

**KES Co., Ltd.**

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Report No.:

KES-EM-22T0723-R1

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EMC TEST REPORT

Test Report No. : KES-EM-22T0723-R1

Date of Issue : Feb. 24, 2023

Product name : NETWORK CAMERA

Model/Type No. : PNM-C9022RV

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 : Aug. 17, 2022

Test date : Aug. 20, 2022 ~ Aug. 21, 2022

Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Dae Hyun, 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
Aug. 24, 2022	KES-EM-22T0723	Issued
Feb. 24, 2023	KES-EM-22T0723-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:

PNM-C9022RV  Hanwha Techwin			
Video		Radiometry	
Imaging Device	1/2.8" 5M CMOS SENSOR (x4)	Temperature Detect Range	None
Resolution	5120X1568, 3648X1152, 2560X784, 1280X392	Temperature Accuracy	None
Max. Framerate	H.265/H.264: 8.0MP Max. 30fps/25fps(60Hz/50Hz), Max. 20fps(Alpha blending On) MJPEG: 8.0MP Max. 30fps/25fps(60Hz/50Hz)	Temperature Detection	None
NETD	None	Additional	None
Pixel Size	None	Network	
Min. Illumination	Color: 0.1Lux(F2.0, 1/30sec) BW: 0.01Lux(F2.0, 1/30sec), 0Lux(IR LED on)	Ethernet	Metal shielded RJ-45(10/100/1000BASE-T)
Video Out	USB: Micro USB Type B, 1280x720 for installation	Video Compression	H.265/H.264: Main/Baseline/High, MJPEG
Video Transmission Distance	None		G.711 u-law, G.726 Selectable
Lens			G.726(ADPCM) 8KHz, G.711 8KHz
Focal Length (Zoom Ratio)	2.8mm fixed focal (x4)	Audio Compression	G.726: 16Kbps, 24Kbps, 32Kbps, 40Kbps
Max. Aperture Ratio	F2.0		AAC-LC: 48Kbps at 16KHz
Angular Field of View	H: 209°, V: 60°	Smart Codec	Manual(Sea area), WiseStreamII, WiseStreamIII(Based on AI engine)
Min. Object Distance	5m(16.4ft)	Video Quality Adjustment	H.264/H.265: Target bitrate level control
Focus Control	Fixed	MJPEG: Target bitrate level control	
Lens Type	None	Bitrate Control	H.264/H.265: CBR or VBR
Mount Type	None		MJPEG: VBR
Optional Lens	None	Streaming	Unicast(20 users) / Multicast
Pan / Tilt / Rotate			Multiple streaming(Up to 3 profiles)
Pan / Tilt / Rotate Range	0°~360° / 0°~65° / -	Protocol	IPv4, IPv6, TCP/IP, UDP/IP, RTP(UDP), RTCP(TCP), RTSP, RTP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, PIM-SM, UPnP, Bonjour, LLDP, SRTP (TCP, UDP, Unicast)
Pan Range	None	SIP support (VoIP, Peer-to-peer, SIP)	None
Pan Speed	None	Security	
Tilt Range	None	HTTPTS(SLI) Login Authentication	
Tilt Speed	None	Digest Login Authentication	
Rotate Range	None	IP Address Filtering	
Sequence	None	User access log	
Preset Accuracy	None	802.1X Authentication(EAP-TLS, EAP-LEAP, EAP-PEAP MSCHAPv2)	
Operational		Device Certificate(Hanwha Techwin Root CA, pre-installed)	
Camera Title	Displayed up to 85 characters	Secure by default certificate	
Direction Indicator	None	Secure OS/Boot/Storage, Verify firmware forgery	
Day & Night	Auto(ICR)	TPM 2.0 with FIPS 140-2 level2	
Backlight Compensation	BLC, WDR, SDR	Application Programming Interface	
Wide Dynamic Range	120dB	ONVIF Profile S/G/T/M	
Digital Noise Reduction	WiseNRII(Based on AI engine), SSNRV	SUNAPI(HTTP API)	
Digital Image Stabilization	None	Wisenet open platform	
Defog	None	General	
Motion Detection	Bea, 8point Polygonal zones	Webpage Language	English, Korean, Chinese, French, Italian, Spanish, German, Japanese, Russian, Portuguese, Czech, Polish, Turkish, Dutch, Greek, Hungarian
Privacy Masking	6ea, Rectangular zones - Color : Gray, Green, Red, Blue, Black, White	Web Viewer	None
Gain Control	Low / Middle / High	Edge Storage	Micro SD/SDHC/SDXC 2slot Max. 1TB (512GB * 2)
White Balance	ATW / AWC / Manual / Indoor / Outdoor	Memory	4GB RAM, 512MB Flash
LDC	None	Environmental & Electrical	
Electronic Shutter Speed	Minimum / Maximum / Prefer / Anti flicker (2~1/12,000sec) Auto prefer shutter control(Based on AI engine)	Operating Temperature / Humidity	-40°C ~ +55°C(-40°F ~ +131°F) / 0~95% RH(non-condensing) * Start up should be above -30°C
Digital PTZ	None	Storage Temperature / Humidity	-30°C ~ +60°C(-22°F ~ +140°F) / 0~90% RH
Video Rotation	Flip, Mirror	Certification	None
Analytics		Input Voltage	PoE+ (IEEE802.3at, Class4), 12VDC
Classified object type : Person/Vehicle		Power Consumption	PoE+ : Max 21.2W, typical 10.4W 12VDC: Max 23.5W, typical 11.3W Power redundancy failover
Attributes : Not support		Mechanical	
Support BestShot		Color / Material	White / Aluminum
Analytics events based on AI engine		RAL Code	RAL9003
- Object detection, Virtual line(Crossing/Direction), Virtual area(Loitering/Intrusion/Enter/Exit)		Product Dimensions / Weight	Q253x170mm(9.96"x6.69"), 2900g(6.39lb)
Analytics events		Compatible Conduit hole / Gangbox	3/4"(M25) / Single, Double, 4"Octagon, Square
- Defocus detection, Motion detection, Tampering, Audio detection, Sound classification, Virtual area(Appear/Disappear)		Hanging Mount (Dome)	SBP-278HWW
Business Intelligence		Skim Cover	None
None		Skim Cover (Dome)	None
Serial Interface		Weather Cap (Dome)	SVB-259WCW
Alarm I/O		Power Module	None
2 configurable I/O ports		Backbox	None
Alarm Triggers		Certifications & Standards	
Analytics, Network disconnect, Alarm input, App event, Time schedule		Network	
Alarm Events		None	
When alarm trigger occurred		EMC	
- File upload(image) : e-mail/FTP		None	
- Notification : e-mail		FCC 47 CFR 15 Subpart B Class A	
- Recording : SD/SDHC/SDXC or NAS recording at event triggers		ICES-3(A)/NMB-3(A)	
- Alarm output		CE/UKCA	
- HandoverPTZ preset, Send message by HTTP/HTTPS/TCP		- EN 55032 Class A, EN 50130-4, EN 61000-3-2, EN 61000-3-3	
- Audio clip playback		VCCI CISPR 32 Class A	
Audio Streaming		RCM AS/NZS CISPR 32 Class A	
None		KS C 9832 Class A, KS C 9835	
Audio In	Selectable/mic (in line in) Supply voltage: 2.5VDC(4mA), input impedance: 2K Ohm	Safety	
Audio Out	Line out, Max.output level: 1Vrms	None	
IR Viewable Length	WiseIR 15m(49.21ft) (TBD)	Environment	
IR Illuminator (Optional)	4 individual zones with Automatic/Manual level adjustment	None	
IR Radiation angle	None	Video	
IR LED	None	None	
IR Wavelength	None	DORI (EN62676-4 standard)	
IR Operation	None	Detect (25PPM/ 8PPF)	
Water Removal	None	Observe (63PPM/ 19PPF)	
Auto Tracking	None	Recognize (125PPM/ 38PPF)	
Coaxial Protocol	None	Identify (250PPM/ 76PPF)	
Color Palettes	None		

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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 Adapter Input Power)
- ☒ AC 120 V, 60 Hz (PoE Adapter Input Power)

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-C9022RV	-	HANWHA VISION VIETNAM COMPANY LIMITED	EUT

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
DC 12 V Adapter	2ACB022F	-	ChAnnel Well Technology (Guangzhou) Co.,Ltd.	-
PoE Adapter	PT-PSE109GBRO-AH	-	Dongguan PROCET Network Technology Co.,Ltd	-
Notebook	Latitude 5300	8C47BE45C060	DELL INC.	-
Notebook Adapter	HA65NM130	-	Chicony Power Technology(Suzhou)Co., Ltd.	-
Micro SD Card	-	-	Sandisk	-
Button Alarm	-	-	-	-
LED Alarm	-	-	-	-
Headset	K550	-	Britz®	-

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1.6 External I/O Cabling

■ DC 12 V Adapter Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (EUT)	Micro SD Card Slot	Micro SD Card	Micro SD Card Slot	-	-
	2 Pin (DC Power)	DC 12 V Adapter	2 Pin (DC Power)	1.0	U
	RJ-45 (LAN)	Notebook	RJ-45 (LAN)	3.0	S
	2 Pin (Alarm In)	Button Alarm	2 Pin (Alarm)	3.0	U
	2 Pin (Alarm Out)	LED Alarm	2 Pin (Alarm)	3.0	U
	3.5 mm (Audio In)	Headset	3.5 mm	1.8	U
	3.5 mm (Audio Out)	Headset	3.5 mm	1.8	U
Notebook	DC Jack	Notebook Adapter	DC Jack	1.5	U

* Unshielded=U, Shielded=S

■ PoE Adapter Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK CAMERA (EUT)	Micro SD Card Slot	Micro SD Card	Micro SD Card Slot	-	-
	RJ-45 (PoE)	PoE Adapter	RJ-45 (PoE)	3.0	S
	2 Pin (Alarm In)	Button Alarm	2 Pin (Alarm)	3.0	U
	2 Pin (Alarm Out)	LED Alarm	2 Pin (Alarm)	3.0	U
	3.5 mm (Audio In)	Headset	3.5 mm	1.8	U
	3.5 mm (Audio Out)	Headset	3.5 mm	1.8	U
PoE Adapter	RJ-45 (LAN)	Notebook	RJ-45 (LAN)	1.3	U
Notebook	DC Jack	Notebook Adapter	DC Jack	1.5	U

* Unshielded=U, Shielded=S

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1.7 EUT Operating Mode(s)

Test Mode	operating
DC 12 V Adapter	Check the Normal Operation status. after testing, check if the recording is normally done on the Micro SD Card
PoE Adapter	

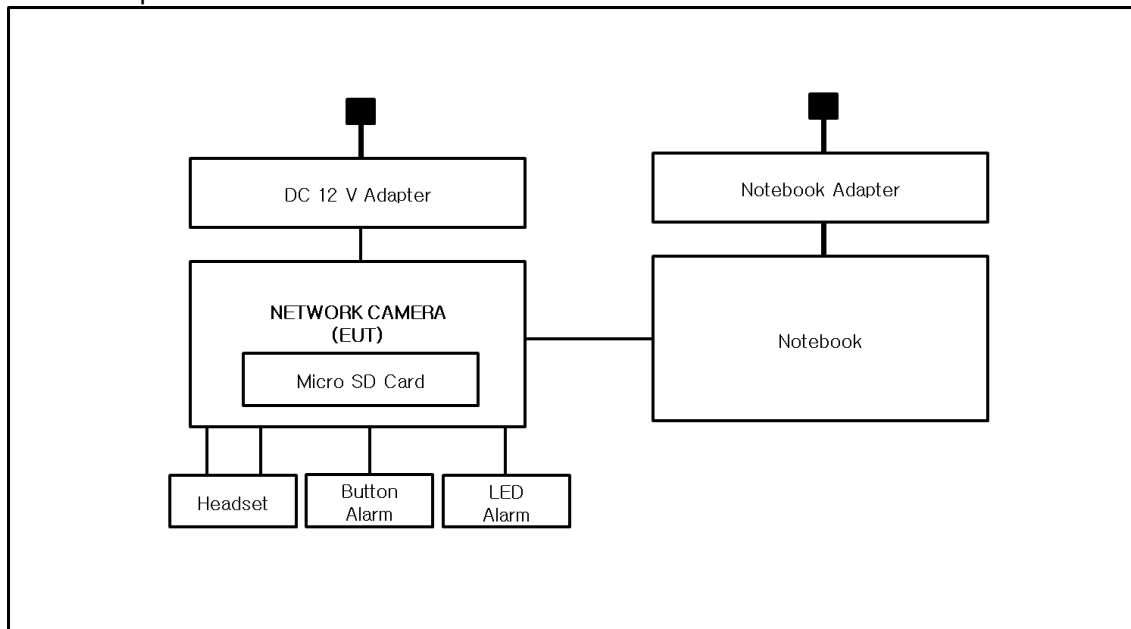
EUT Test operating S/W		
Name	Version	Manufacture Company
Web Viewer	-	Hanwha Vision Co., Ltd

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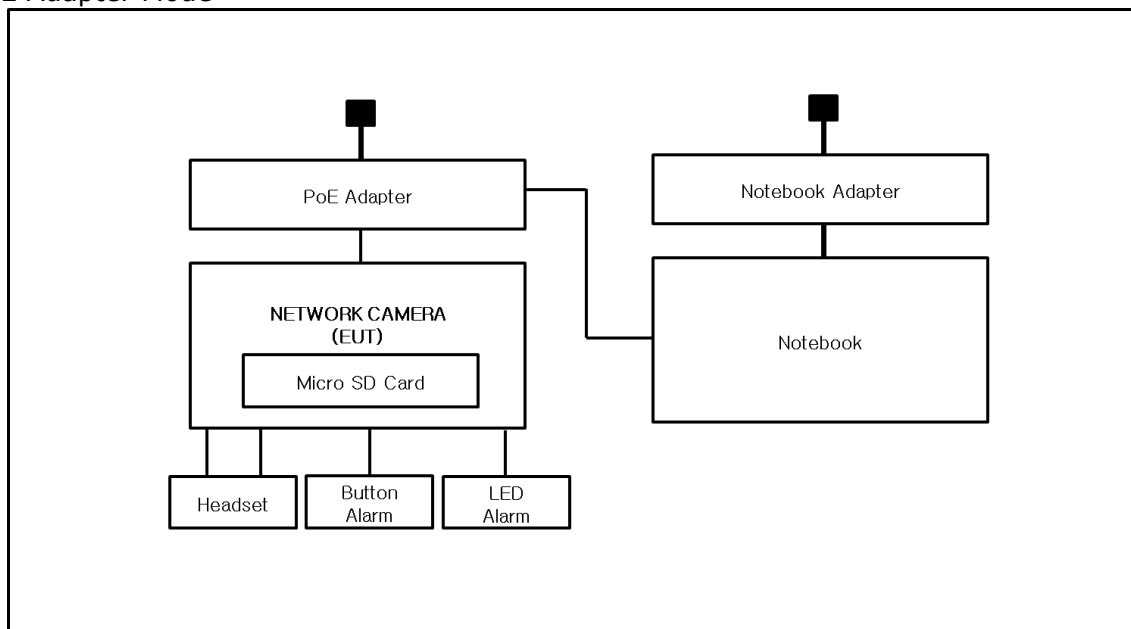
1.8 Configuration

■ AC Main
 □ DC Main

■ DC 12 V Adapter Mode



■ PoE Adapter 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



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

2.1 Conducted Emissions at Mains Power Ports

Test Date

Aug. 20, 2022

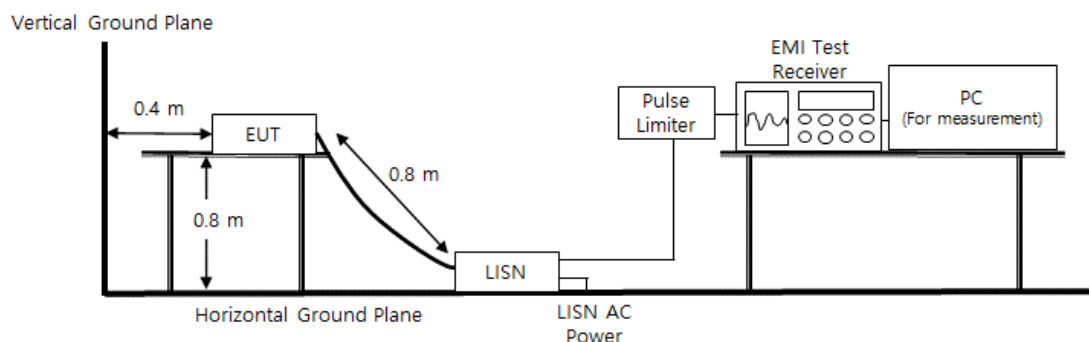
Test Location

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	12, 28, 2022
☒	LISN	ENV216	R & S	101787	12, 27, 2022
☒	LISN	ESH2-Z5	R & S	100450	12, 27, 2022
☒	PULSE LIMITER	ESH3-Z2	R & S	101915	12, 27, 2022

Diagram of test setup





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Test Conditions

Temperature: (24,4 ± 0,1) °C

Relative Humidity: (47,5 ± 0,0) % 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 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Aug. 21, 2022

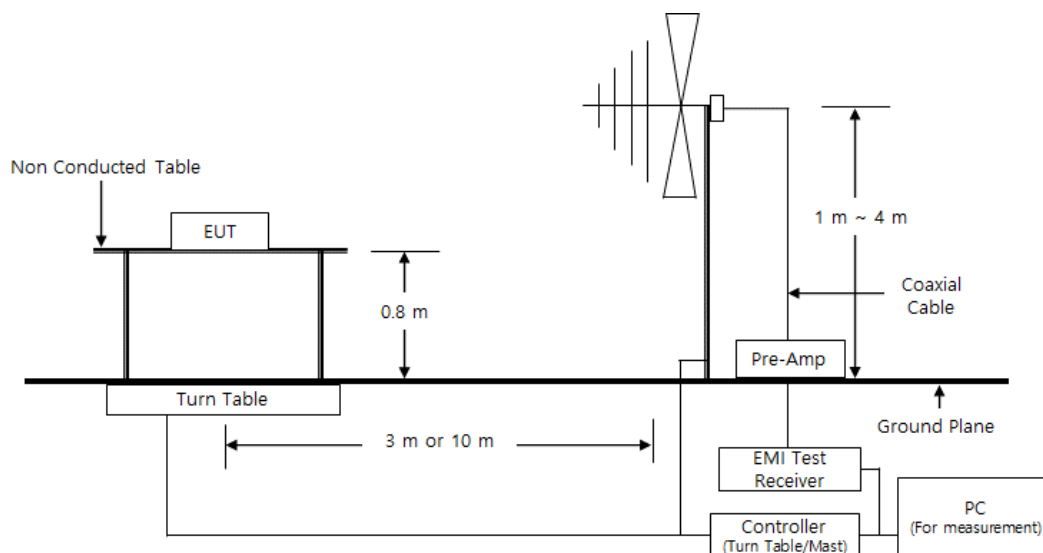
Test Location

☐ 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	03, 31, 2023
☒	AMPLIFIER	SCU 01	R & S	100603	11, 24, 2022
☒	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	715	12, 08, 2022
☒	ATTENUATOR	8491A	HP	32173	03, 08, 2023

Diagram of test setup





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Test Conditions

Temperature: (24,4 ± 0,1) °C

Relative Humidity: (45,8 ± 0,1) % 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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2.3 Radiated Electric Field Emissions(Above 1 GHz)

Test Date

Aug. 21, 2022

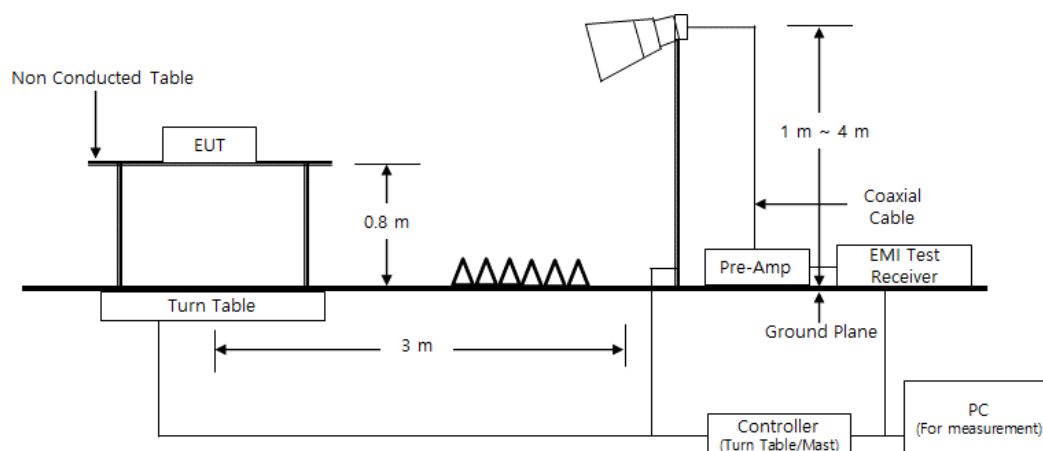
Test Location

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	03, 31, 2023
☒	PREAMPLIFIER	8449B	AGILENT	3008A01742	12, 27, 2022
☒	HORN ANTENNA	BBHA 9120D	SCHWARZBECK	9120D-1802	12, 16, 2022

Diagram of test setup





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Test Conditions

Temperature: (24,4 ± 0,1) °C

Relative Humidity: (45,8 ± 0,2) % 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.

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APPENDIX A – TEST DATA

Conducted Emissions at Mains Power Ports

■ DC 12 V Adapter Mode

HOT LINE

Common Information

Test Description:

Conducted Emission

Model No.:

PNM-C9022RV

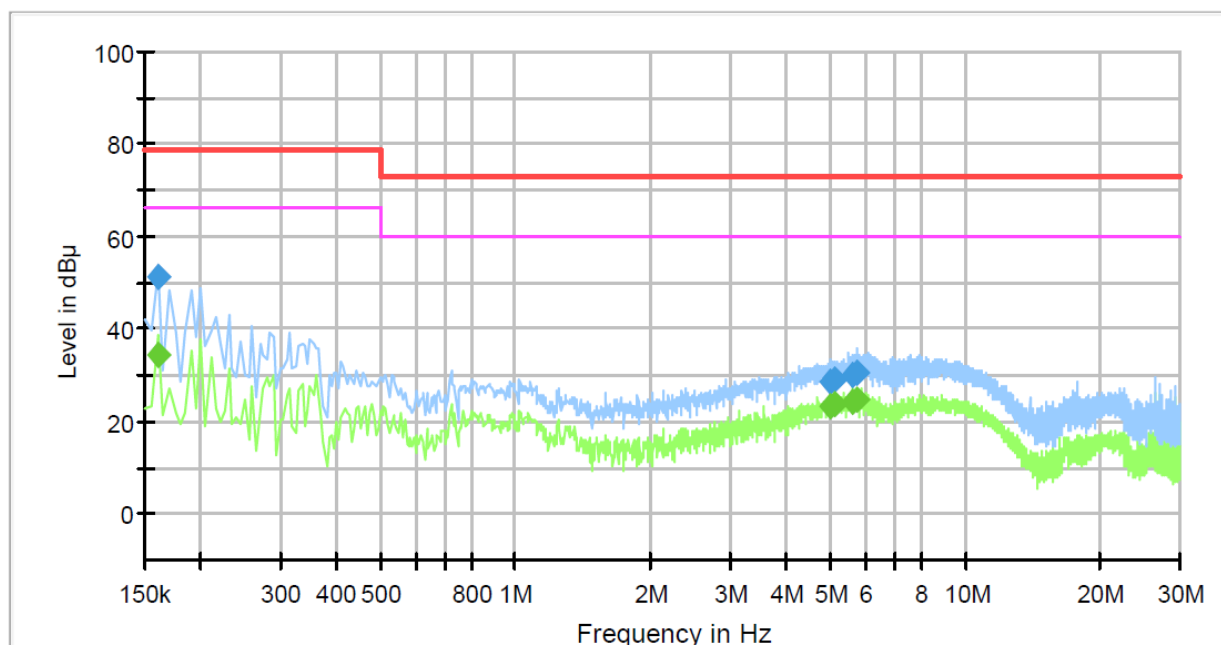
Phase:

Mode:

DC 12 V Adapter

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	---	34.21	66.00	31.79	1000.0	9.000	L1	19.4
0.160000	51.11	---	79.00	27.89	1000.0	9.000	L1	19.4
5.005000	---	23.22	60.00	36.78	1000.0	9.000	L1	19.6
5.005000	28.67	---	73.00	44.33	1000.0	9.000	L1	19.6
5.120000	---	23.54	60.00	36.46	1000.0	9.000	L1	19.6
5.120000	29.00	---	73.00	44.00	1000.0	9.000	L1	19.6
5.605000	---	24.48	60.00	35.52	1000.0	9.000	L1	19.5
5.605000	30.08	---	73.00	42.92	1000.0	9.000	L1	19.5
5.730000	---	24.62	60.00	35.38	1000.0	9.000	L1	19.5
5.730000	30.44	---	73.00	42.56	1000.0	9.000	L1	19.5

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NEUTRAL LINE

Common Information

Test Description:

Model No.:

Phase:

Mode:

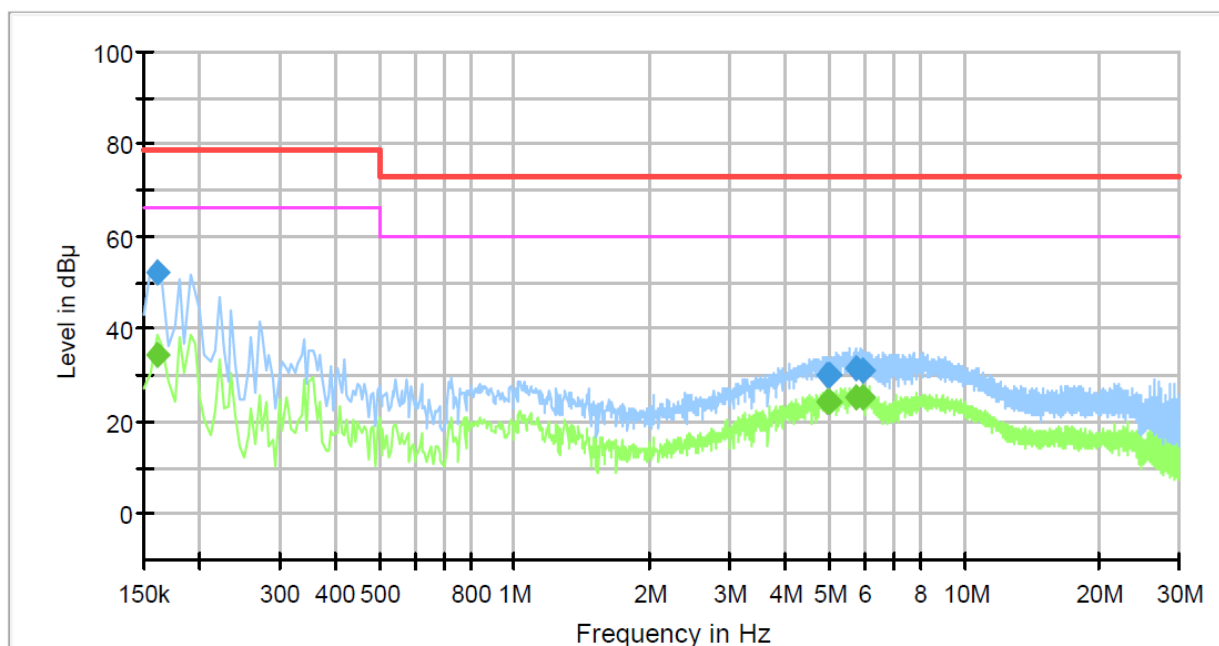
Operator Name:

Conducted Emission

PNM-C9022RV

DC 12 V Adapter

KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.160000	---	34.62	66.00	31.38	1000.0	9.000	N	19.4
0.160000	52.37	---	79.00	26.63	1000.0	9.000	N	19.4
4.940000	---	24.05	60.00	35.95	1000.0	9.000	N	19.6
4.940000	29.96	---	73.00	43.04	1000.0	9.000	N	19.6
5.035000	---	24.42	60.00	35.58	1000.0	9.000	N	19.6
5.035000	30.28	---	73.00	42.72	1000.0	9.000	N	19.6
5.720000	---	25.39	60.00	34.61	1000.0	9.000	N	19.5
5.720000	31.40	---	73.00	41.60	1000.0	9.000	N	19.5
5.950000	---	25.40	60.00	34.60	1000.0	9.000	N	19.5
5.950000	31.24	---	73.00	41.76	1000.0	9.000	N	19.5

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Report No.:

KES-EM-22T0723-R1

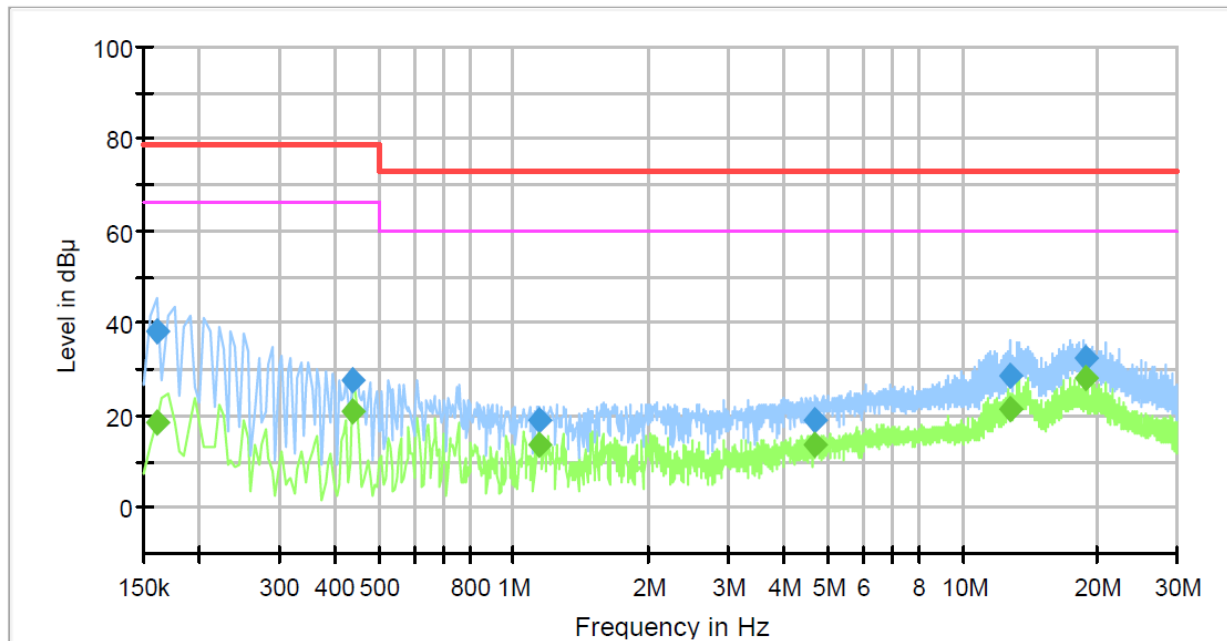
Page (19) of (50)

■ PoE Adapter Mode

HOT LINE

Common Information

Test Description: Conducted Emission
Model No.: PNM-C9022RV
Phase:
Mode: PoE Adapter
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	---	18.40	66.00	47.60	1000.0	9.000	L1	19.4
0.160000	38.24	---	79.00	40.76	1000.0	9.000	L1	19.4
0.440000	---	21.09	66.00	44.91	1000.0	9.000	L1	19.7
0.440000	27.41	---	79.00	51.59	1000.0	9.000	L1	19.7
1.135000	---	13.47	60.00	46.53	1000.0	9.000	L1	20.1
1.135000	19.01	---	73.00	53.99	1000.0	9.000	L1	20.1
4.690000	---	13.40	60.00	46.60	1000.0	9.000	L1	19.7
4.690000	18.85	---	73.00	54.15	1000.0	9.000	L1	19.7
12.810000	---	21.36	60.00	38.64	1000.0	9.000	L1	19.9
12.810000	28.67	---	73.00	44.33	1000.0	9.000	L1	19.9
18.760000	---	27.97	60.00	32.03	1000.0	9.000	L1	20.1
18.760000	32.31	---	73.00	40.69	1000.0	9.000	L1	20.1

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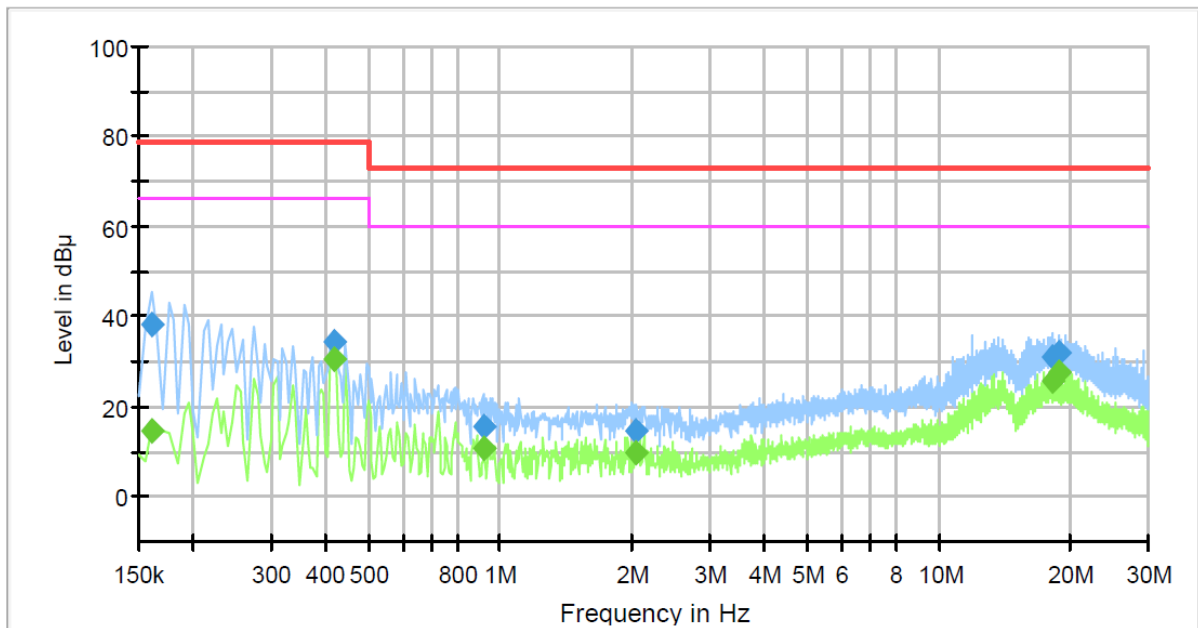
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NEUTRAL LINE

Common Information

Test Description:	Conducted Emission
Model No.:	PNM-C9022RV
Phase:	
Mode:	PoE Adapter
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	---	14.54	66.00	51.46	1000.0	9.000	N	19.4
0.160000	38.36	---	79.00	40.64	1000.0	9.000	N	19.4
0.420000	---	30.62	66.00	35.38	1000.0	9.000	N	19.6
0.420000	34.20	---	79.00	44.80	1000.0	9.000	N	19.6
0.915000	---	10.68	60.00	49.32	1000.0	9.000	N	20.1
0.915000	15.47	---	73.00	57.53	1000.0	9.000	N	20.1
2.040000	---	9.54	60.00	50.46	1000.0	9.000	N	20.3
2.040000	14.82	---	73.00	58.18	1000.0	9.000	N	20.3
18.185000	---	25.67	60.00	34.33	1000.0	9.000	N	20.0
18.185000	30.78	---	73.00	42.22	1000.0	9.000	N	20.0
18.760000	---	27.64	60.00	32.36	1000.0	9.000	N	20.1
18.760000	32.15	---	73.00	40.85	1000.0	9.000	N	20.1

◆ Calculation

$$\text{QuasiPeak [dBuV]} / \text{CAverage [dBuV]} = \text{Reading Value [dBuV]} + \text{Corr. [dB]}$$

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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Report No.:

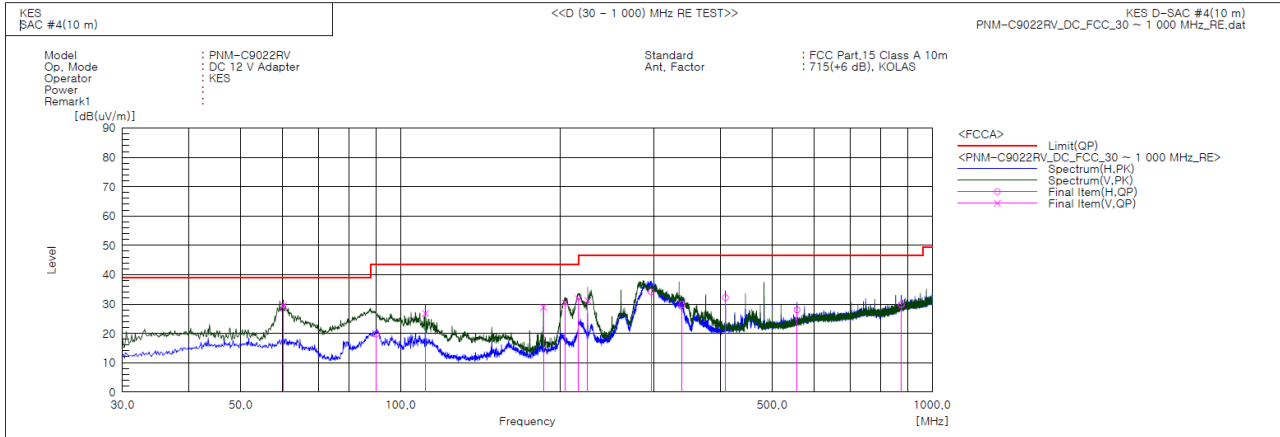
KES-EM-22T0723-R1

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Radiated Electric Field Emissions(Below 1 GHz)

■ DC 12 V Adapter Mode

- 47 CFR Part 15, Subpart B



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	60.202	V	51.5	-22.0	29.5	39.0	9.5	100.0	55.0	
2	90.019	H	44.0	-24.2	19.8	43.5	23.7	400.0	7.0	
3	111.344	V	49.2	-22.4	26.8	43.5	16.7	103.0	338.0	
4	185.570	V	51.7	-22.8	28.9	43.5	14.6	122.0	33.0	
5	203.873	V	51.3	-20.9	30.4	43.5	13.1	100.0	10.0	
6	215.999	V	52.3	-20.5	31.8	43.5	11.7	133.0	181.0	
7	224.970	V	51.3	-20.2	31.1	46.5	15.4	100.0	126.0	
8	296.144	H	52.3	-18.2	34.1	46.5	12.4	400.0	355.0	
9	338.339	H	45.5	-15.7	29.8	46.5	16.7	357.0	259.0	
10	408.421	H	46.2	-14.0	32.2	46.5	14.3	302.0	219.0	
11	556.831	H	38.0	-10.0	28.0	46.5	18.5	400.0	189.0	
12	874.991	H	34.4	-4.6	29.8	46.5	16.7	344.0	323.0	

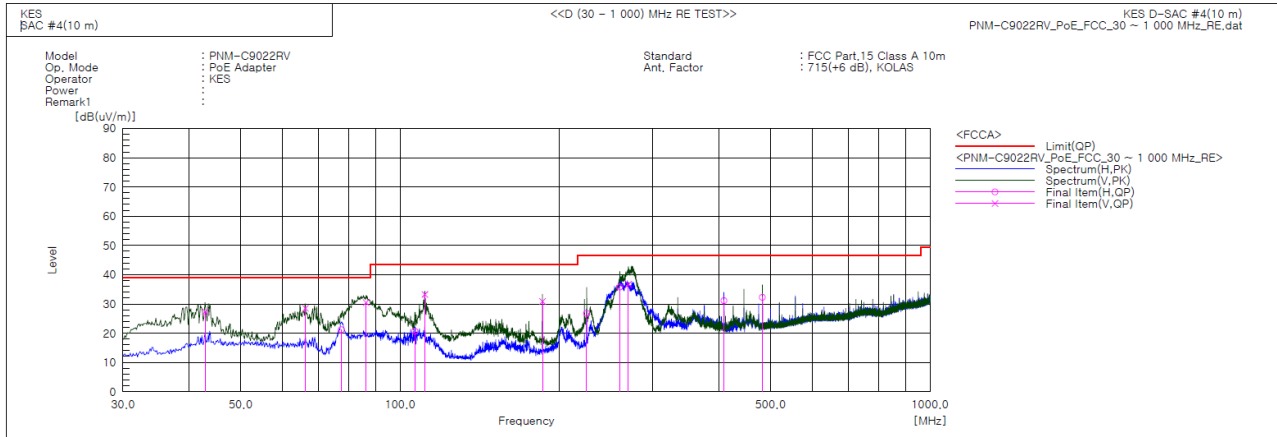
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PoE Adapter Mode



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	42.869	V	49.1	-21.7	27.4	39.0	11.6	110.0	271.0	
2	66.254	V	52.1	-23.6	28.5	39.0	10.5	150.0	59.0	
3	77.409	H	48.7	-27.5	21.2	39.0	17.8	400.0	30.0	
4	86.260	V	56.1	-25.6	30.5	39.0	8.5	123.0	234.0	
5	106.630	H	43.1	-22.4	20.7	43.5	22.8	400.0	197.0	
6	111.368	V	55.7	-22.4	33.3	43.5	10.2	105.0	182.0	
7	185.570	V	53.7	-22.8	30.9	43.5	12.6	100.0	7.0	
8	224.970	H	47.0	-20.2	26.8	46.5	19.7	320.0	119.0	
9	259.648	H	54.8	-19.0	35.8	46.5	10.7	339.0	89.0	
10	269.590	V	55.5	-18.8	36.7	46.5	9.8	100.0	156.0	
11	408.421	H	45.1	-14.0	31.1	46.5	15.4	298.0	160.0	
12	482.626	H	44.3	-12.0	32.3	46.5	14.2	400.0	197.0	

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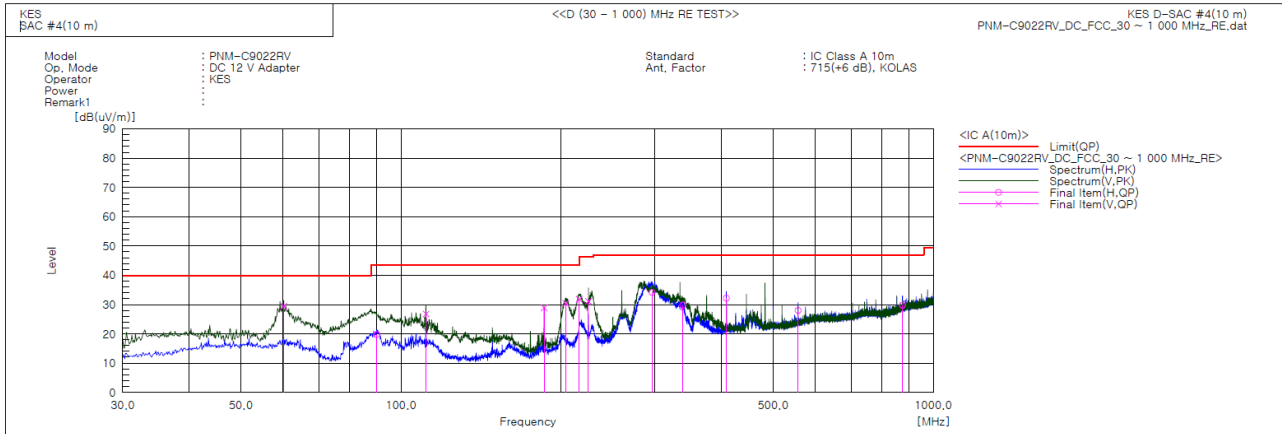
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■ DC 12 V Adapter Mode - IC Regulation ICES-003 Issue 7



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	60.202	V	51.5	-22.0	29.5	40.0	10.5	100.0	55.0	
2	90.019	H	44.0	-24.2	19.8	43.5	23.7	400.0	7.0	
3	111.344	V	49.2	-22.4	26.8	43.5	16.7	103.0	338.0	
4	185.570	V	51.7	-22.8	28.9	43.5	14.6	122.0	33.0	
5	203.873	V	51.3	-20.9	30.4	43.5	13.1	100.0	10.0	
6	215.999	V	52.3	-20.5	31.8	43.5	11.7	133.0	181.0	
7	224.970	V	51.3	-20.2	31.1	46.4	15.3	100.0	126.0	
8	296.144	H	52.3	-18.2	34.1	47.0	12.9	400.0	355.0	
9	338.339	H	45.5	-15.7	29.8	47.0	17.2	357.0	259.0	
10	408.421	H	46.2	-14.0	32.2	47.0	14.8	302.0	219.0	
11	556.831	H	38.0	-10.0	28.0	47.0	19.0	400.0	189.0	
12	874.991	H	34.4	-4.6	29.8	47.0	17.2	344.0	323.0	

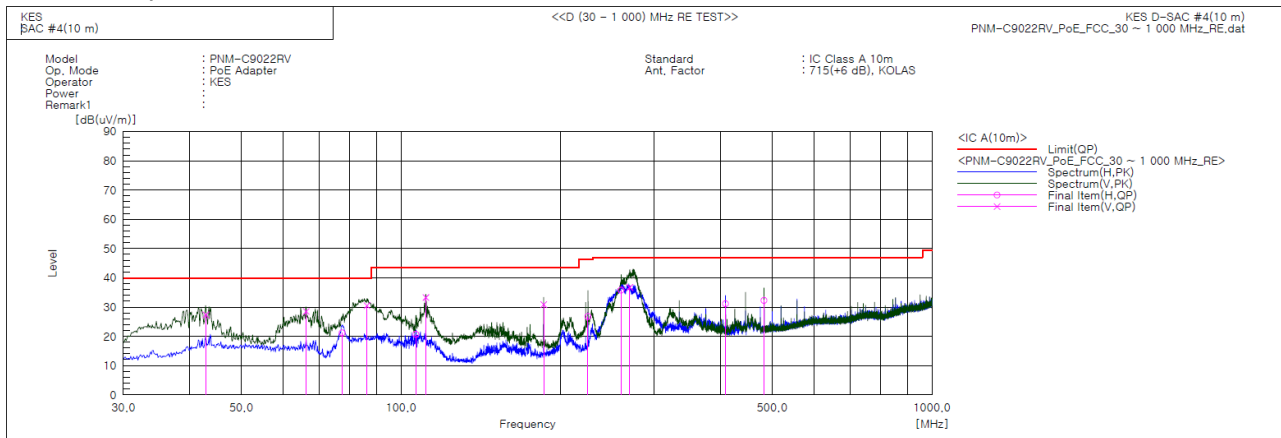
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PoE Adapter Mode



Final Result

No.	Frequency	(P)	Reading	c.f	Result	Limit	Margin	Height	Angle	Remark
	[MHz]		QP [dB(uV)]	[dB(1/m)]	QP [dB(uV/m)]	QP [dB(uV/m)]	QP [dB]	[cm]	[deg]	
1	42.869	V	49.1	-21.7	27.4	40.0	12.6	110.0	271.0	
2	66.254	V	52.1	-23.6	28.5	40.0	11.5	150.0	59.0	
3	77.409	H	48.7	-27.5	21.2	40.0	18.8	400.0	30.0	
4	86.260	V	56.1	-25.6	30.5	40.0	9.5	123.0	234.0	
5	106.630	H	43.1	-22.4	20.7	43.5	22.8	400.0	197.0	
6	111.368	V	55.7	-22.4	33.3	43.5	10.2	105.0	182.0	
7	185.570	V	53.7	-22.8	30.9	43.5	12.6	100.0	7.0	
8	224.970	H	47.0	-20.2	26.8	46.4	19.6	320.0	119.0	
9	259.648	H	54.8	-19.0	35.8	47.0	11.2	339.0	89.0	
10	269.590	V	55.5	-18.8	36.7	47.0	10.3	100.0	156.0	
11	408.421	H	45.1	-14.0	31.1	47.0	15.9	298.0	160.0	
12	482.626	H	44.3	-12.0	32.3	47.0	14.7	400.0	197.0	

◆ 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



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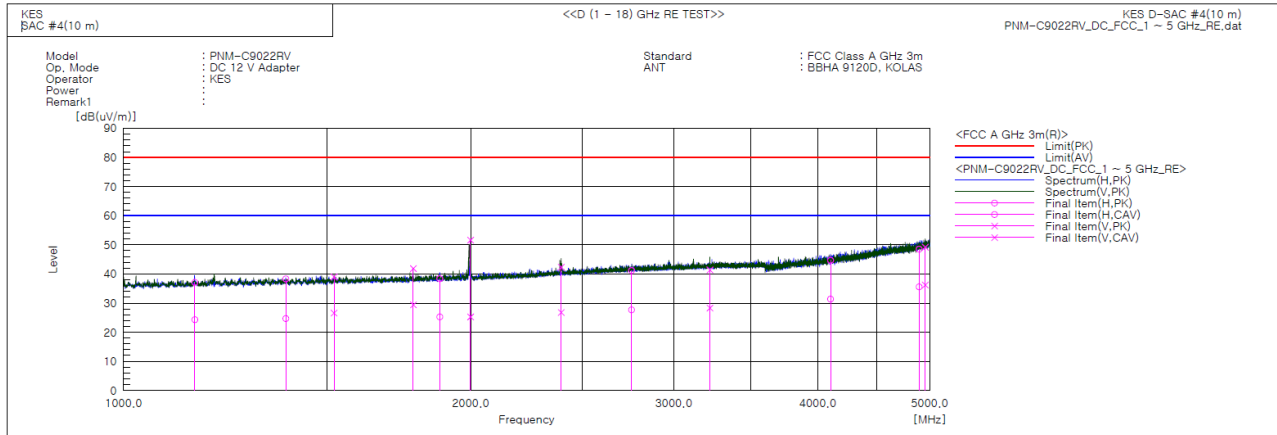
Report No.:

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Radiated Electric Field Emissions(Above 1 GHz)

■ DC 12 V Adapter 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	1152.450	H	42.3	29.5	-5.2	37.1	24.3	80.0	60.0	42.9	35.7	400.0	193.0	
2	1382.323	H	42.2	28.6	-3.9	38.3	24.7	80.0	60.0	41.7	35.3	326.0	15.0	
3	1522.123	V	42.2	29.8	-3.2	39.0	26.6	80.0	60.0	41.0	33.4	110.0	359.0	
4	1782.700	V	44.1	31.6	-2.2	41.9	29.4	80.0	60.0	38.1	30.6	120.0	353.0	
5	1880.099	H	40.2	27.1	-1.8	38.4	25.3	80.0	60.0	41.6	34.7	245.0	268.0	
6	1998.656	V	52.9	26.6	-1.3	51.6	25.3	80.0	60.0	28.4	34.7	205.0	12.0	
7	2395.773	V	41.5	26.0	0.8	42.3	26.8	80.0	60.0	37.7	33.2	125.0	202.0	
8	2757.100	H	38.8	25.3	2.4	41.2	27.7	80.0	60.0	38.8	32.3	400.0	86.0	
9	3223.507	V	37.5	24.4	3.9	41.4	28.3	80.0	60.0	38.6	31.7	100.0	20.0	
10	4101.790	H	37.0	23.7	7.7	44.7	31.4	80.0	60.0	35.3	28.6	400.0	115.0	
11	4896.500	H	35.6	22.7	12.9	48.5	35.6	80.0	60.0	31.5	24.4	400.0	60.0	
12	4955.001	V	35.7	22.7	13.5	49.2	36.2	80.0	60.0	30.8	23.8	100.0	205.0	

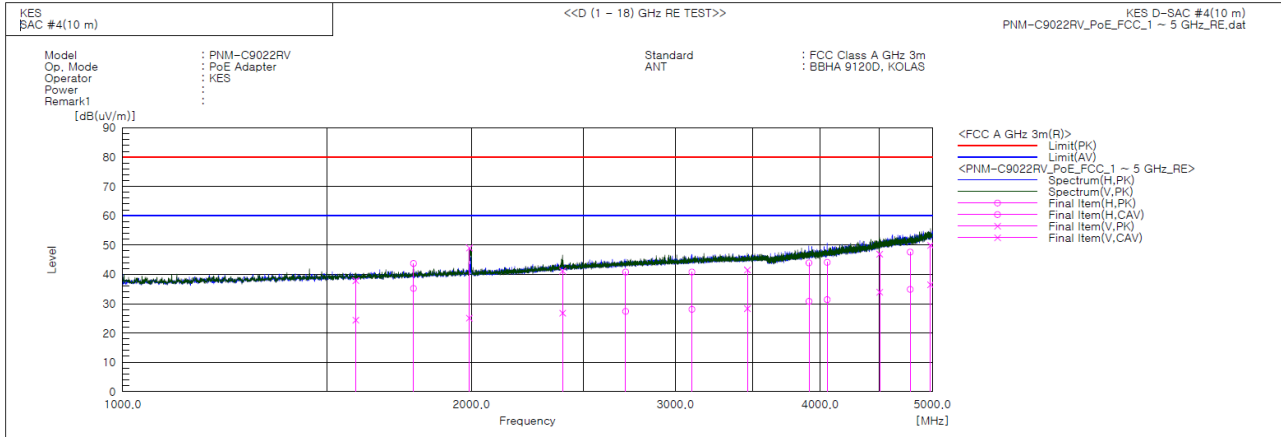
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PoE Adapter Mode



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	1589.320	V	40.8	27.3	-2.9	37.9	24.4	80.0	60.0	42.1	35.6	100.0	142.0	
2	1782.098	H	45.9	37.4	-2.2	43.7	35.2	80.0	60.0	36.3	24.8	400.0	137.0	
3	1991.511	V	50.3	26.4	-1.3	49.0	25.1	80.0	60.0	31.0	34.9	119.0	335.0	
4	2397.001	V	40.4	26.0	0.8	41.2	26.8	80.0	60.0	38.8	33.2	120.0	194.0	
5	2717.700	H	38.6	25.2	2.2	40.8	27.4	80.0	60.0	39.2	32.6	345.0	34.0	
6	3100.517	H	37.3	24.6	3.5	40.8	28.1	80.0	60.0	39.2	31.9	339.0	230.0	
7	3461.910	V	37.2	24.0	4.3	41.5	28.3	80.0	60.0	38.5	31.7	159.0	283.0	
8	3911.989	H	37.3	24.2	6.6	43.9	30.8	80.0	60.0	36.1	29.2	400.0	4.0	
9	4056.520	H	36.7	24.0	7.4	44.1	31.4	80.0	60.0	35.9	28.6	250.0	160.0	
10	4503.765	V	36.6	23.6	10.3	46.9	33.9	80.0	60.0	33.1	26.1	155.0	52.0	
11	4785.386	H	35.8	23.1	11.8	47.6	34.9	80.0	60.0	32.4	25.1	330.0	331.0	
12	4982.248	V	36.2	22.8	13.7	49.9	36.5	80.0	60.0	30.1	23.5	100.0	343.0	

◆ 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

Test Setup Photos and Configuration

Conducted Emissions at Mains Power Ports

■ DC 12 V Adapter Mode



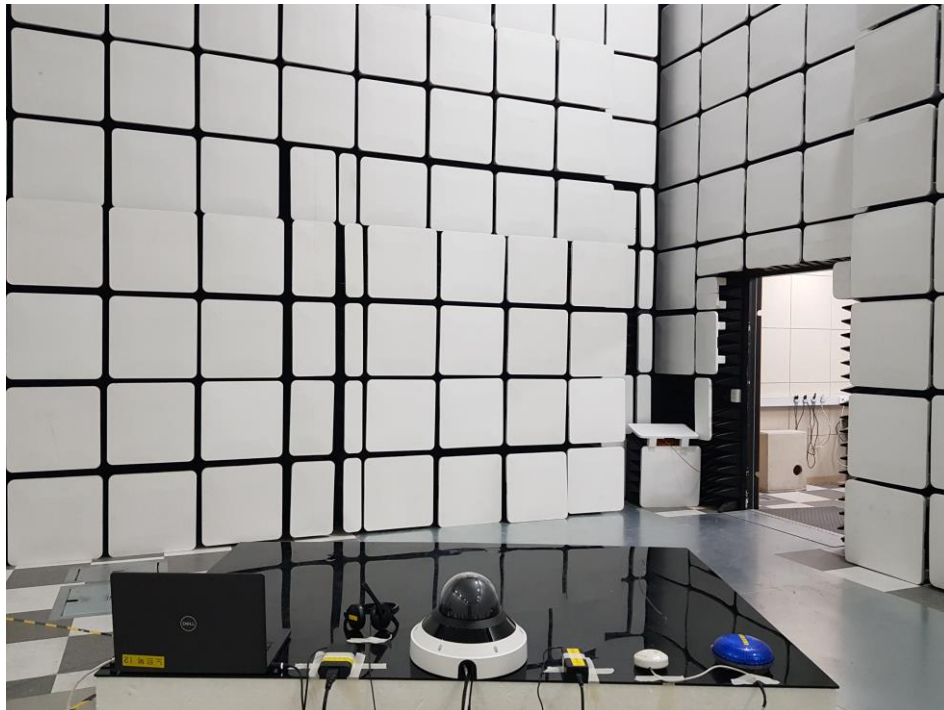
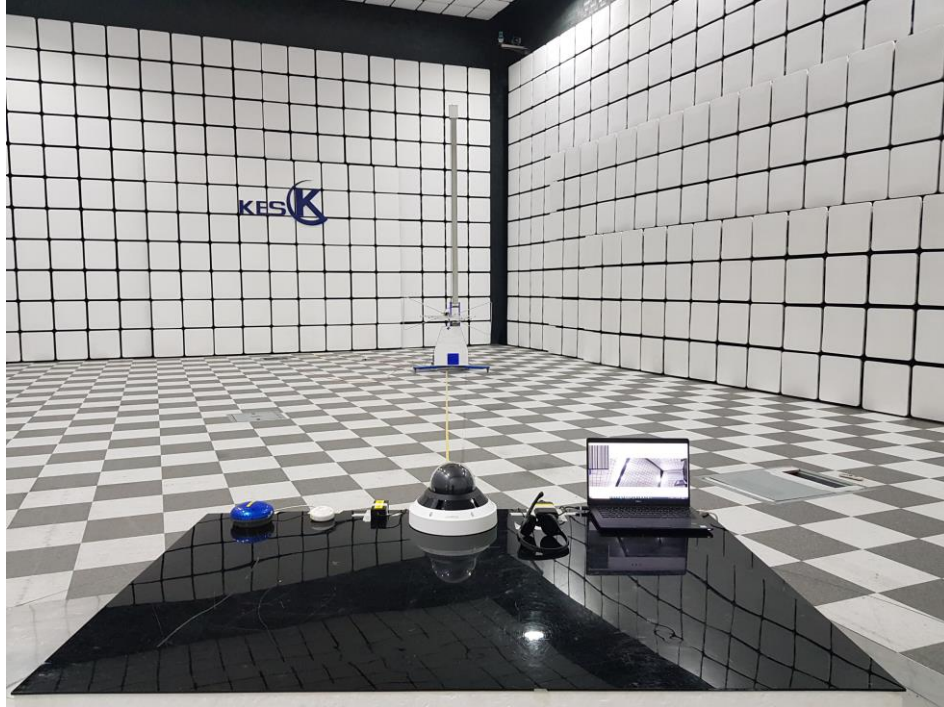
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■ PoE Adapter Mode

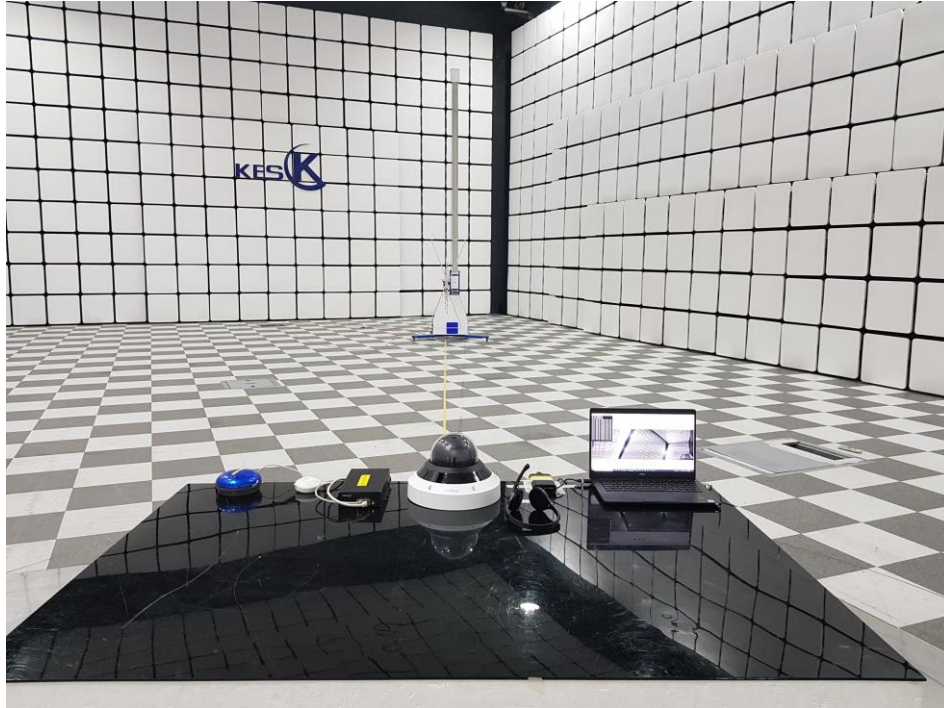
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Radiated Electric Field Emissions(Below 1 GHz)

■ DC 12 V Adapter Mode



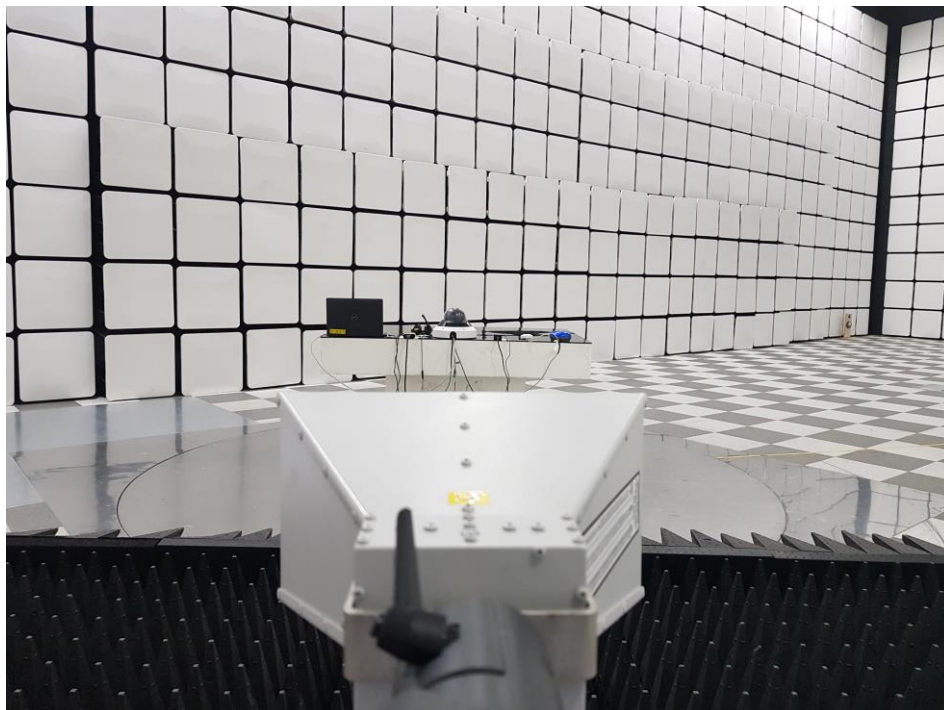
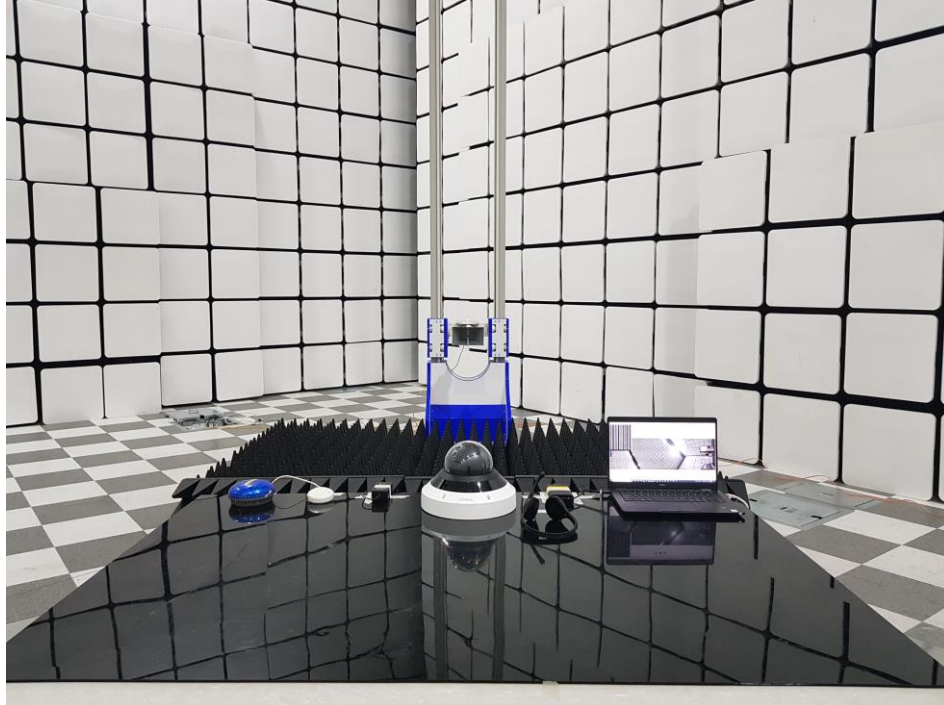
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■ PoE Adapter Mode

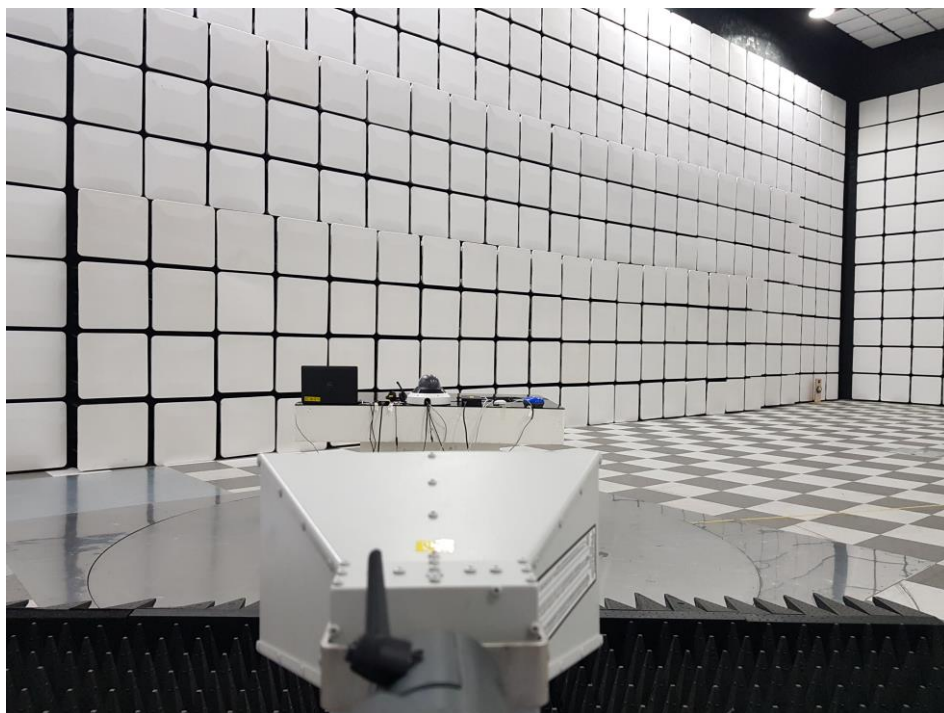
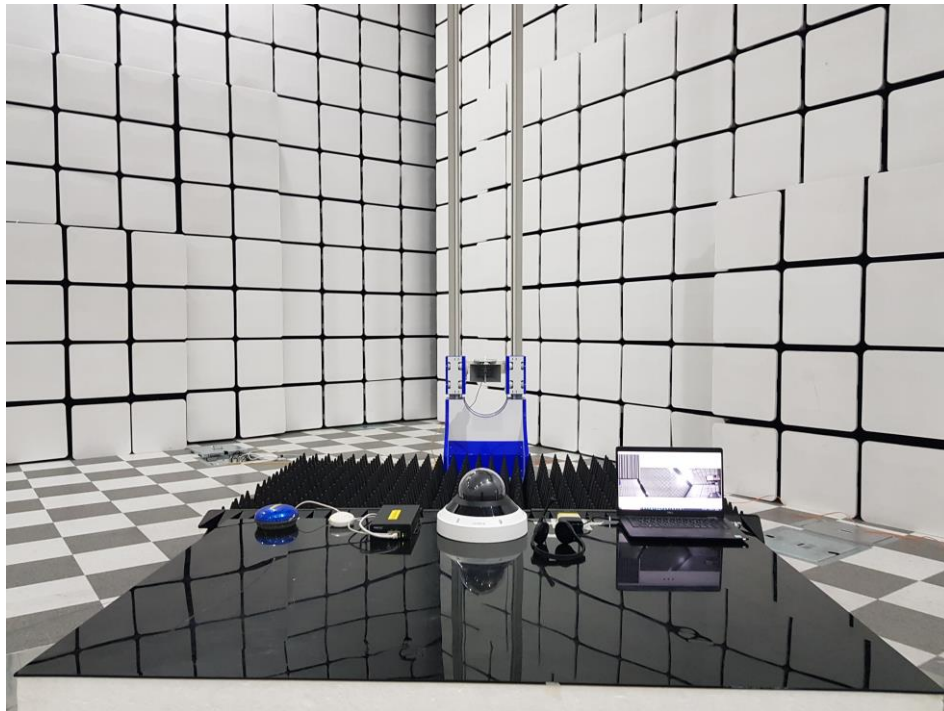
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Radiated Electric Field Emissions(Above 1 GHz)

■ DC 12 V Adapter Mode



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■ PoE Adapter Mode

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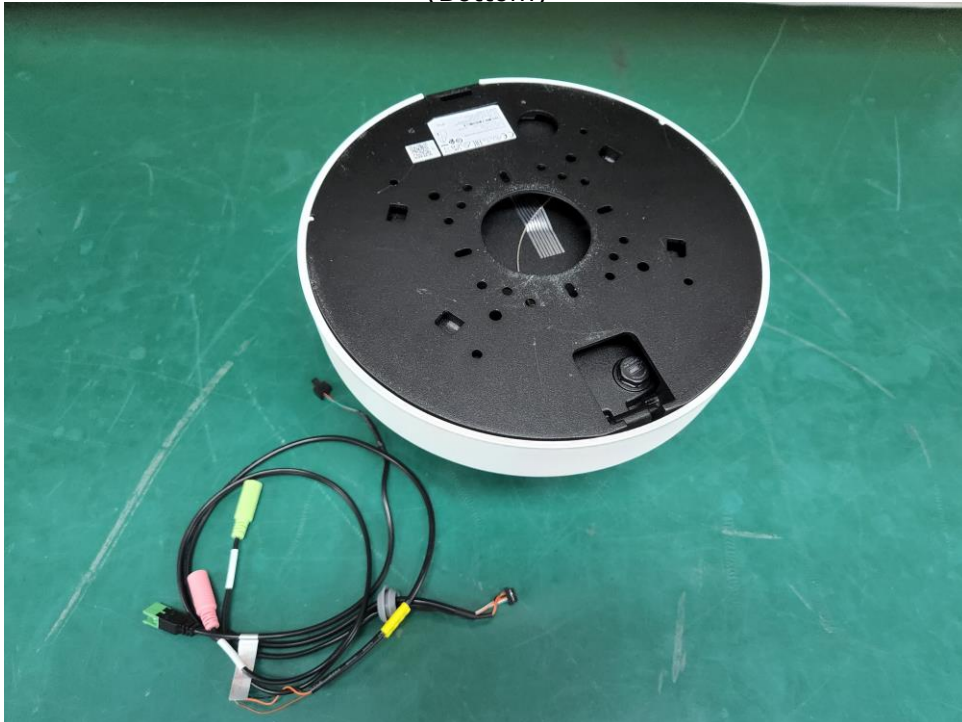
EUT External Photographs

(Top)



SS

(Bottom)



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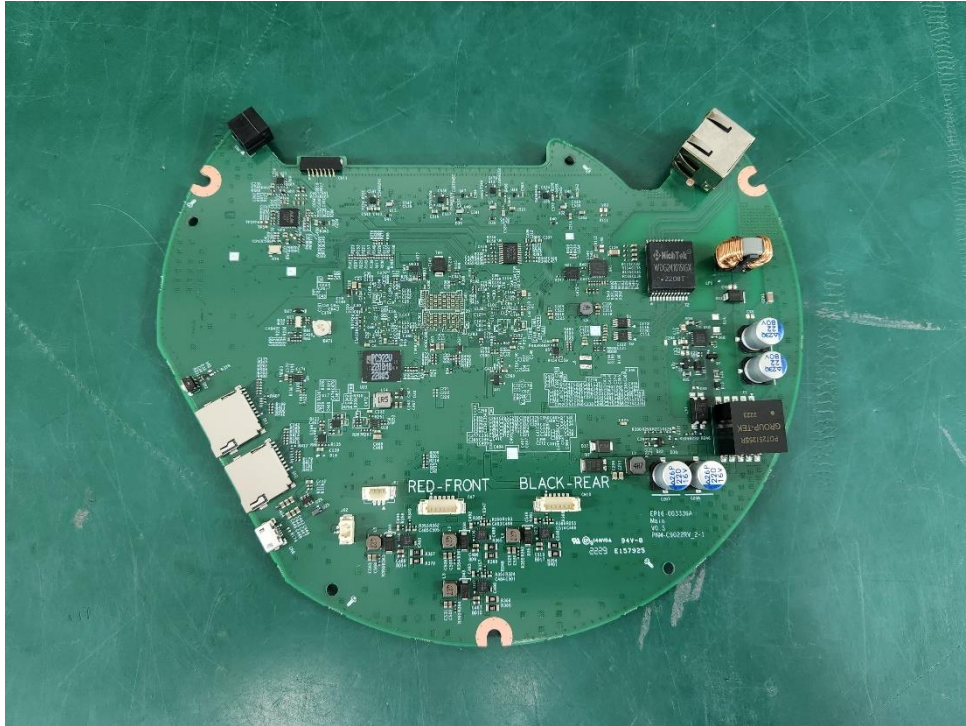
EUT Internal Photographs

(Internal View)

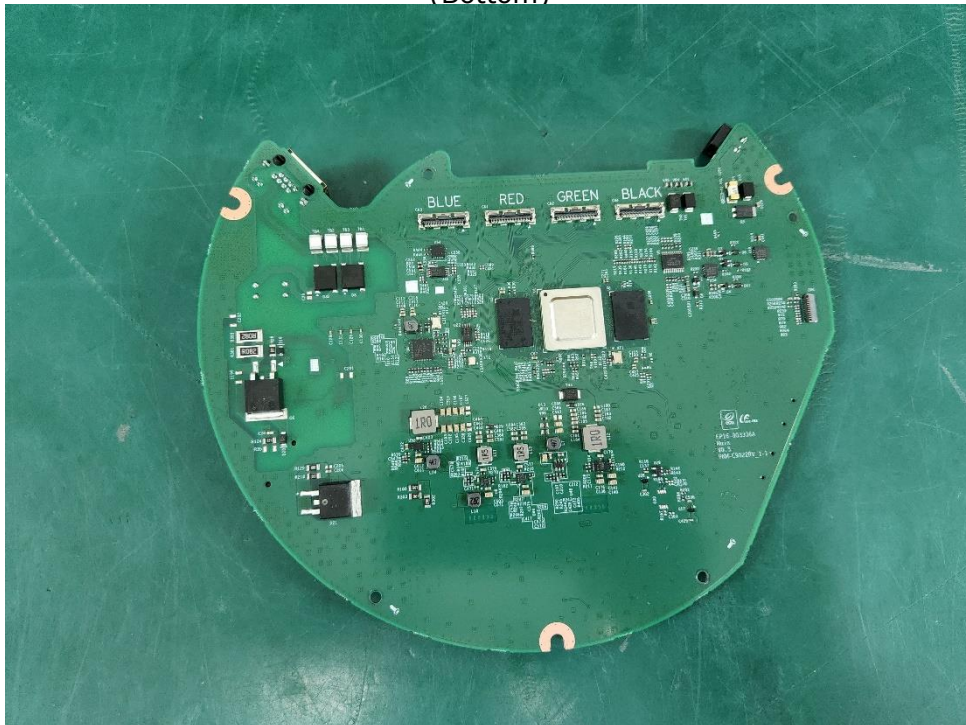


EUT Internal View – Main Board

(Top)



(Bottom)



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EUT Internal View – Sub Board 1

(Top)



(Bottom)



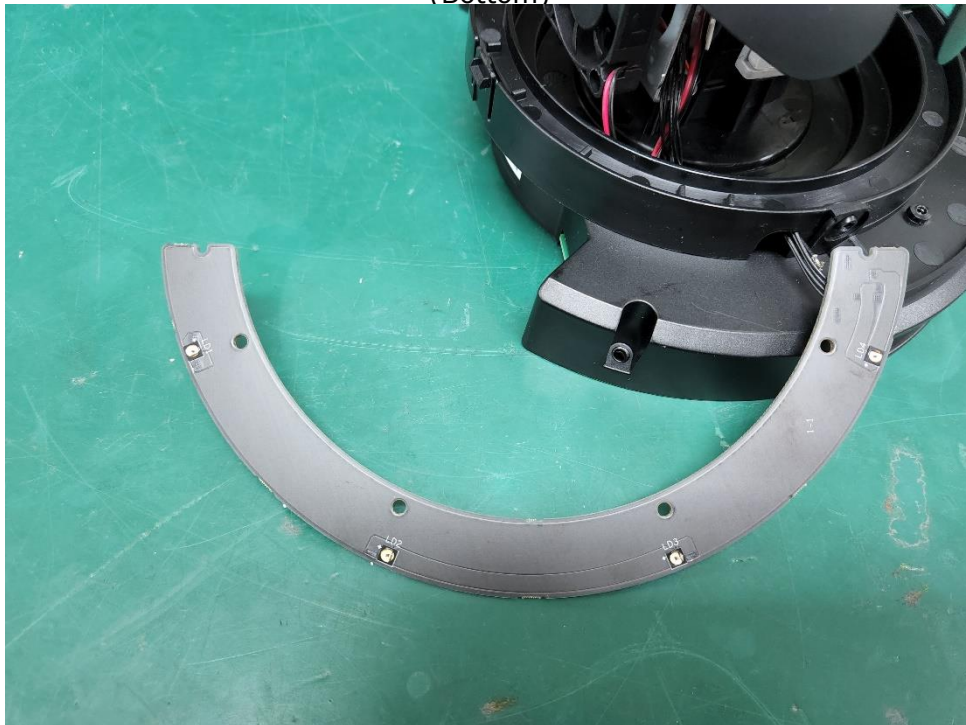
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EUT Internal View – Sub Board 2

(Top)



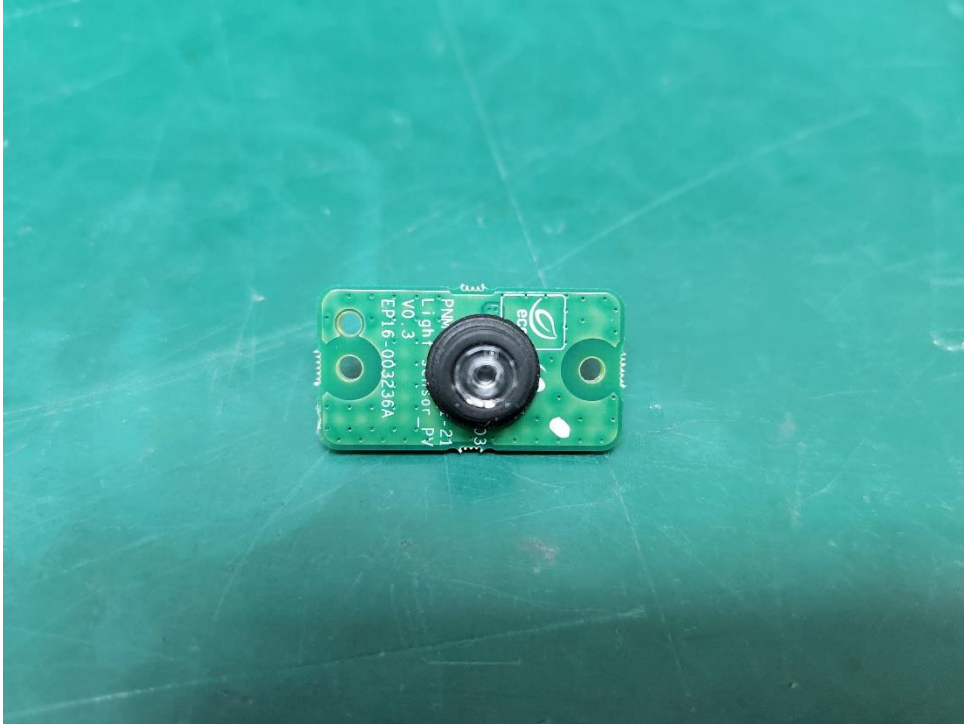
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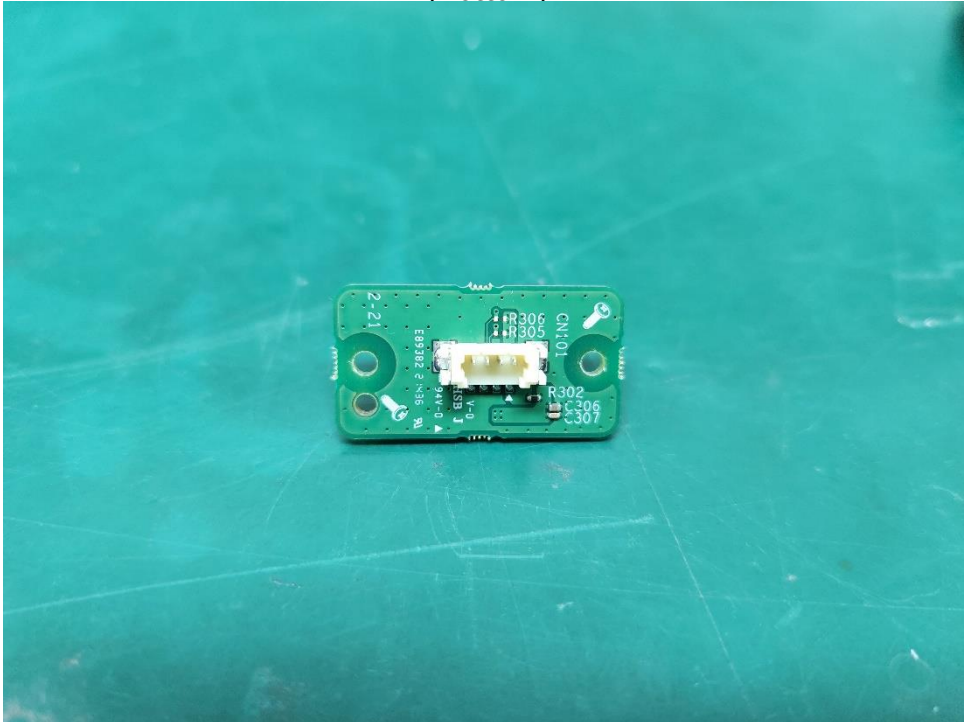
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EUT Internal View – Sub Board 3

(Top)



(Bottom)



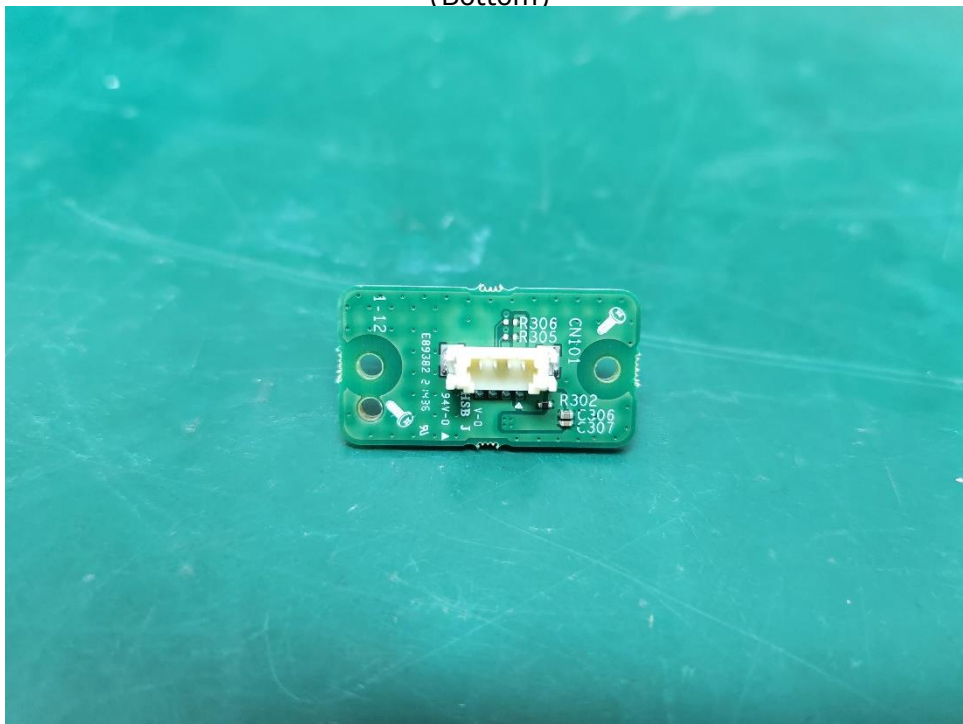
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EUT Internal View – Sub Board 4

(Top)



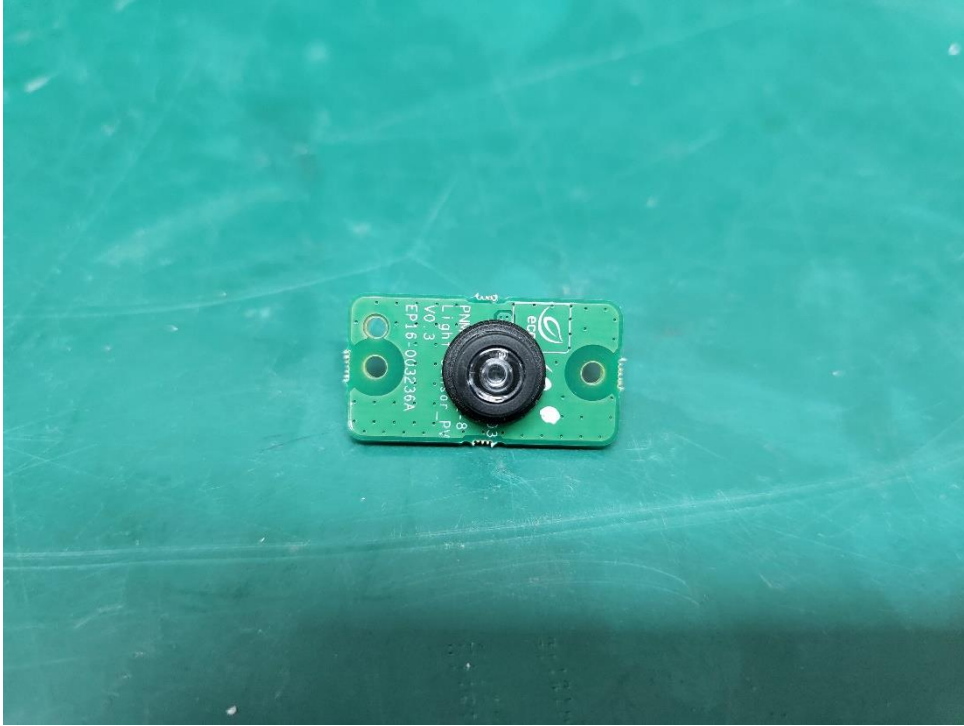
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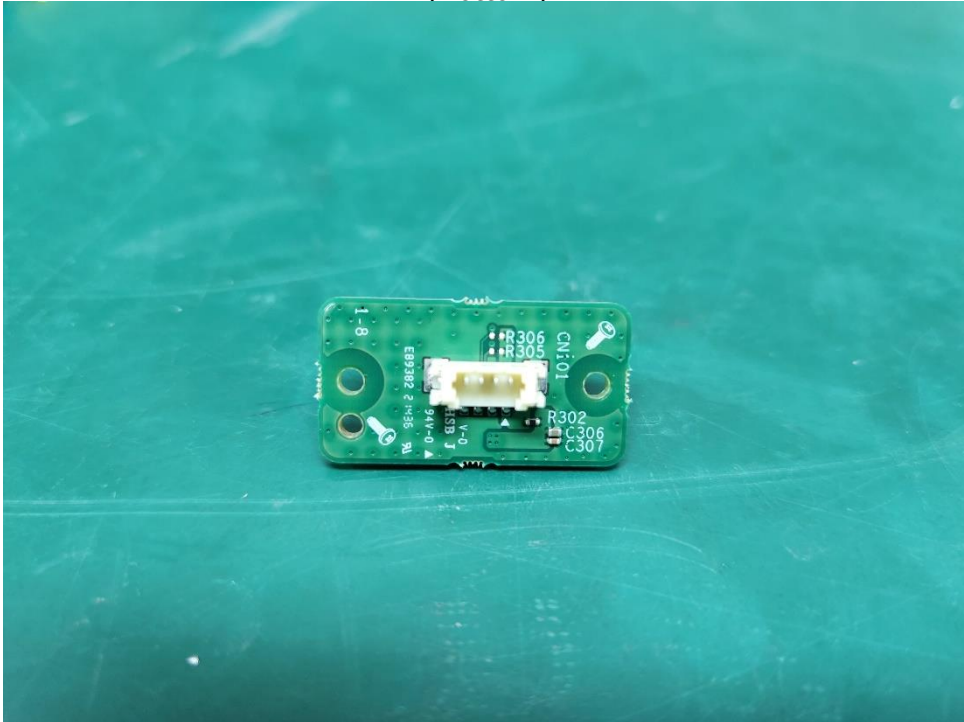
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EUT Internal View – Sub Board 5

(Top)



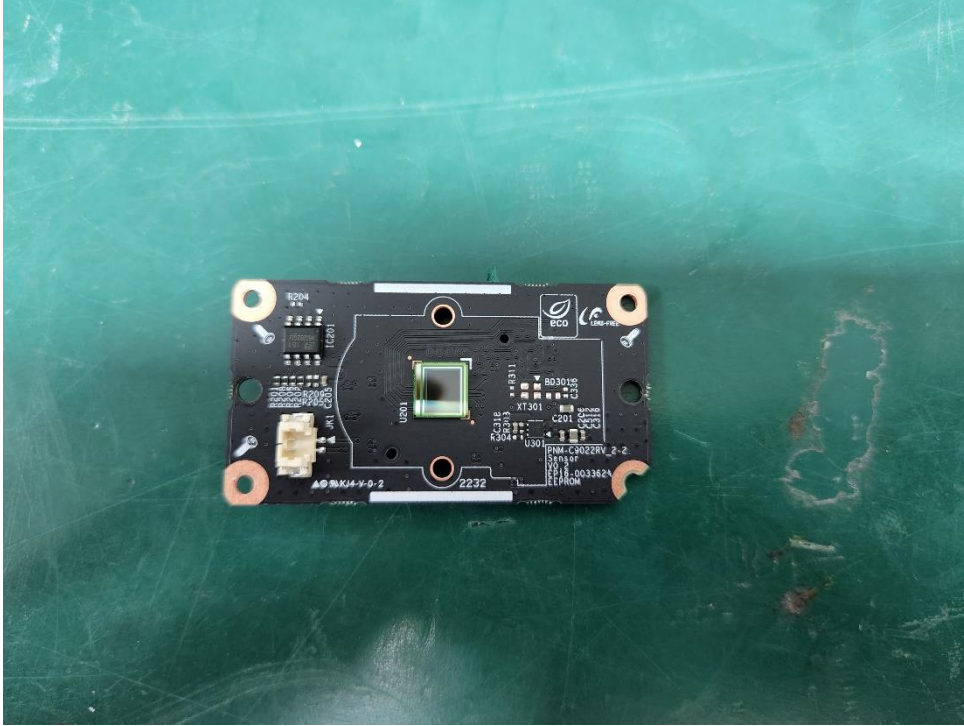
(Bottom)



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EUT Internal View – Sub Board 6

(Top)



(Bottom)



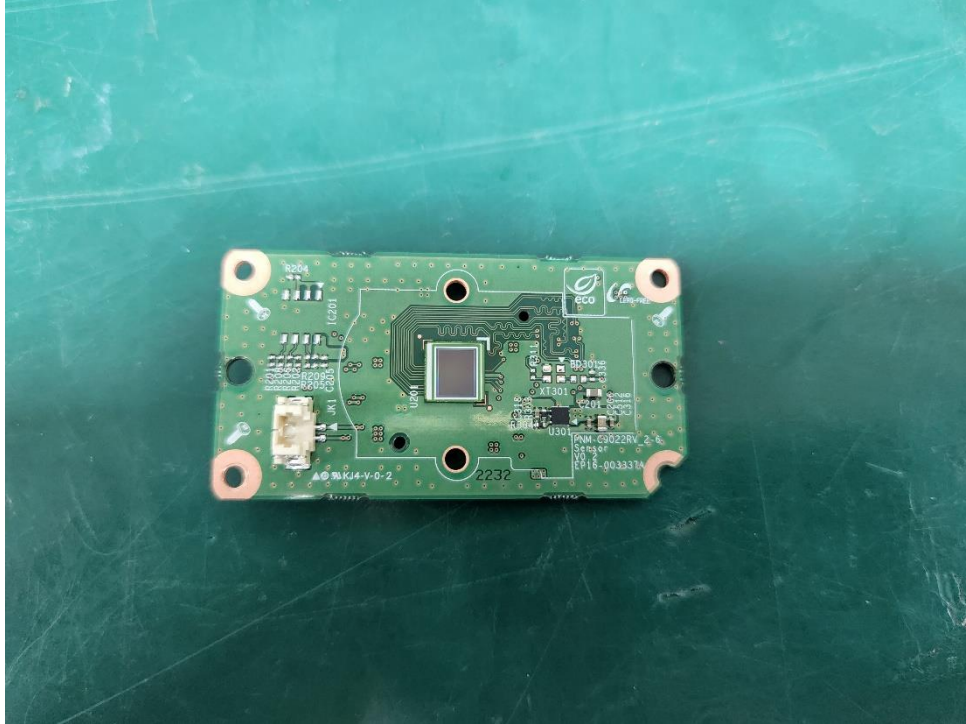
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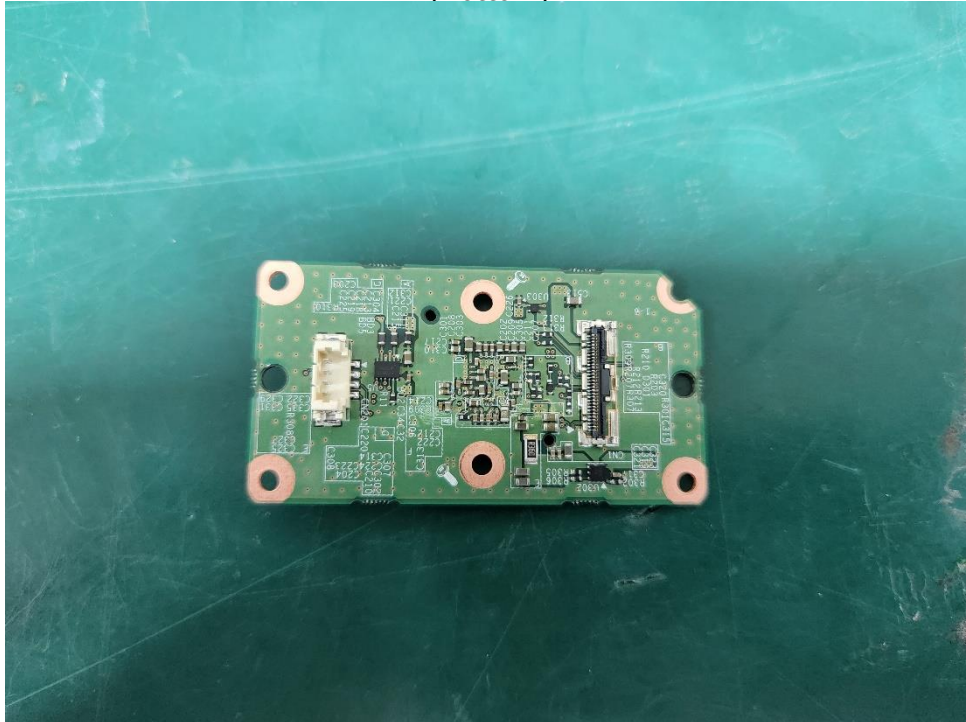
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EUT Internal View – Sub Board 7

(Top)



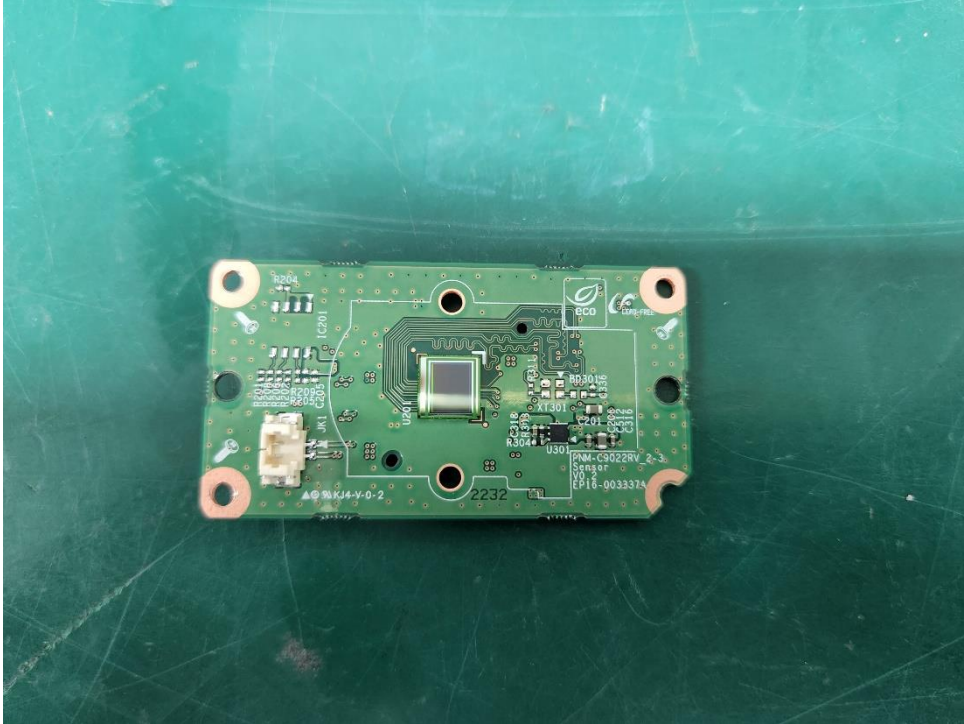
(Bottom)



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EUT Internal View – Sub Board 8

(Top)



(Bottom)



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EUT Internal View – Sub Board 9

(Top)



(Bottom)



S

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EUT Internal View – Lens 1

(Top)



(Bottom)



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EUT Internal View – Lens 2

(Top)



(Bottom)



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EUT Internal View – Lens 3

(Top)



(Bottom)



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EUT Internal View – Lens 4

(Top)



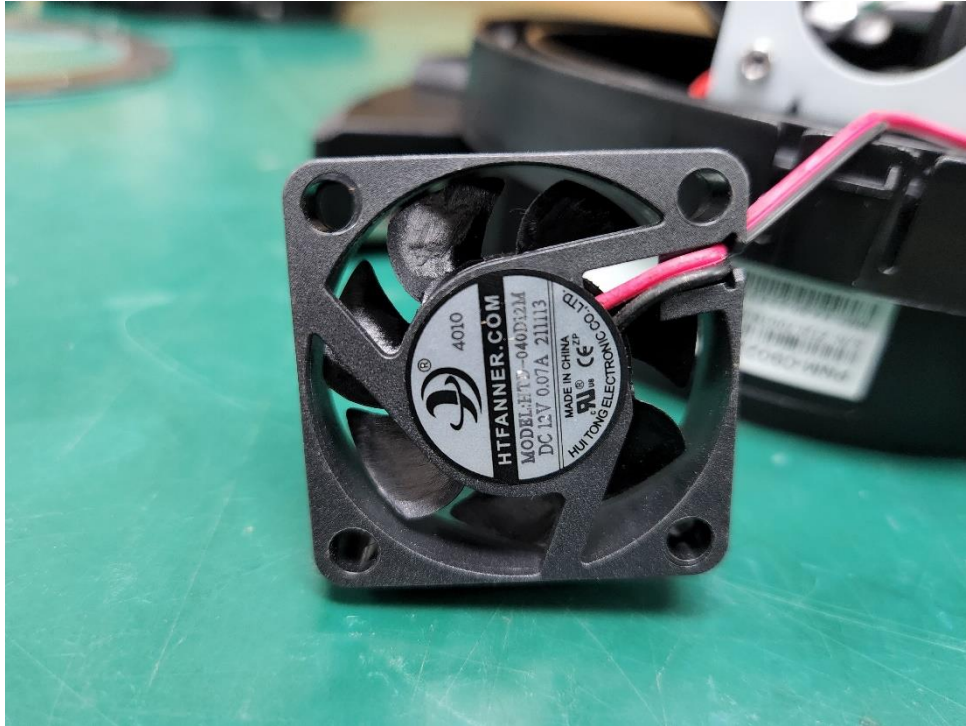
(Bottom)



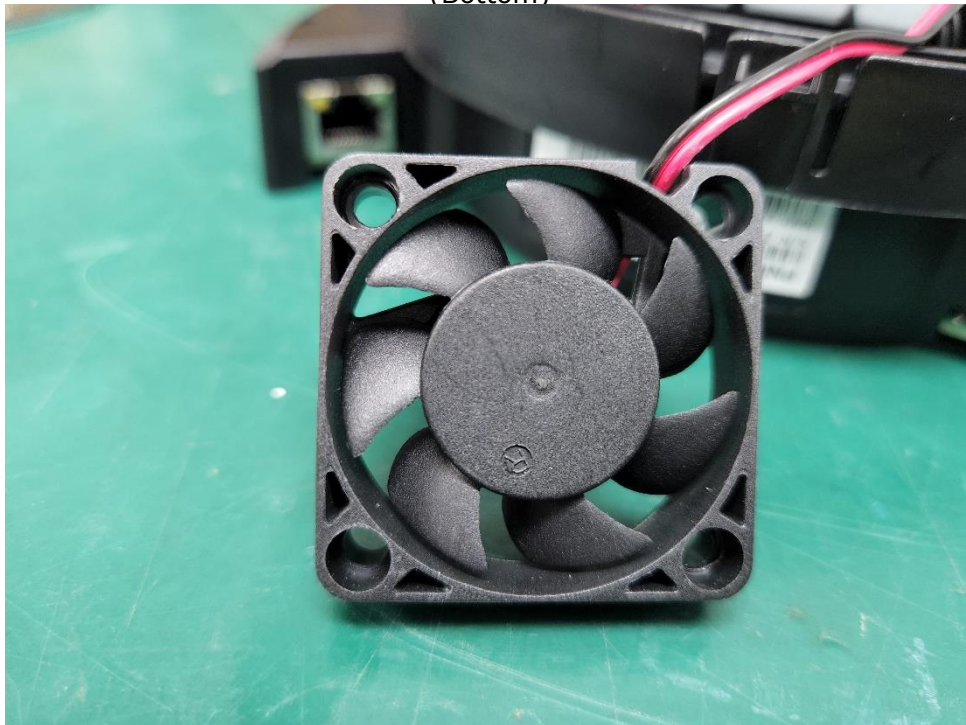
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EUT Internal View – FAN

(Top)



(Bottom)



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Label Photographs

FCC Label



HANWHA VISION VIETNAM COMPANY
LIMITED
PNM-C9022RV

IC Label

CAN ICES-003(A) / NMB-003(A)

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.