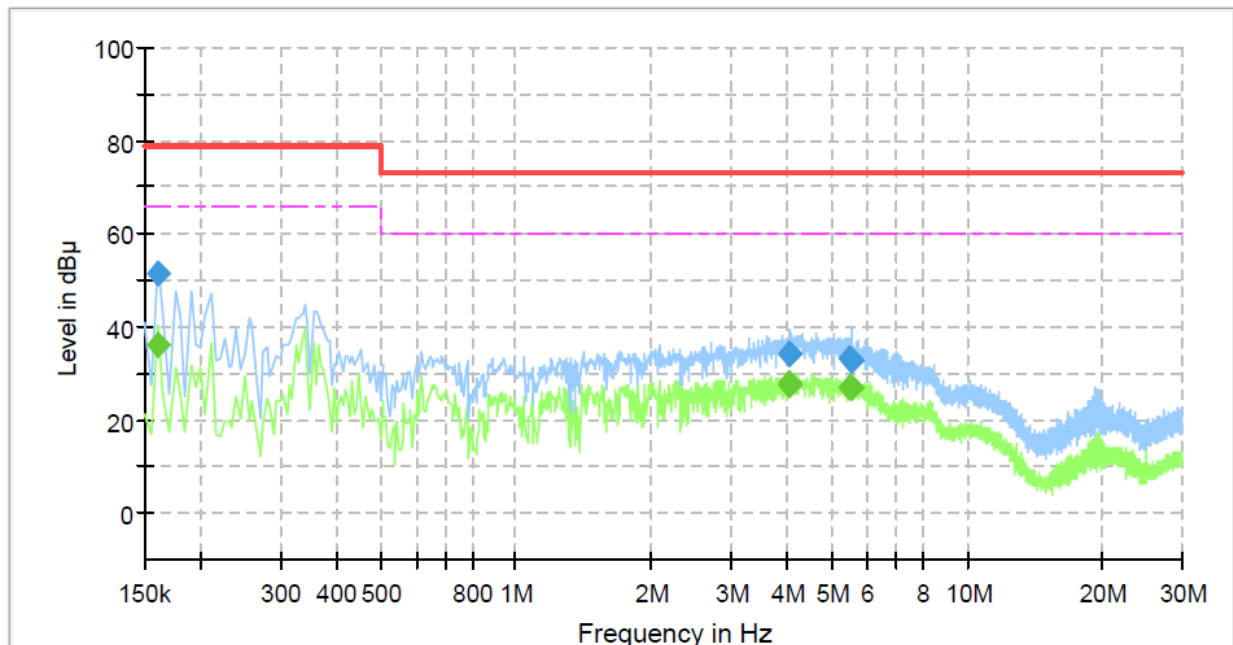
Conducted Emissions at Mains Power Ports

■ AC/DC Adaptor

HOT LINE

Common Information

Test Description:	Conducted Emission
Model No.:	PNM-9031RV
Phase:	FCC
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)
0.160000	---	35.97	66.00	30.03	1000.0	9.000	L1	19.4
0.160000	51.69	---	79.00	27.31	1000.0	9.000	L1	19.4
4.030000	---	27.66	60.00	32.34	1000.0	9.000	L1	19.9
4.030000	34.07	---	73.00	38.93	1000.0	9.000	L1	19.9
4.060000	---	27.94	60.00	32.06	1000.0	9.000	L1	19.9
4.060000	34.19	---	73.00	38.81	1000.0	9.000	L1	19.9
5.465000	---	27.06	60.00	32.94	1000.0	9.000	L1	19.6
5.465000	33.00	---	73.00	40.00	1000.0	9.000	L1	19.6
5.535000	---	26.80	60.00	33.20	1000.0	9.000	L1	19.6
5.535000	32.80	---	73.00	40.20	1000.0	9.000	L1	19.6

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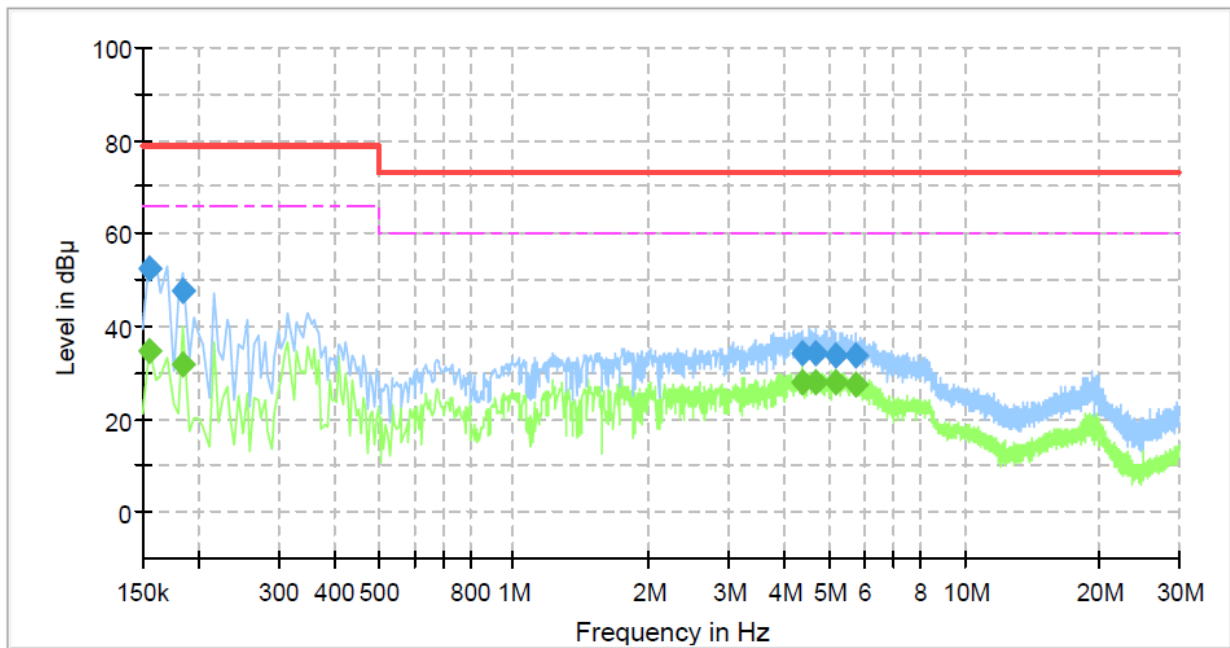
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NEUTRAL LINE

Common Information

Test Description:	Conducted Emission
Model No.:	PNM-9031RV
Phase:	FCC
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	---	34.72	66.00	31.28	1000.0	9.000	N	19.4
0.155000	52.58	---	79.00	26.42	1000.0	9.000	N	19.4
0.185000	---	31.84	66.00	34.16	1000.0	9.000	N	19.4
0.185000	47.83	---	79.00	31.17	1000.0	9.000	N	19.4
4.355000	---	27.93	60.00	32.07	1000.0	9.000	N	19.8
4.355000	34.07	---	73.00	38.93	1000.0	9.000	N	19.8
4.685000	---	27.72	60.00	32.28	1000.0	9.000	N	19.7
4.685000	33.99	---	73.00	39.01	1000.0	9.000	N	19.7
5.180000	---	27.91	60.00	32.09	1000.0	9.000	N	19.6
5.180000	33.84	---	73.00	39.16	1000.0	9.000	N	19.6
5.730000	---	27.49	60.00	32.51	1000.0	9.000	N	19.5
5.730000	33.56	---	73.00	39.44	1000.0	9.000	N	19.5

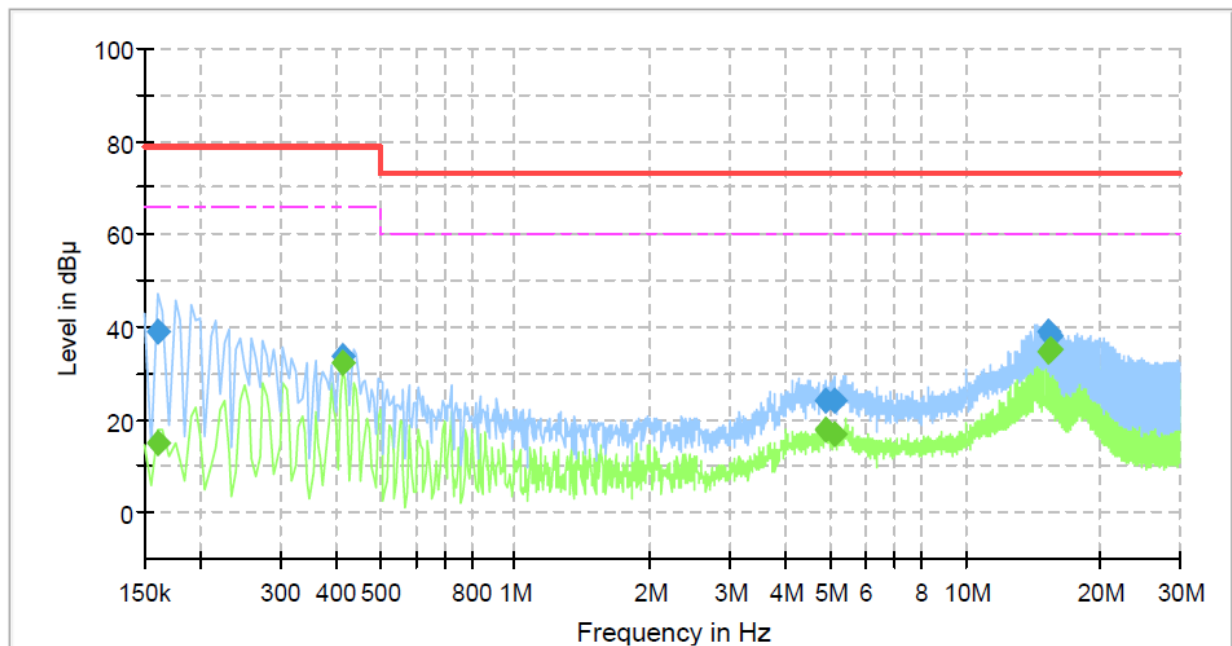
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■ PoE Adaptor

HOT LINE

Common Information

Test Description:	Conducted Emission
Model No.:	PNM-9031RV
Phase:	FCC
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)
0.160000	---	14.92	66.00	51.08	1000.0	9.000	L1	19.4
0.160000	39.16	---	79.00	39.84	1000.0	9.000	L1	19.4
0.415000	---	32.27	66.00	33.73	1000.0	9.000	L1	19.6
0.415000	33.93	---	79.00	45.07	1000.0	9.000	L1	19.6
4.880000	---	17.64	60.00	42.36	1000.0	9.000	L1	19.7
4.880000	24.19	---	73.00	48.81	1000.0	9.000	L1	19.7
5.105000	---	16.89	60.00	43.11	1000.0	9.000	L1	19.6
5.105000	24.18	---	73.00	48.82	1000.0	9.000	L1	19.6
15.250000	---	34.69	60.00	25.31	1000.0	9.000	L1	19.9
15.250000	38.78	---	73.00	34.22	1000.0	9.000	L1	19.9
15.575000	---	35.39	60.00	24.61	1000.0	9.000	L1	19.9
15.575000	38.20	---	73.00	34.80	1000.0	9.000	L1	19.9

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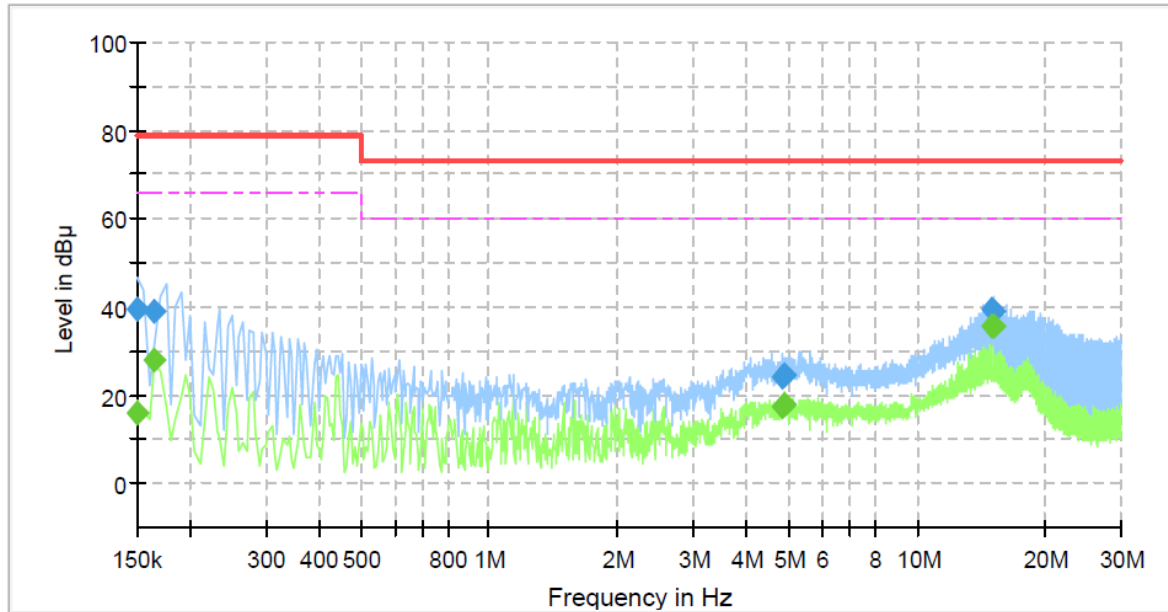
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NEUTRAL LINE

Common Information

Test Description:	Conducted Emission
Model No.:	PNM-9031RV
Phase:	FCC
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)
0.150000	---	15.75	66.00	50.25	1000.0	9.000	N	19.4
0.150000	39.43	---	79.00	39.57	1000.0	9.000	N	19.4
0.165000	---	28.10	66.00	37.90	1000.0	9.000	N	19.4
0.165000	39.07	---	79.00	39.93	1000.0	9.000	N	19.4
4.825000	---	17.50	60.00	42.50	1000.0	9.000	N	19.7
4.825000	24.11	---	73.00	48.89	1000.0	9.000	N	19.7
4.905000	---	18.09	60.00	41.91	1000.0	9.000	N	19.7
4.905000	24.53	---	73.00	48.47	1000.0	9.000	N	19.7
15.030000	---	35.72	60.00	24.28	1000.0	9.000	N	19.9
15.030000	39.29	---	73.00	33.71	1000.0	9.000	N	19.9
15.140000	---	35.45	60.00	24.55	1000.0	9.000	N	19.9
15.140000	39.03	---	73.00	33.97	1000.0	9.000	N	19.9

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

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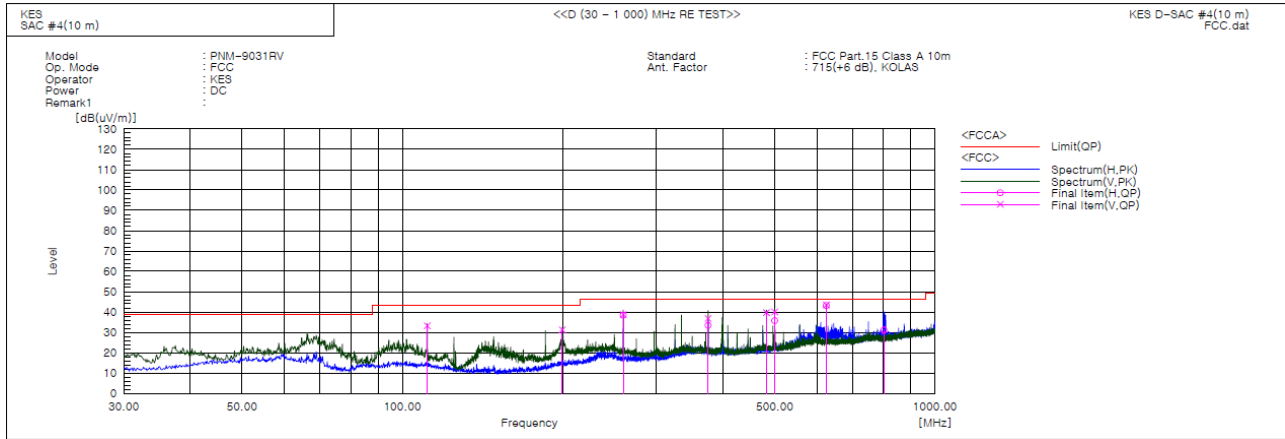
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Radiated Electric Field Emissions(Below 1 GHz)

- 47 CFR Part 15, Subpart B

■ AC/DC Adaptor



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	111.359	V	55.7	-22.4	33.3	43.5	10.2	112.0	92.0	
2	199.629	V	52.1	-20.8	31.3	43.5	12.2	100.0	168.0	
3	259.890	H	57.3	-18.8	38.5	46.5	8.0	100.0	251.0	
4	259.890	V	57.6	-18.8	38.8	46.5	7.7	107.0	28.0	
5	374.956	V	51.7	-14.8	36.9	46.5	9.6	143.0	277.0	
6	374.959	H	48.3	-14.8	33.5	46.5	13.0	100.0	42.0	
7	482.626	V	51.8	-12.1	39.7	46.5	6.8	100.0	344.0	
8	499.965	H	47.4	-11.6	35.8	46.5	10.7	297.0	42.0	
9	499.965	V	51.7	-11.6	40.1	46.5	6.4	171.0	134.0	
10	624.974	V	51.7	-8.2	43.5	46.5	3.0	100.0	92.0	
11	624.974	H	51.4	-8.2	43.2	46.5	3.3	358.0	61.0	
12	801.514	H	37.5	-6.3	31.2	46.5	15.3	319.0	107.0	

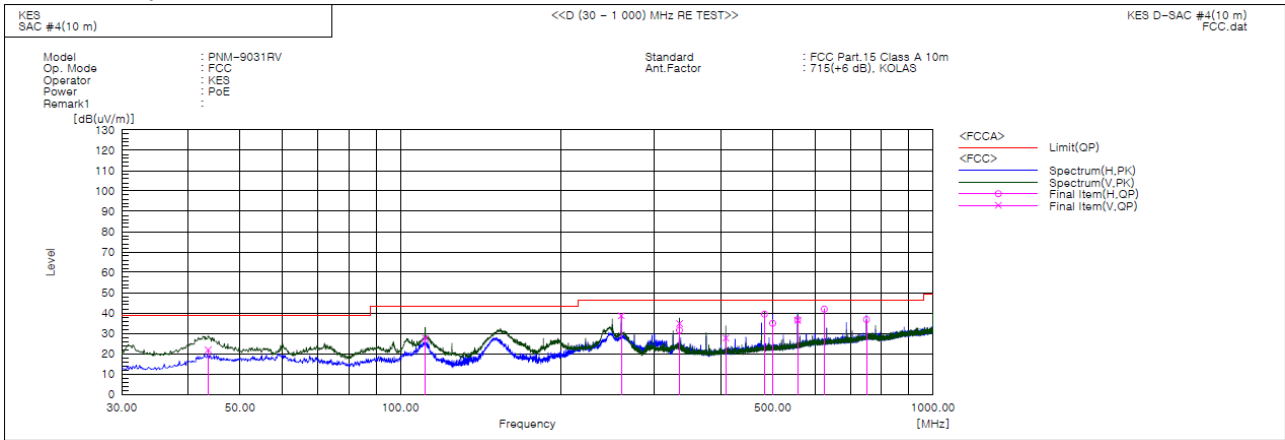
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■ PoE Adaptor



Final Result

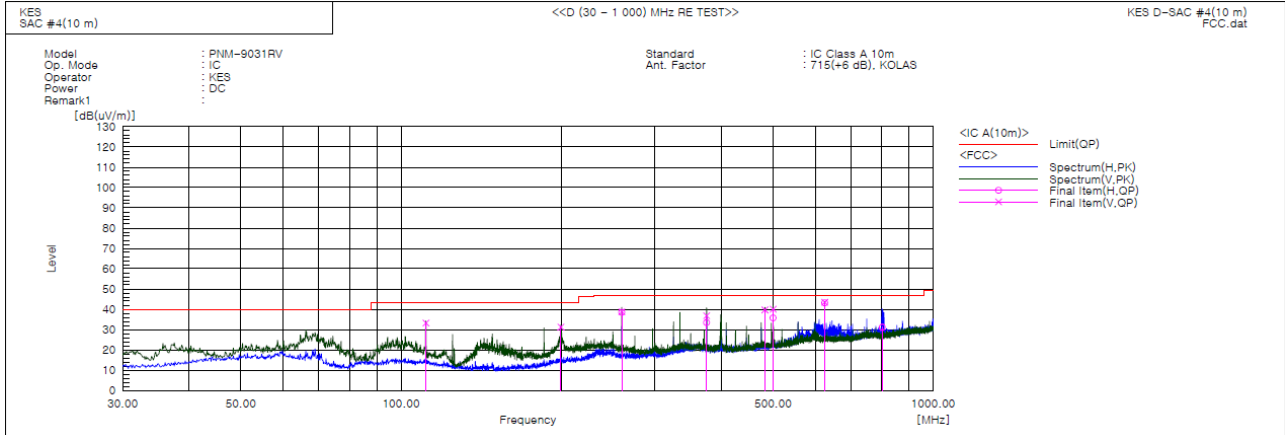
No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Remark
1	43.580	V	43.6	-21.7	21.9	39.0	17.1	103.0	202.0	
2	111.359	V	50.1	-22.4	27.7	43.5	15.8	107.0	153.0	
3	259.890	V	57.5	-18.8	38.7	46.5	7.8	100.0	220.0	
4	334.095	V	50.7	-15.9	34.8	46.5	11.7	128.0	353.0	
5	334.095	H	47.4	-15.9	31.5	46.5	15.0	321.0	260.0	
6	408.300	V	41.9	-14.1	27.8	46.5	18.7	100.0	33.0	
7	482.626	H	51.5	-12.1	39.4	46.5	7.1	297.0	204.0	
8	500.086	H	46.5	-11.6	34.9	46.5	11.6	361.0	169.0	
9	556.831	V	46.5	-10.1	36.4	46.5	10.1	101.0	126.0	
10	556.831	H	46.9	-10.1	36.8	46.5	9.7	396.0	132.0	
11	624.974	H	50.1	-8.2	41.9	46.5	4.6	311.0	211.0	
12	749.983	H	42.5	-5.7	36.8	46.5	9.7	100.0	192.0	

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- IC Regulation ICES-003 Issue 7

■ AC/DC Adaptor



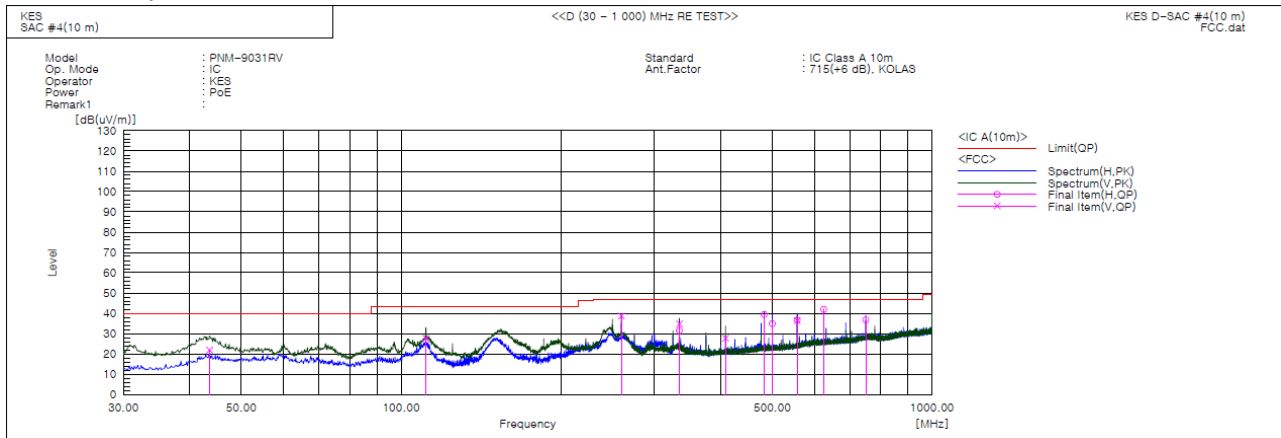
Final Result

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	111.359	V	55.7	-22.4	33.3	43.5	10.2	112.0	92.0	
2	199.629	V	52.1	-20.8	31.3	43.5	12.2	100.0	168.0	
3	259.890	H	57.3	-18.8	38.5	47.0	8.5	100.0	251.0	
4	259.890	V	57.6	-18.8	38.8	47.0	8.2	107.0	28.0	
5	374.956	V	51.7	-14.8	36.9	47.0	10.1	143.0	277.0	
6	374.959	H	48.3	-14.8	33.5	47.0	13.5	100.0	42.0	
7	482.626	V	51.8	-12.1	39.7	47.0	7.3	100.0	344.0	
8	499.965	H	47.4	-11.6	35.8	47.0	11.2	297.0	42.0	
9	499.965	V	51.7	-11.6	40.1	47.0	6.9	171.0	134.0	
10	624.974	V	51.7	-8.2	43.5	47.0	3.5	100.0	92.0	
11	624.974	H	51.4	-8.2	43.2	47.0	3.8	358.0	61.0	
12	801.514	H	37.5	-6.3	31.2	47.0	15.8	319.0	107.0	

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■ PoE Adaptor



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	43.580	V	43.6	-21.7	21.9	40.0	18.1	103.0	202.0	
2	111.359	V	50.1	-22.4	27.7	43.5	15.8	107.0	153.0	
3	259.890	V	57.5	-18.8	38.7	47.0	8.3	100.0	220.0	
4	334.095	V	50.7	-15.9	34.8	47.0	12.2	128.0	353.0	
5	334.095	H	47.4	-15.9	31.5	47.0	15.5	321.0	260.0	
6	408.300	V	41.9	-14.1	27.8	47.0	19.2	100.0	33.0	
7	482.626	H	51.5	-12.1	39.4	47.0	7.6	297.0	204.0	
8	500.086	H	46.5	-11.6	34.9	47.0	12.1	361.0	169.0	
9	556.831	V	46.5	-10.1	36.4	47.0	10.6	101.0	126.0	
10	556.831	H	46.9	-10.1	36.8	47.0	10.2	396.0	132.0	
11	624.974	H	50.1	-8.2	41.9	47.0	5.1	311.0	211.0	
12	749.983	H	42.5	-5.7	36.8	47.0	10.2	100.0	192.0	

◆ Calculation - SAC #4(10 m)

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

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

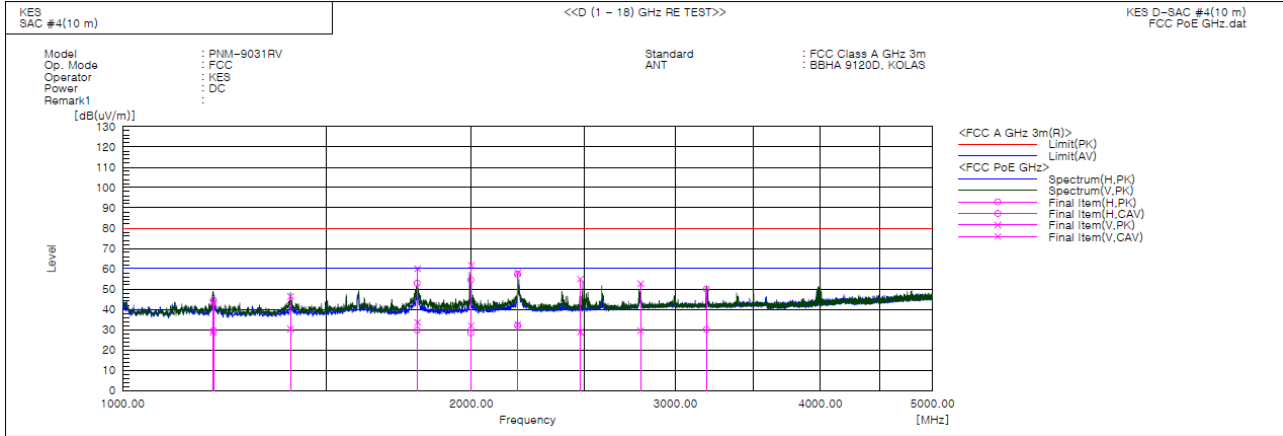
Reading(QP) : Reading value, Result(QP) : Reading value + Factor value

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



Radiated Electric Field Emissions(Above 1 GHz)

■ AC/DC Adaptor



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	1196.500	V	47.5	32.9	-4.2	43.3	28.7	80.0	60.0	36.7	31.3	100.0	107.0	
2	1198.000	H	48.8	33.7	-4.2	44.6	29.5	80.0	60.0	35.4	30.5	333.0	311.0	
3	1396.000	V	49.4	33.3	-3.0	46.4	30.3	80.0	60.0	33.6	29.7	112.0	2.0	
4	1795.305	H	54.0	30.9	-1.1	52.9	29.8	80.0	60.0	27.1	30.2	305.0	287.0	
5	1796.590	V	61.1	34.6	-1.1	60.0	33.5	80.0	60.0	20.0	26.5	109.0	305.0	
6	1997.330	H	54.7	28.5	-0.2	54.5	28.3	80.0	60.0	25.5	31.7	397.0	108.0	
7	1999.115	V	61.8	32.1	-0.2	61.6	31.9	80.0	60.0	18.4	28.1	100.0	310.0	
8	2192.000	H	56.6	31.4	0.7	57.3	32.1	80.0	60.0	22.7	27.9	385.0	149.0	
9	2192.815	V	57.2	31.8	0.7	57.9	32.5	80.0	60.0	22.1	27.5	100.0	4.0	
10	2483.315	V	52.8	26.6	2.2	55.0	28.8	80.0	60.0	25.0	31.2	148.0	233.0	
11	2799.500	V	49.1	25.9	3.6	52.7	29.5	80.0	60.0	27.3	30.5	100.0	260.0	
12	3190.500	H	45.0	25.1	5.0	50.0	30.1	80.0	60.0	30.0	29.9	395.0	165.0	

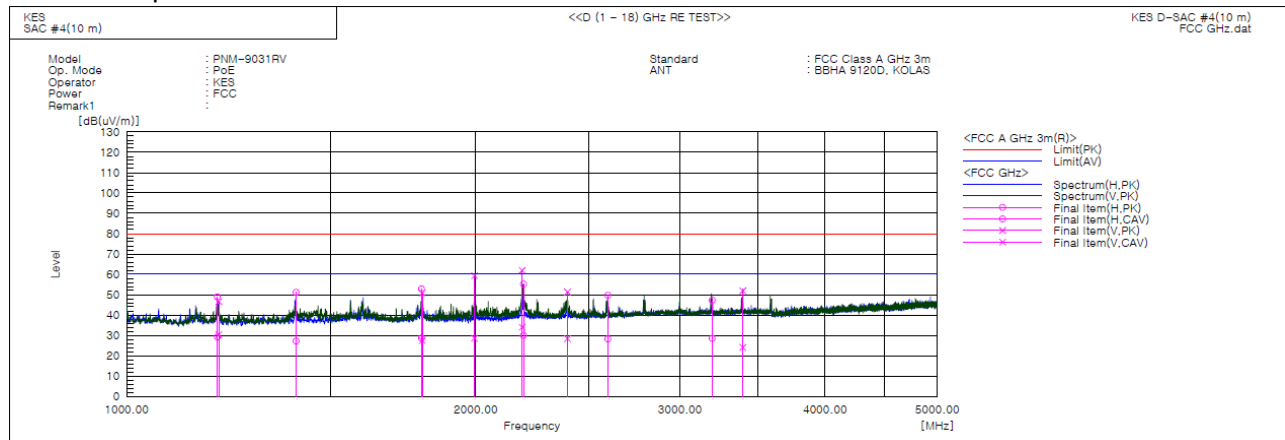
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PoE Adaptor



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	1197.000	H	53.1	33.4	-4.2	48.9	29.2	80.0	60.0	31.1	30.8	350.0	348.0	
2	1200.500	V	50.8	34.5	-4.2	46.6	30.3	80.0	60.0	33.4	29.7	101.0	138.0	
3	1399.580	H	54.2	30.2	-3.0	51.2	27.2	80.0	60.0	28.8	32.8	345.0	252.0	
4	1795.575	H	53.9	29.8	-1.1	52.8	28.7	80.0	60.0	27.2	31.3	339.0	143.0	
5	1798.000	V	51.9	28.6	-1.1	50.8	27.5	80.0	60.0	29.2	32.5	100.0	221.0	
6	1994.660	V	59.6	28.8	-0.2	59.4	28.6	80.0	60.0	20.6	31.4	100.0	188.0	
7	2192.890	V	61.3	33.3	0.7	62.0	34.0	80.0	60.0	18.0	26.0	158.0	190.0	
8	2198.155	H	54.5	29.3	0.7	55.2	30.0	80.0	60.0	24.8	30.0	369.0	150.0	
9	2398.500	V	49.5	26.6	1.8	51.3	28.4	80.0	60.0	28.7	31.6	100.0	288.0	
10	2599.000	H	47.0	25.5	2.7	49.7	28.2	80.0	60.0	30.3	31.8	400.0	258.0	
11	3198.000	H	42.2	23.4	5.1	47.3	28.5	80.0	60.0	32.7	31.5	341.0	184.0	
12	3398.500	V	46.3	18.5	5.6	51.9	24.1	80.0	60.0	28.1	35.9	100.0	281.0	

◆ Calculation

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

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



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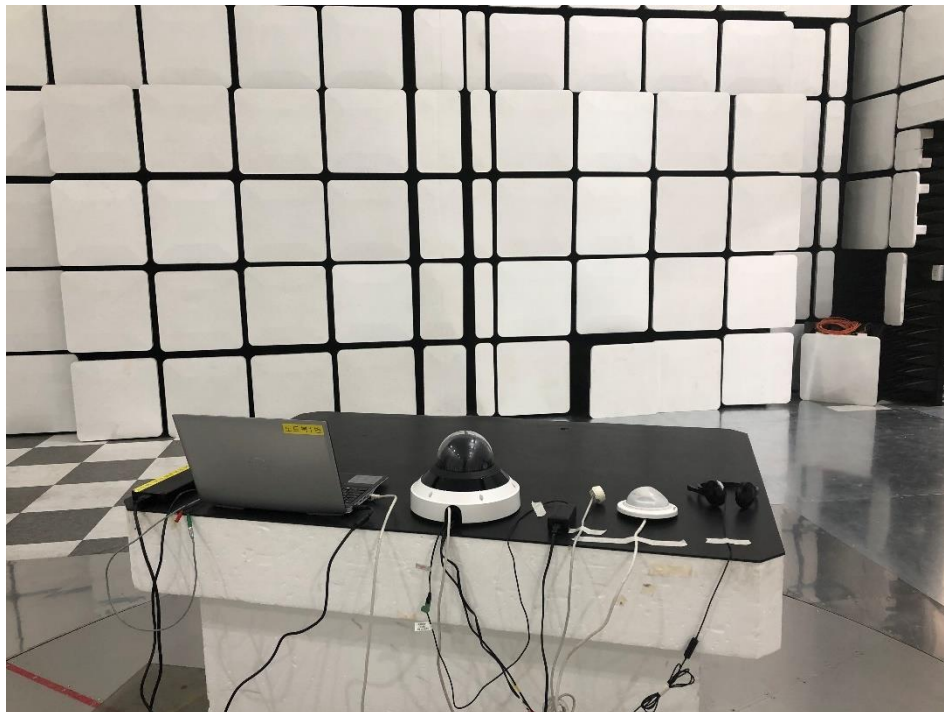
■ PoE Adaptor



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Radiated Electric Field Emissions(Below 1 GHz)

■ AC/DC Adaptor



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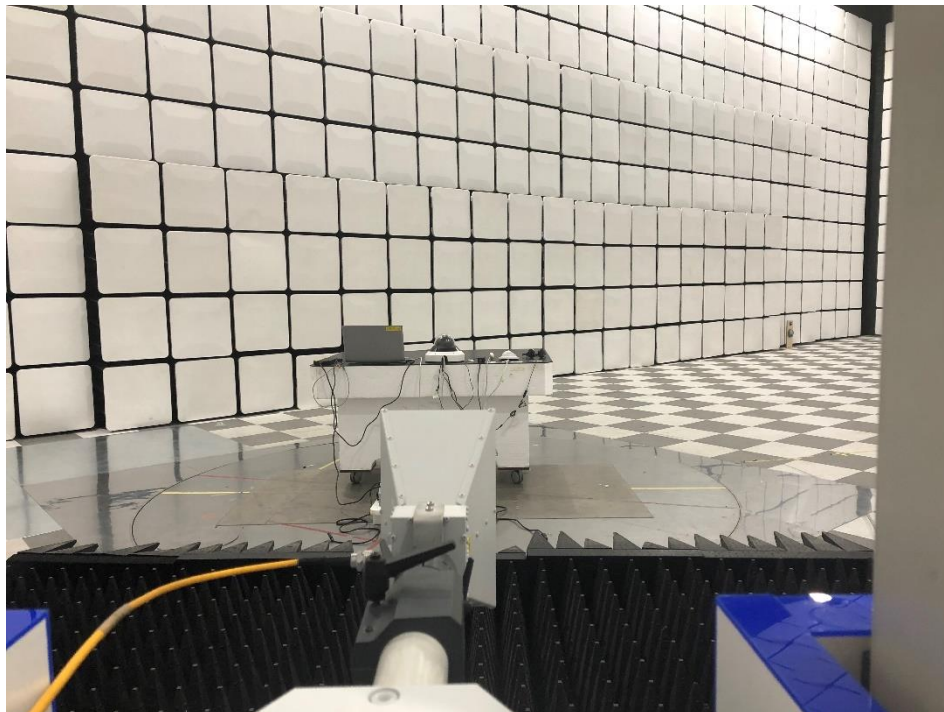
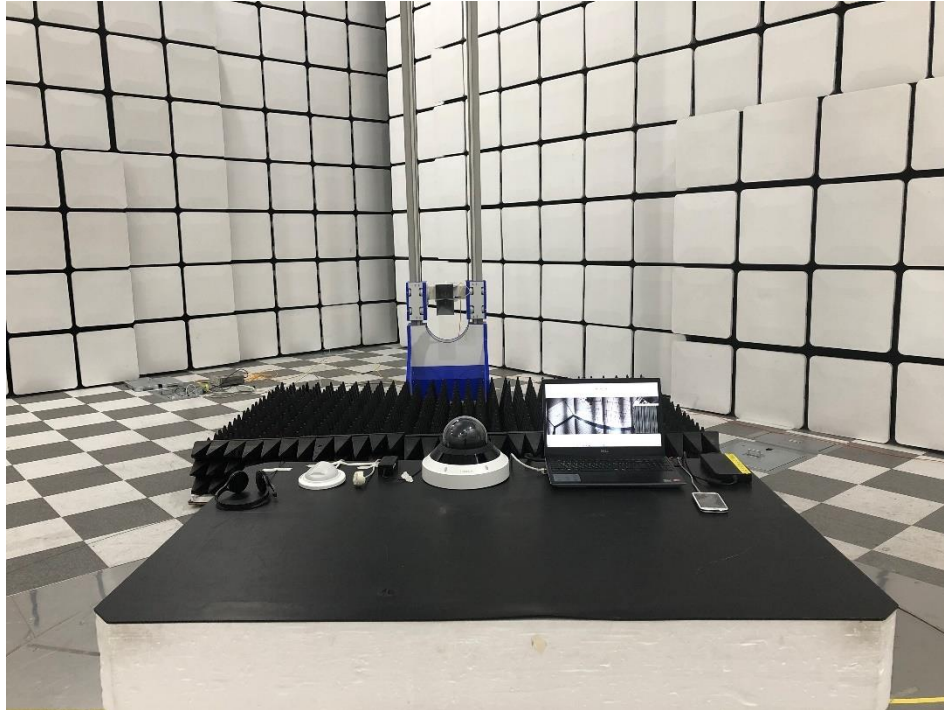
■ PoE Adaptor



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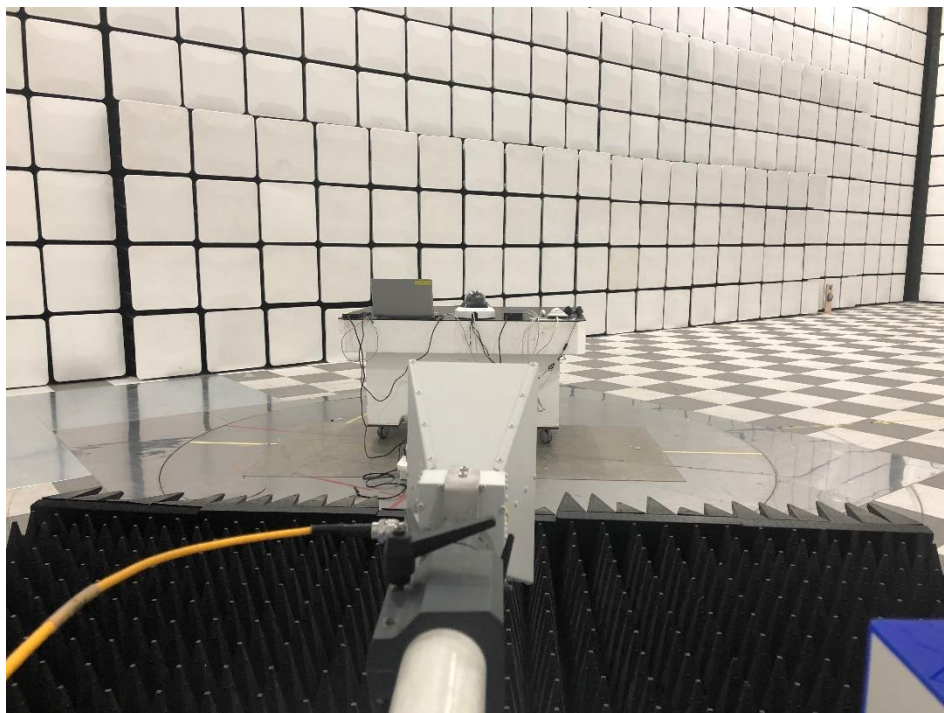
Radiated Electric Field Emissions(Above 1 GHz)

■ AC/DC Adaptor



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■ PoE Adaptor



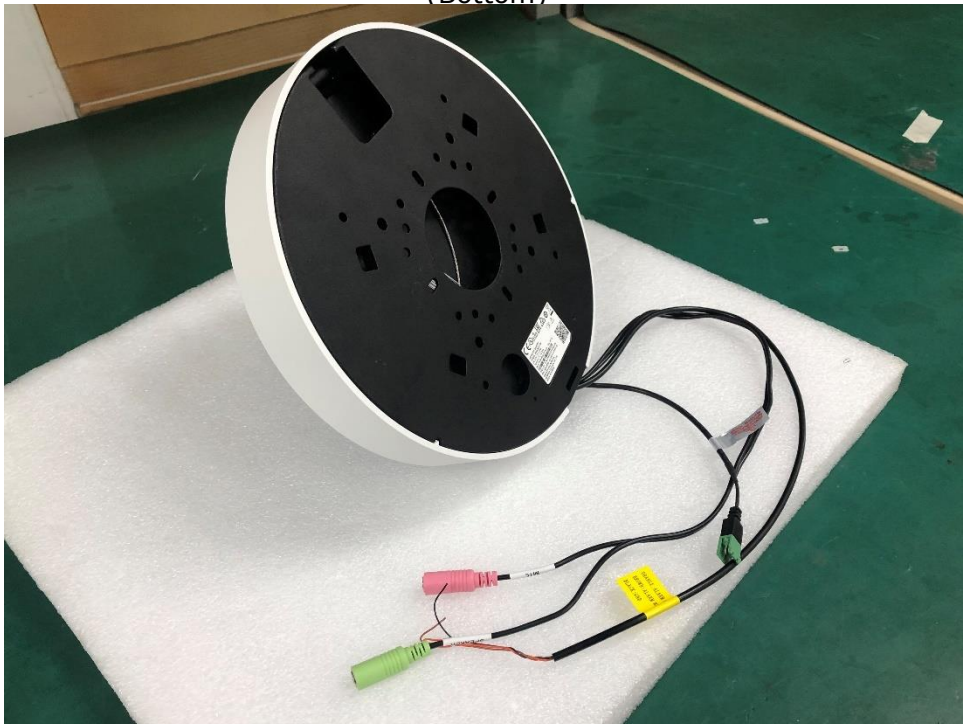
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EUT External Photographs

(Top)



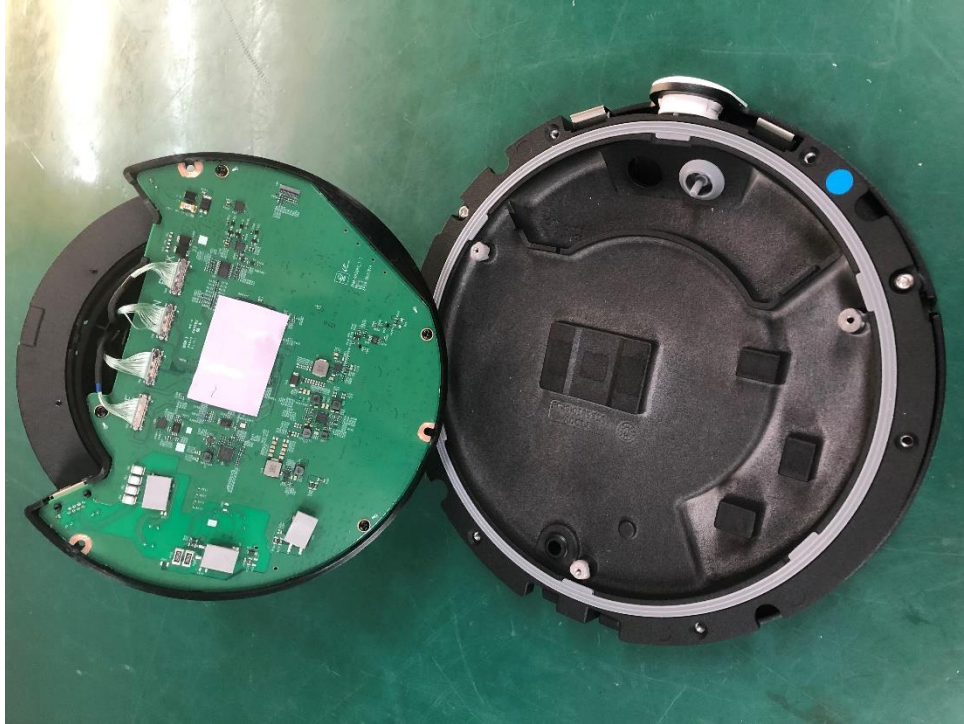
(Bottom)



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EUT Internal Photographs

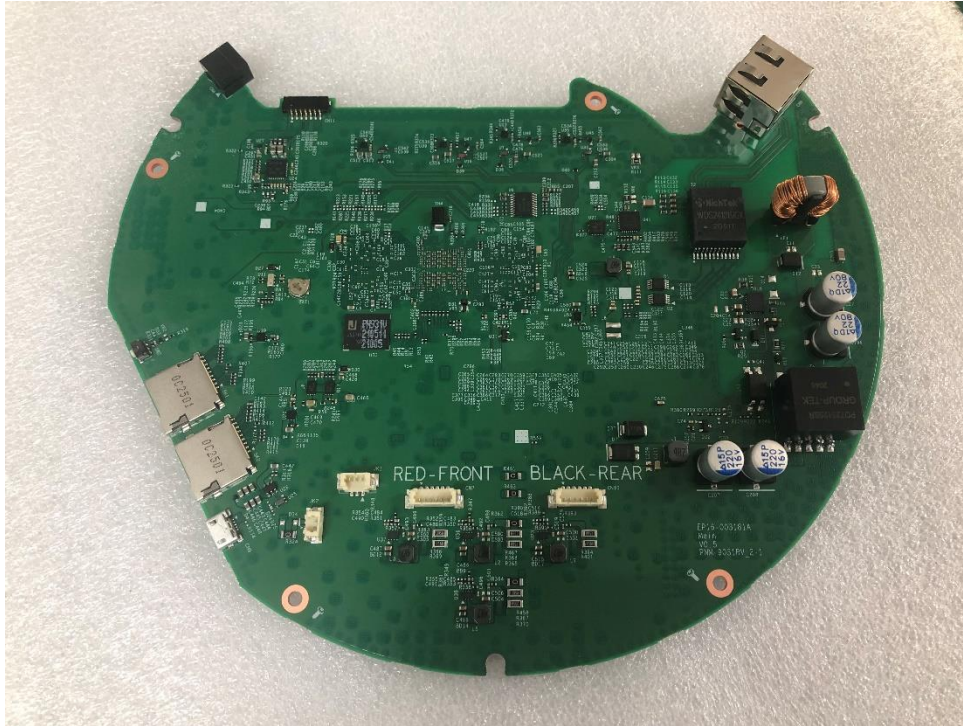
(Internal View)



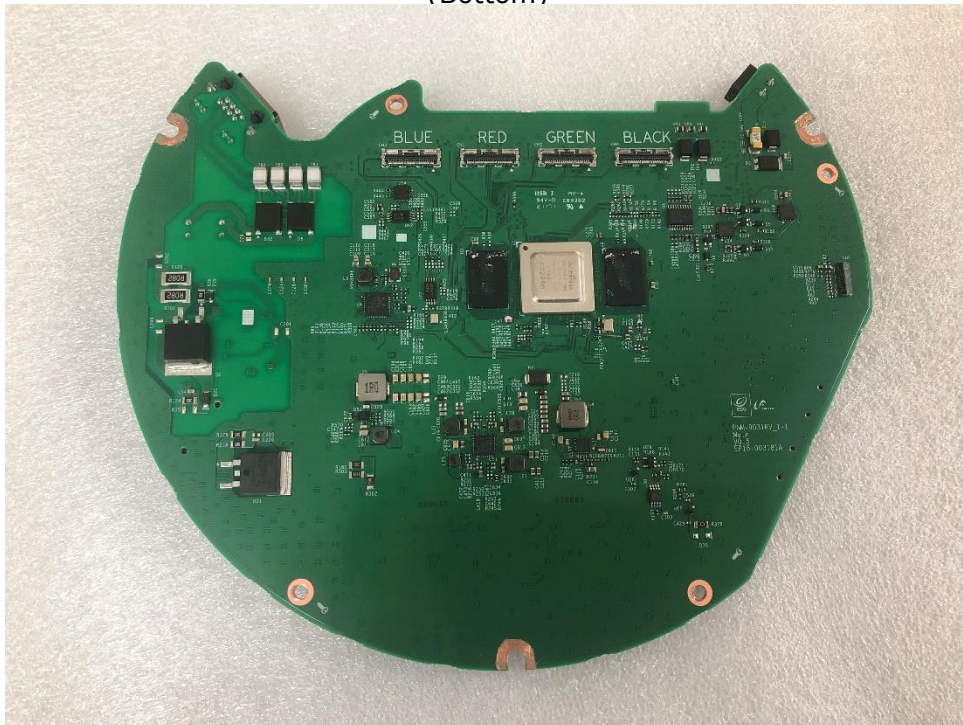
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EUT Internal View – Board 1

(Top)



(Bottom)



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EUT Internal View – Board 2

(Top)



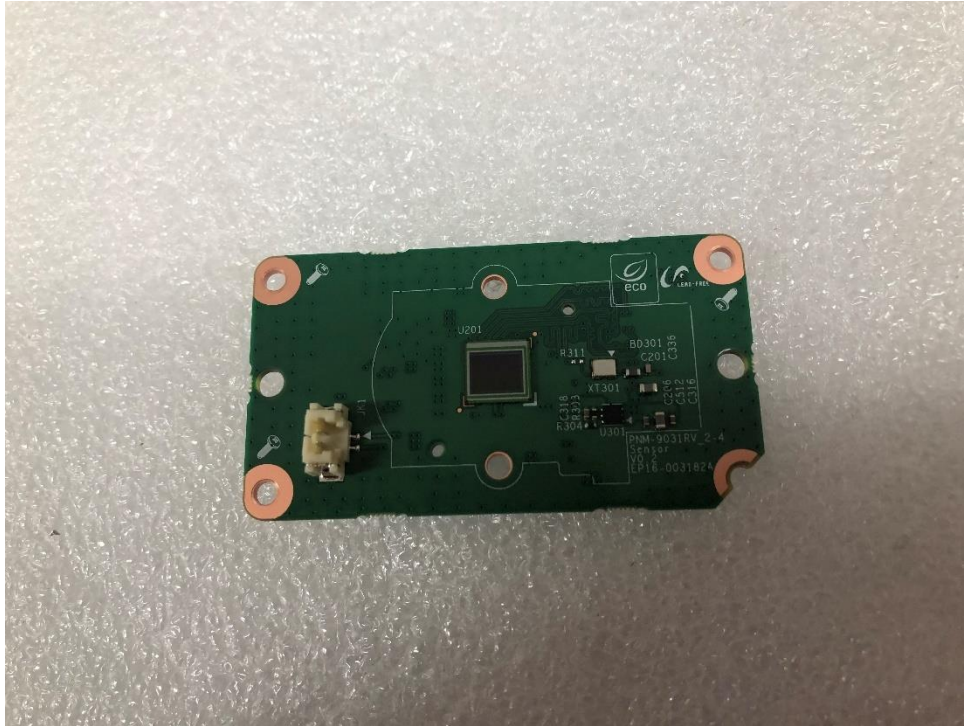
(Bottom)



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EUT Internal View – Board 3

(Top)



(Bottom)



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EUT Internal View – Board 4

(Top)

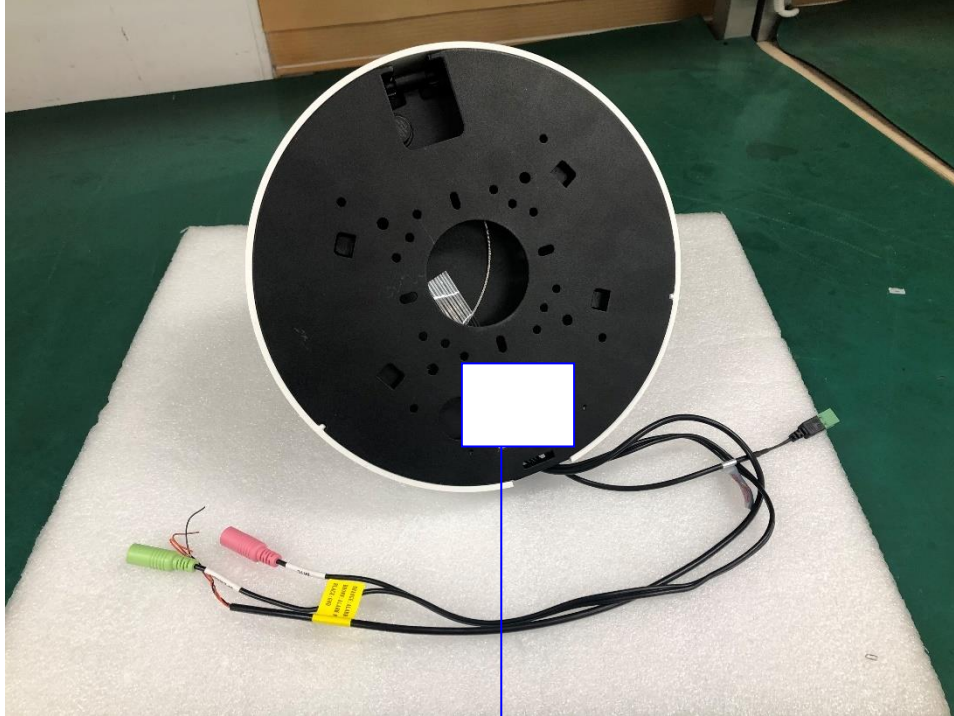


(Bottom)



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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.