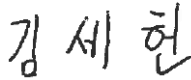


EMC TEST REPORT

Test Report No. : KES-EM-22T0071-R1
Date of Issue : Feb. 24, 2023
Product name : NETWORK CAMERA
Model/Type No. : XNF-8010RVM
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 : Jan. 03, 2022
Test date : Jan. 03, 2022 ~ Jan. 04, 2022
Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by



Se Heon, 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.



REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Jan. 18, 2022	KES-EM-22T0071	Issued
Feb. 24, 2023	KES-EM-22T0071-R1	Change the Applicant and manufacturer at the request of the customer.

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd. This document may be altered or revised by KES Co., Ltd. personnel only, and shall be noted in the revision section of the document. Any alteration of this document not carried out by KES Co., Ltd. will constitute fraud and shall nullify the document.



TABLE OF CONTENTS

1.0	General Product Description.....	4
1.1	Test Voltage & Frequency	7
1.2	Variant Model Differences	7
1.3	Device Modifications	7
1.4	Equipment Under Test.....	7
1.5	Support Equipments	7
1.6	External I/O Cabling	8
1.7	EUT Operating Mode(s)	9
1.8	Configuration.....	10
1.9	Remarks when standards applied	11
1.10	Calibration Details of Equipment Used for Measurement	11
1.11	Test Facility	11
1.12	Laboratory Accreditations and Listings	11
2.0	Test Regulations.....	12
2.1	Conducted Emissions at Mains Power Ports	13
2.2	Radiated Electric Field Emissions(Below 1 GHz)	14
2.3	Radiated Electric Field Emissions(Above 1 GHz)	15
APPENDIX A – TEST DATA.....		16
Conducted Emissions at Mains Power Ports.....		16
Radiated Electric Field Emissions(Below 1 GHz)		20
Radiated Electric Field Emissions(Above 1 GHz)		24
Test Setup Photos and Configuration		26
Conducted Emissions at Mains Power Ports.....		26
Radiated Electric Field Emissions(Below 1 GHz)		28
Radiated Electric Field Emissions(Above 1 GHz)		30
EUT External Photographs		32
EUT Internal Photographs		33



1.0 General Product Description

Main Specifications of EUT are:

Video	
Imaging Device	1/1.8" 6M CMOS
Total Pixels	3,096x2,094
Effective Pixels	2,048x2,048
Scanning System	Progressive
Min. Illumination	Color : 0.07Lux(F2.2, 30IRE) B/W : 0 Lux (IR LED On)
S / N Ratio	50dB
Video Out	CVBS : 1.0 Vp-p / 75Ω composite, 714x480(N), 702x576(P), for installation - DIP connector type USB
Lens	
Focal Length (Zoom Ratio)	1.6mm
Max. Aperture Ratio	F1.6
Angular Field of View	H : 187° / V : 187° / D : 187°
Min. Object Distance	0.3m
Focus Control	Simple Focus / Manual - Remote control via network
Lens Type	Fixed Lens
Mount Type	Board Type
Operational	
Viewable Length	15m
Camera Title	Off / On (Displayed up to 85 characters) - W/W : English/Numeric/Special Characters - China : English/Numeric/Special/Chinese Characters - Common : Multi-line (Max 5), Color (Grey/Green/Red/Blue/Black/White), Transparency, Auto Scale by Resolution
Day & Night	Auto (ICR) / Color / B/W / External / Schedule
Backlight Compensation	OFF / BLC / HLC(Masking / Dimming) / WDR
Wide Dynamic Range	120dB
Contrast Enhancement	SSDR Off / On
Digital Noise Reduction	SSNR V (2D+3D noise filter) Off / On
Digital Image Stabilization	Off/On
Defog	Off/Auto(input from fog detection) / Manual
Motion Detection	Off / On (8ea, 8point Polygonal zones), Hand over
Privacy Masking	Off / On (32ea, Polygonal) - Color : Gray, Green, Red, Blue, Black, White, Mosaic
Gain Control	Off / Low / Middle / High / Manual
White Balance	ATW / AWC / Manual / Indoor / Outdoor(Included mercury&Sodium)
Electronic Shutter Speed	Minimum / Maximum / Anti flicker(2~1/12,000sec)
Digital Zoom	24x, Digital PTZ(Preset, Group)
Flip / Mirror	Off / On
Video & Audio Analytics	Tampering, Loitering, Directional detection, Defocus detection, Fog detection, Virtual line, Enter/Exit, (Dis)Appear, Audio detection, Face detection, Motion detection, Digital auto tracking, Sound classification
Alarm I/O	Input 1ea / Output 1ea
Alarm Triggers	Alarm Input, Motion Detection, Video & Audio Analytics, Network Disconnect, SD card error, NAS error
Alarm events	File upload via FTP and E-Mail Notification via E-Mail local storage(SD/SDHC/SDXC) or NAS recording at Event Triggers External output, DPTZ preset

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
The authenticity of the test report, contact kes@kes.co.kr

**KES Co., Ltd.**

3701, 40, Simin-daero 365beon-gil,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Report No.:

KES-EM-22T0071-R1

Page (5) of (37)

View Composition	<Camera Side> Fisheye Single Panorama Double Panorama Fisheye+4 PTZ Quad view Fisheye+8 PTZ
Pixel Counter	Support
Network	
Ethernet	RJ-45 (10/100BASE-T)
Video Compression Format	H.265/H.264/MJPEG
Resolution	[Original View(1:1)] 2048x2048 / 1280x1280 / 1080x1080 / 960x960 / 768x768 / 720x720 / 640x640 / 480x480 [Single Panorama(4:1)] 2048x512 / 1920x480 / 1280x320 / 640x160 / 704x176 [Double Panorama(2:1)] 2048x1024 / 1920x960 / 1280x640 / 640x320 / 704x352 [Quad View(4:3)] 2048x1536 / 1600x1200 / 1280x960 / 1024x768 / 800x600 / 640x480 / 704x576 [Q1/2/3/4] 1024x768, 800x600, 640x480
Max. Framerate	H.265/H.264 : 30fps@2,048x2,048 MJPEG : Max 15fps
Smart Codec	Manual Mode (area-based : 5EA)
WiseStreamII	Support
Video Quality Adjustment	H.265/H.264 : Target Bitrate Level Control MJPEG : Quality Level Control
Bitrate Control Method	H.265/H.264 : CBR or VBR MJPEG : VBR
Streaming Capability	Multiple Streaming (Up to 10profiles)
Audio In	Selectable (Mic IN/Line IN/Built-in mic) Supply voltage: 2.5VDC(4mA), Input impedance: approx. 2K Ohm
Audio out	Line out (3.5mm mono jack), Max output level: 1 Vrms
Audio Compression Format	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
Audio Communication	Bi-directional(2way)
IP	IPv4, IPv6
Protocol	TCP/IP, UDP/IP, RTP(UDP), RTP(TCP), RTCP,RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, PPPoE, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, QoS, PIM-SM, UPnP, Bonjour, SIP
Security	HTTPS(SSL) Login Authentication Digest Login Authentication IP Address Filtering User access Log 802.1x Authentication (EAP-TLS, EAP-LEAP)
Streaming Method	Unicast / Multicast
Max. User Access	20 users at Unicast Mode
Edge Storage	SD/SDHC/SDXC 2slot(up to 512GB) - Continuous recording(1st slot to 2nd slot) - motion Images recorded in the SD/SDHC/SDXC memory card can be downloaded. - camera can detect automatically when the memory is connected - memory status display (normal/error/active/formatting/lock) NAS(Network Attached Storage) Local PC for Instant Recording(plug-in viewer only)

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
The authenticity of the test report, contact kes@kes.co.kr

**KES Co., Ltd.**

3701, 40, Simin-daero 365beon-gil,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Report No.:

KES-EM-22T0071-R1

Page (6) of (37)

Application Programming Interface	ONVIF Profile S/G SUNAPI Wisenet open platform
Webpage Language	English, French, German, Spanish, Italian, Chinese, Korean, Russian, Japanese, Swedish, Portuguese, Turkish, Polish, Czech, Dutch, Hungary, Greek
Web Viewer	Supported OS: Windows 7, 8.1, 10, Mac OS X 10.9. 10.10. 10.11. 10.12 Plug-in Free Webviewer Supported Browser : Google Chrome, MS Edge, Mozilla Firefox (Window 64bit only), Apple Safari *Mac OS X only Plug-in Webviewer Supported Browser : MS Explore, Apple Safari * Mac OS X only
Central Management Software	Smart Viewer
Environmental	
Operating Temperature / Humidity	-10°C ~ +55°C / Less than 90% RH
Storage Temperature / Humidity	-50°C ~ +60°C (-22°F ~ +140°F) / Less than 90% RH
Ingress Protection	-
Vandal Resistance	-
Electrical	
Input Voltage / Current	DC12V±10%,PoE(IEEE802.3af,Class3)
Power Consumption	DC12V(9.5W 0.8A), PoE(10.5W 0.28A)
Mechanical	
Color / Material	Ivory/ALUMINUM, PLASTIC
Dimension (WxHxD)	D146 x H54.8
Weight	730g

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
The authenticity of the test report, contact kes@kes.co.kr

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

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	XNF-8010RVM	-	HANWHA VISION VIETNAM COMPANY LIMITED	EUT

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
AC / DC Adapter	2ACB022F	-	ChAnnel Well Technology (Guangzhou) Co.,Ltd.	-
PoE Injector	ANY4805C-LT1	10H300002	ANY ELECTRONICS CO., LTD	-
Notebook	P98F004	21599158359	DELL INC.	-
Notebook Adapter	LA240PM190	-	LITE-ON TECHNOLOGY (CHANGZHOU)CO.,LTD.	-
Speaker	BR-1000A CUVE	-	DONGGUAN EDFIER TECHNOLOGY CO, LTD	-
MIC	CMK-303	-	CAMAC	-
Alarm	SLE-0001 DO	C64167JDB6012 68 F	-	-
Button Alarm	-	-	-	-
Micro SD Card	-	-	SanDisk	16 GB

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)	RJ-45	Notebook	RJ-45	4.0	U
	Audio Out	Speaker	Line-Out (3.5 mm)	1.4	U
	Audio In	MIC	XLR	1.5	U
	Alarm Out	Alarm	Alarm In	3.0	U
	Alarm In	Button Alarm	Alarm Out	3.0	U
	SLOT	Micro SD Card	SLOT	-	-
	DC Jack	AC / DC Adapter	DC Jack	0.8	U
Notebook	DC Jack	Notebook Adapter	DC Jack	1.3	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	RJ-45 (PoE)	4.0	U
	Audio Out	Speaker	Line-Out (3.5 mm)	1.4	U
	Audio In	MIC	XLR	1.5	U
	Alarm Out	Alarm	Alarm In	3.0	U
	Alarm In	Button Alarm	Alarm Out	3.0	U
	SLOT	Micro SD Card	SLOT	-	-
Notebook	RJ-45 (LAN)	PoE Injector	RJ-45 (LAN)	1.0	U
	DC Jack	Notebook Adapter	DC Jack	1.3	U

* Unshielded=U, Shielded=S

**KES Co., Ltd.**

3701, 40, Simin-daero 365beon-gil,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Report No.:

KES-EM-22T0071-R1

Page (9) of (37)

1.7 EUT Operating Mode(s)

Test mode	operating
Operation	Monitoring EUT Using Web Viewer, Ping Test

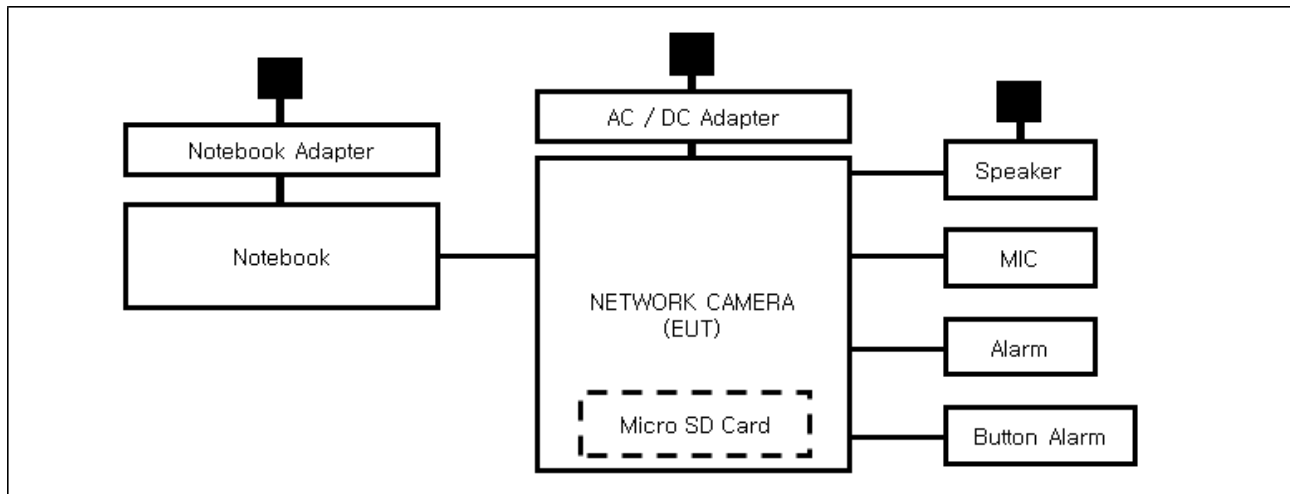
EUT Test operating S/W		
Name	Version	Manufacture Company
Web Viewer	-	Hanwha Vision Co., Ltd

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
The authenticity of the test report, contact kes@kes.co.kr

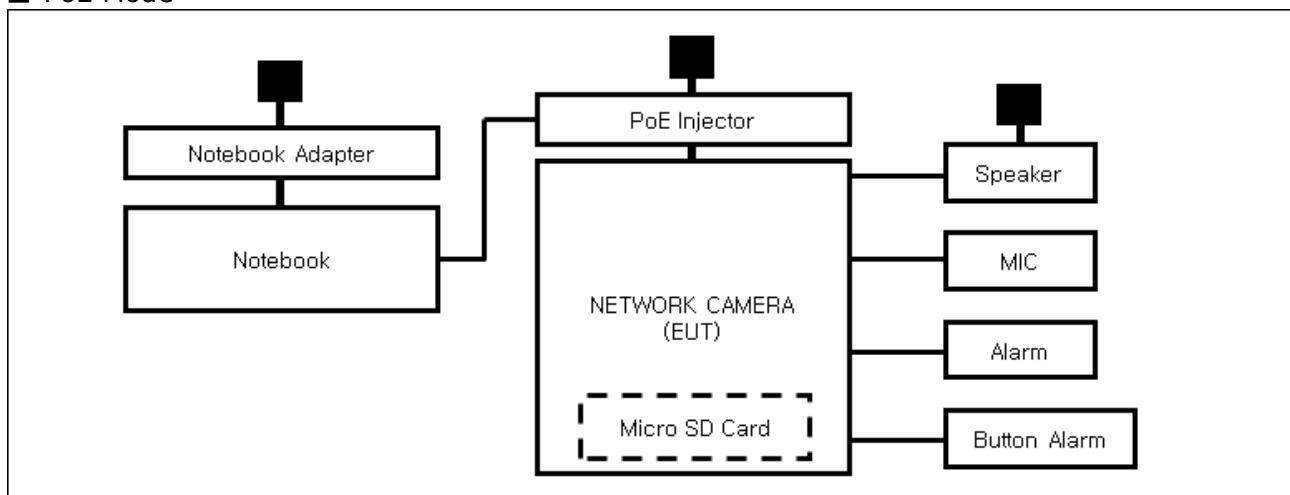
1.8 Configuration

■ AC Main
 □ DC Main

■ DC Mode



■ PoE Mode



1.9 Remarks when standards applied

USB, VIDEO port are for administrator use and is excluded from testing

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

Jan. 03, 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

Test Conditions

Temperature: (22,7 ± 0,1) °C

Relative Humidity: (44,3 ± 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.

2.2 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Jan. 03, 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	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: (22,5 ± 0,0) °C

Relative Humidity: (43,3 ± 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.

2.3 Radiated Electric Field Emissions(Above 1 GHz)

Test Date

Jan. 04, 2022

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: (22,5 ± 0,4) °C

Relative Humidity: (43,4 ± 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.

APPENDIX A – TEST DATA

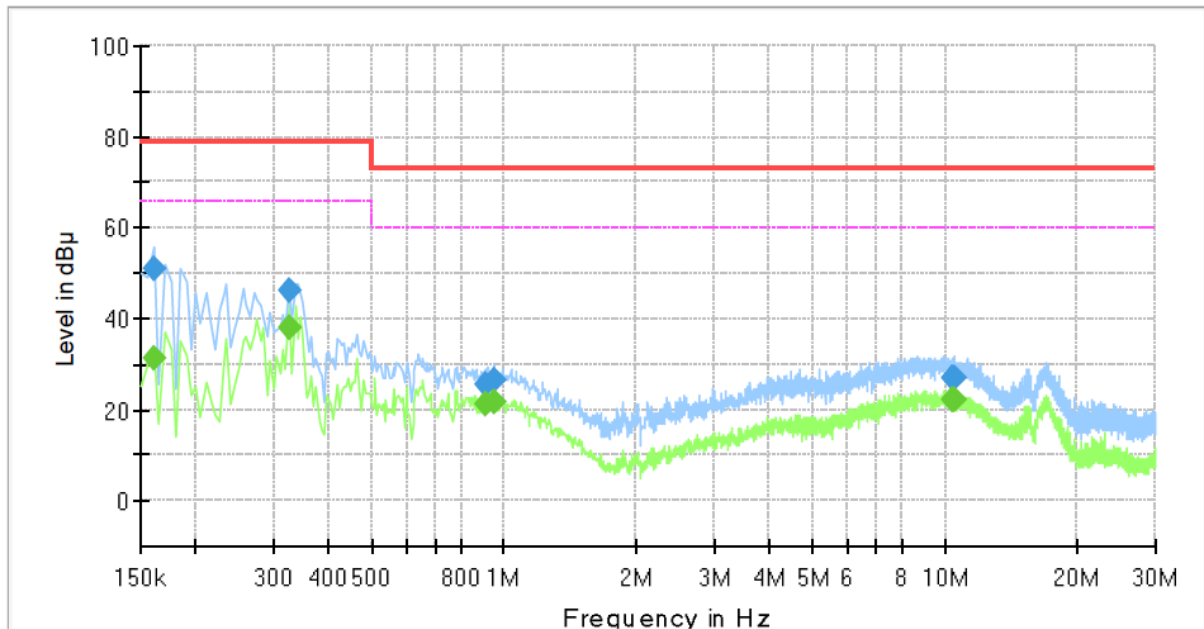
Conducted Emissions at Mains Power Ports

■ DC Mode

HOT LINE

Common Information

Test Description:	Conducted Emission
Model No.:	XNF-8010RVM
Phase:	L1
Mode:	DC
Operator Name:	KES



Final Result

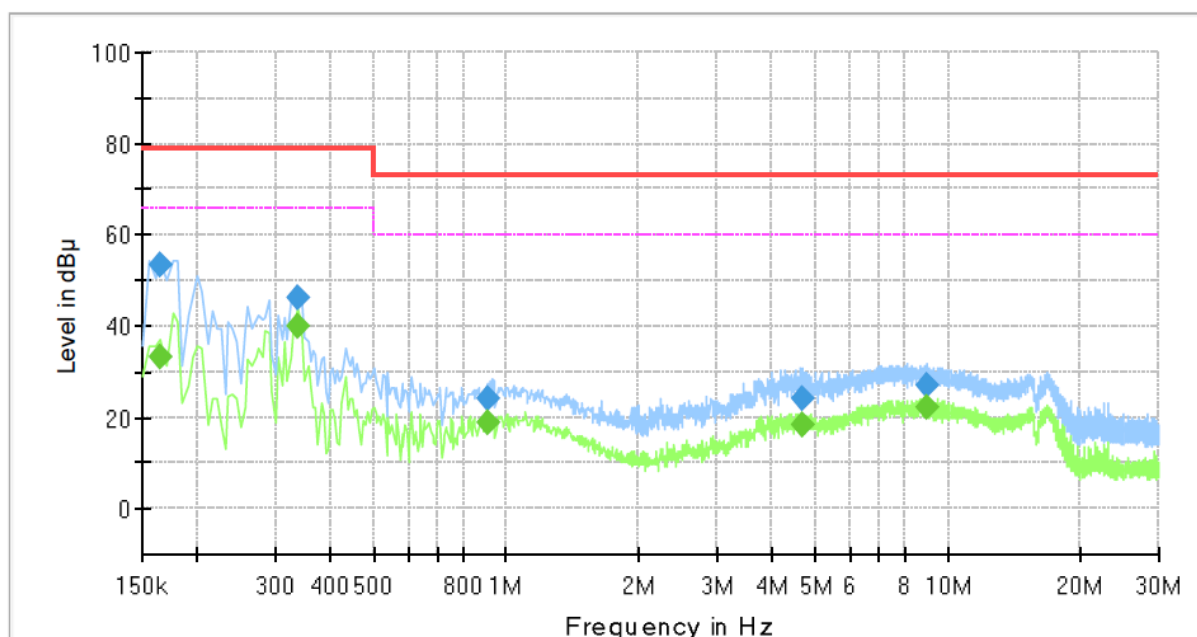
Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.160000	---	31.46	66.00	34.54	1000.0	9.000	L1	19.5
0.160000	51.09	---	79.00	27.91	1000.0	9.000	L1	19.5
0.325000	---	38.08	66.00	27.92	1000.0	9.000	L1	19.6
0.325000	46.43	---	79.00	32.57	1000.0	9.000	L1	19.6
0.905000	---	21.25	60.00	38.75	1000.0	9.000	L1	20.1
0.905000	25.77	---	73.00	47.23	1000.0	9.000	L1	20.1
0.945000	---	21.50	60.00	38.50	1000.0	9.000	L1	20.1
0.945000	26.32	---	73.00	46.68	1000.0	9.000	L1	20.1
10.370000	---	22.35	60.00	37.65	1000.0	9.000	L1	19.9
10.370000	27.12	---	73.00	45.88	1000.0	9.000	L1	19.9
10.505000	---	22.03	60.00	37.97	1000.0	9.000	L1	20.0
10.505000	26.93	---	73.00	46.07	1000.0	9.000	L1	20.0

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
 The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
 The authenticity of the test report, contact kes@kes.co.kr

NEUTRAL LINE

Common Information

Test Description:	Conducted Emission
Model No.:	XNF-8010RVM
Phase:	N
Mode:	DC
Operator Name:	KES

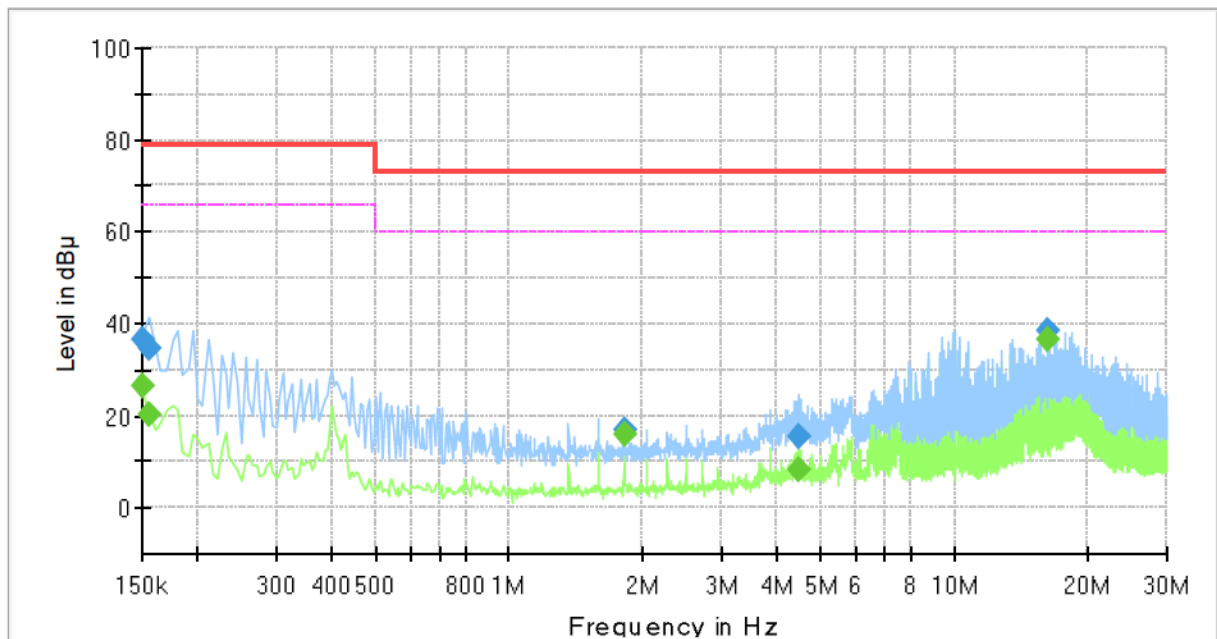


Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.165000	---	33.14	66.00	32.86	1000.0	9.000	N	19.4
0.165000	53.39	---	79.00	25.61	1000.0	9.000	N	19.4
0.335000	---	39.84	66.00	26.16	1000.0	9.000	N	19.6
0.335000	46.00	---	79.00	33.00	1000.0	9.000	N	19.6
0.905000	---	18.71	60.00	41.29	1000.0	9.000	N	20.1
0.905000	24.01	---	73.00	48.99	1000.0	9.000	N	20.1
4.660000	---	18.54	60.00	41.46	1000.0	9.000	N	19.8
4.660000	24.03	---	73.00	48.97	1000.0	9.000	N	19.8
8.940000	---	22.36	60.00	37.64	1000.0	9.000	N	19.8
8.940000	27.13	---	73.00	45.87	1000.0	9.000	N	19.8

PoE Mode
HOT LINE
Common Information

Test Description:	Conducted Emission
Model No.:	XNF-8010RVM
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)
0.150000	---	26.58	66.00	39.42	1000.0	9.000	L1	19.5
0.150000	36.73	---	79.00	42.27	1000.0	9.000	L1	19.5
0.155000	---	20.20	66.00	45.80	1000.0	9.000	L1	19.5
0.155000	34.46	---	79.00	44.54	1000.0	9.000	L1	19.5
1.815000	---	15.86	60.00	44.14	1000.0	9.000	L1	20.3
1.815000	16.83	---	73.00	56.17	1000.0	9.000	L1	20.3
4.485000	---	8.37	60.00	51.63	1000.0	9.000	L1	19.8
4.485000	15.22	---	73.00	57.78	1000.0	9.000	L1	19.8
16.230000	---	36.38	60.00	23.62	1000.0	9.000	L1	19.9
16.230000	38.33	---	73.00	34.67	1000.0	9.000	L1	19.9

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.

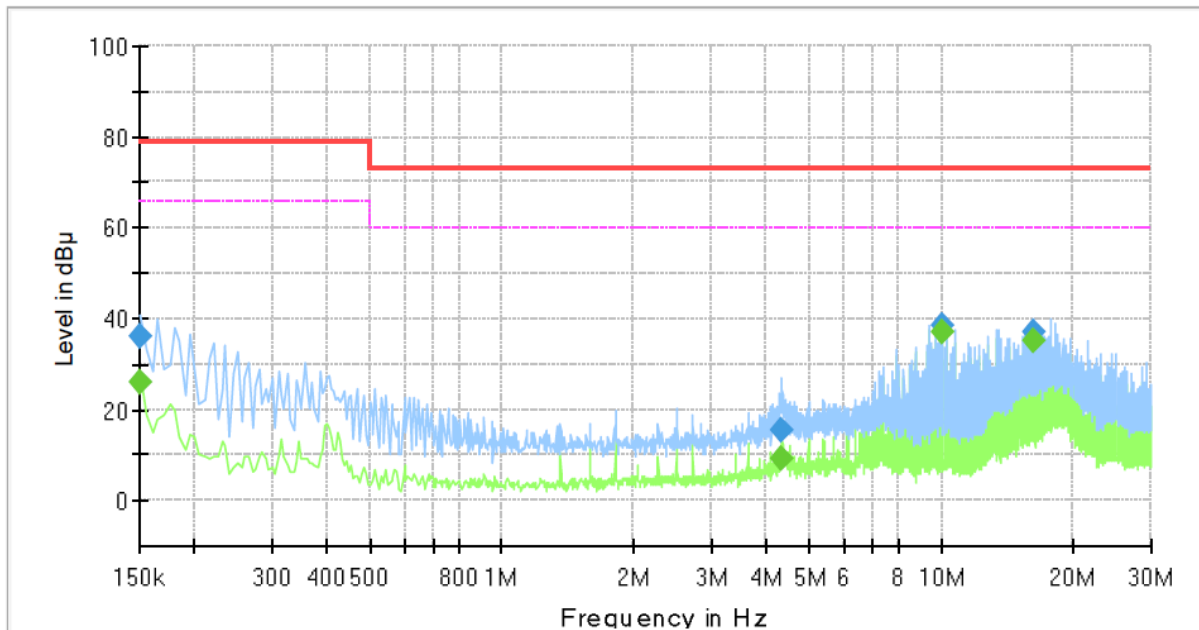
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

The authenticity of the test report, contact kes@kes.co.kr

NEUTRAL LINE

Common Information

Test Description:	Conducted Emission
Model No.:	XNF-8010RVM
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)
0.150000	---	25.90	66.00	40.10	1000.0	9.000	N	19.4
0.150000	36.25	---	79.00	42.75	1000.0	9.000	N	19.4
4.310000	---	9.33	60.00	50.67	1000.0	9.000	N	19.8
4.310000	15.22	---	73.00	57.78	1000.0	9.000	N	19.8
10.060000	---	37.21	60.00	22.79	1000.0	9.000	N	19.9
10.060000	38.43	---	73.00	34.57	1000.0	9.000	N	19.9
16.230000	---	35.33	60.00	24.67	1000.0	9.000	N	19.9
16.230000	36.96	---	73.00	36.04	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))



KES Co., Ltd.

3701, 40, Simin-daero 365beon-gil,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

Report No.:

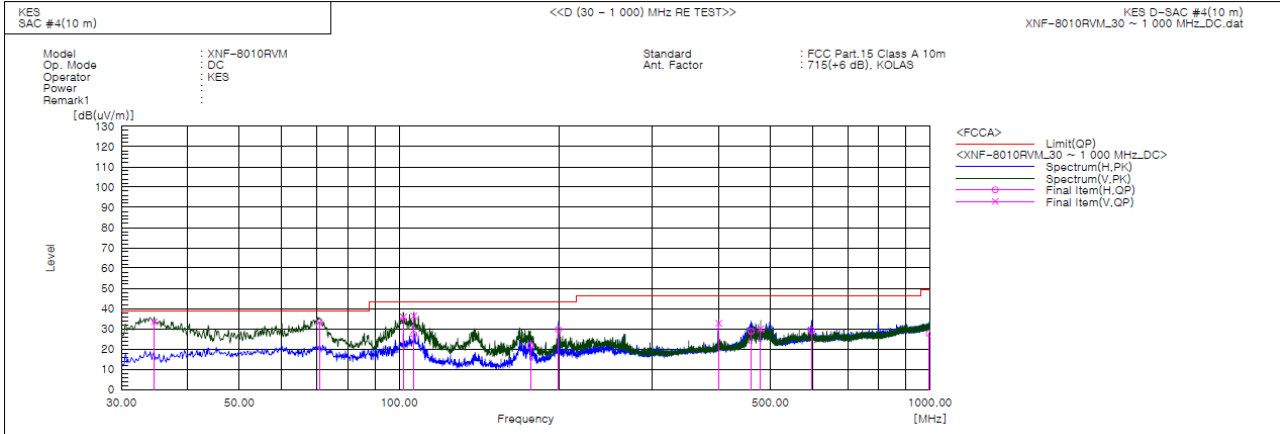
KES-EM-22T0071-R1

Page (20) of (37)

Radiated Electric Field Emissions(Below 1 GHz)

- 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	34.608	V	58.0	-24.5	33.5	39.0	5.5	125.0	218.0	
2	70.740	V	58.1	-25.0	33.1	39.0	5.9	146.0	166.0	
3	101.901	V	58.3	-22.4	35.9	43.5	7.6	144.0	180.0	
4	106.630	V	58.7	-22.3	36.4	43.5	7.1	103.0	188.0	
5	106.630	H	49.6	-22.3	27.3	43.5	16.2	397.0	323.0	
6	176.713	H	45.5	-23.7	21.8	43.5	21.7	362.0	216.0	
7	199.508	H	50.5	-20.8	29.7	43.5	13.8	396.0	138.0	
8	400.055	V	46.7	-14.0	32.7	46.5	13.8	135.0	218.0	
9	459.953	H	41.4	-12.6	28.8	46.5	17.7	371.0	175.0	
10	479.474	V	42.0	-11.9	30.1	46.5	16.4	129.0	3.0	
11	598.299	H	37.5	-8.4	29.1	46.5	17.4	384.0	223.0	
12	995.635	H	30.1	-2.4	27.7	49.5	21.8	356.0	130.0	

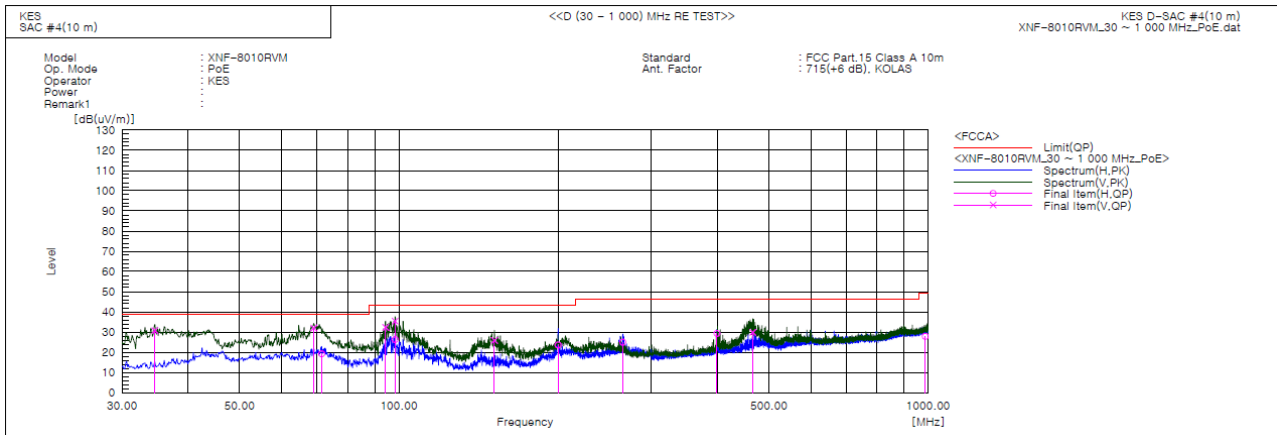
This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

The authenticity of the test report, contact kes@kes.co.kr



PoE Mode



Final Result

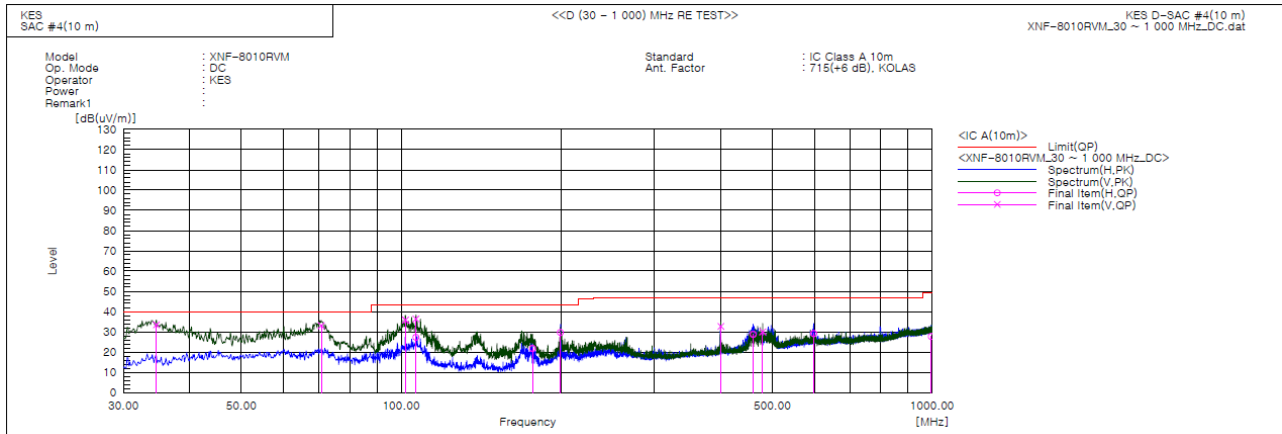
No.	Frequency [MHz]	(P)	Reading QP [dB(μV)]	c.f [dB(1/m)]	Result QP [dB(μV/m)]	Limit QP [dB(μV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Remark
1	34.608	V	55.3	-24.5	30.8	39.0	8.2	141.0	317.0	
2	69.043	V	56.4	-24.4	32.0	39.0	7.0	129.0	140.0	
3	71.468	H	44.5	-25.3	19.2	39.0	19.8	359.0	7.0	
4	94.384	V	55.9	-23.5	32.4	43.5	11.1	142.0	227.0	
5	98.385	V	58.1	-22.6	35.5	43.5	8.0	145.0	238.0	
6	98.385	H	48.9	-22.6	26.3	43.5	17.2	382.0	82.0	
7	151.493	V	51.0	-25.1	25.9	43.5	17.6	106.0	218.0	
8	199.871	H	44.4	-20.8	23.6	43.5	19.9	363.0	313.0	
9	264.983	H	43.8	-18.8	25.0	46.5	21.5	377.0	348.0	
10	398.843	H	43.4	-14.1	29.3	46.5	17.2	383.0	186.0	
11	466.136	V	42.3	-12.4	29.9	46.5	16.6	138.0	324.0	
12	987.026	H	30.6	-2.7	27.9	49.5	21.6	394.0	190.0	

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
The authenticity of the test report, contact kes@kes.co.kr



- IC Regulation ICES-003 Issue 7

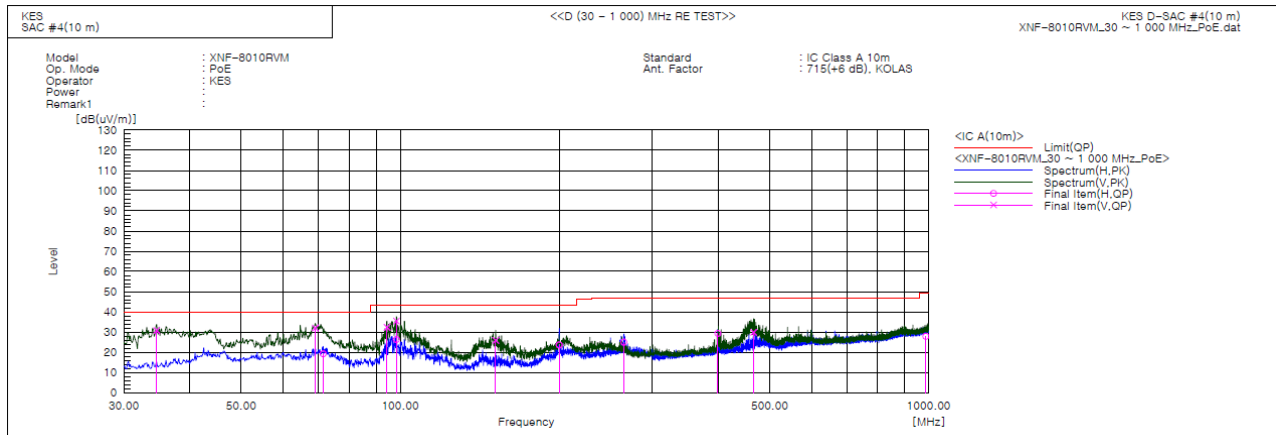
■ DC Mode



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	34.608	V	58.0	-24.5	33.5	40.0	6.5	125.0	218.0	
2	70.740	V	58.1	-25.0	33.1	40.0	6.9	146.0	166.0	
3	101.901	V	58.3	-22.4	35.9	43.5	7.6	144.0	180.0	
4	106.630	V	58.7	-22.3	36.4	43.5	7.1	103.0	188.0	
5	106.630	H	49.6	-22.3	27.3	43.5	16.2	397.0	323.0	
6	176.713	H	45.5	-23.7	21.8	43.5	21.7	362.0	216.0	
7	199.508	H	50.5	-20.8	29.7	43.5	13.8	396.0	138.0	
8	400.055	V	46.7	-14.0	32.7	47.0	14.3	135.0	218.0	
9	459.953	H	41.4	-12.6	28.8	47.0	18.2	371.0	175.0	
10	479.474	V	42.0	-11.9	30.1	47.0	16.9	129.0	3.0	
11	598.299	H	37.5	-8.4	29.1	47.0	17.9	384.0	223.0	
12	995.635	H	30.1	-2.4	27.7	49.5	21.8	356.0	130.0	

■ 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	34.608	V	55.3	-24.5	30.8	40.0	9.2	141.0	317.0	
2	69.043	V	56.4	-24.4	32.0	40.0	8.0	129.0	140.0	
3	71.468	H	44.5	-25.3	19.2	40.0	20.8	359.0	7.0	
4	94.384	V	55.9	-23.5	32.4	43.5	11.1	142.0	227.0	
5	98.385	V	58.1	-22.6	35.5	43.5	8.0	145.0	238.0	
6	98.385	H	48.9	-22.6	26.3	43.5	17.2	382.0	82.0	
7	151.493	V	51.0	-25.1	25.9	43.5	17.6	106.0	218.0	
8	199.871	H	44.4	-20.8	23.6	43.5	19.9	363.0	313.0	
9	264.983	H	43.8	-18.8	25.0	47.0	22.0	377.0	348.0	
10	398.843	H	43.4	-14.1	29.3	47.0	17.7	383.0	186.0	
11	466.136	V	42.3	-12.4	29.9	47.0	17.1	138.0	324.0	
12	987.026	H	30.6	-2.7	27.9	49.5	21.6	394.0	190.0	

◆ 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



KES Co., Ltd.

3701, 40, Simin-daero 365beon-gil,
Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Korea
Tel: +82-31-425-6200 / Fax: +82-31-424-0450
www.kes.co.kr

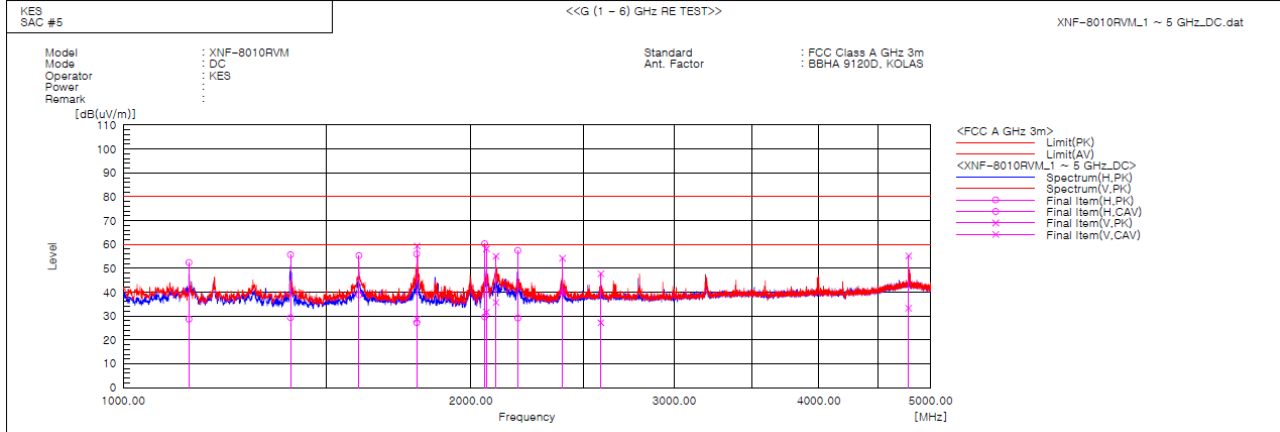
Report No.:

KES-EM-22T0071-R1

Page (24) of (37)

Radiated Electric Field Emissions(Above 1 GHz)

■ DC Mode



Final Result

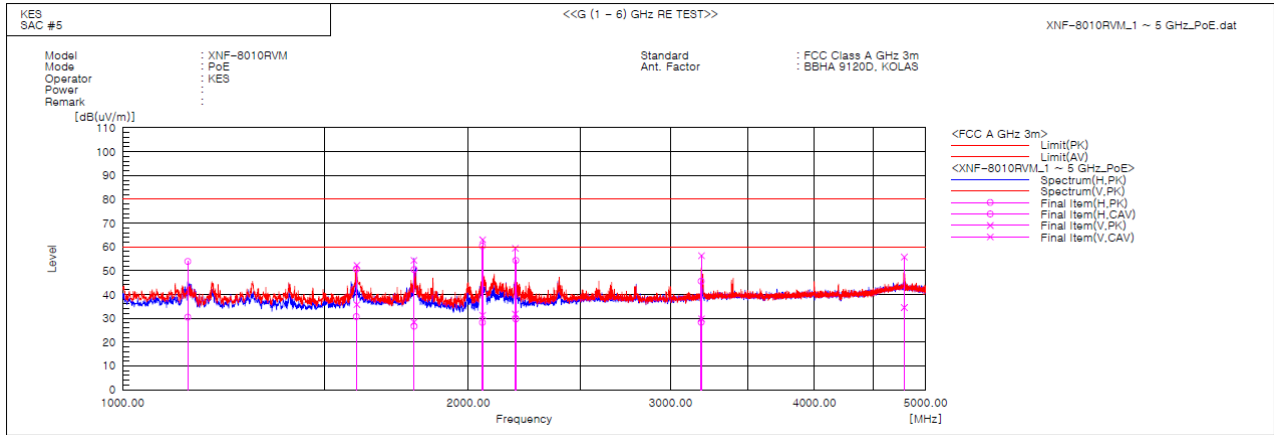
No.	Frequency [MHz]	(P)	Reading PK [dB(uV)]	Reading CAV [dB(uV)]	c.f [dB(1/m)]	Result PK [dB(uV/m)]	Result CAV [dB(uV/m)]	Limit PK [dB(uV/m)]	Limit AV [dB(uV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]	Remark
1	1140.000	H	59.6	35.9	-7.2	52.4	28.7	80.0	60.0	27.6	31.3	100.6	355.0	
2	1395.625	H	61.6	35.3	-5.9	55.7	29.4	80.0	60.0	24.3	30.6	106.0	146.1	
3	1600.000	H	60.2	43.8	-4.9	55.3	38.9	80.0	60.0	24.7	21.1	105.1	237.5	
4	1795.000	H	60.1	31.3	-4.1	56.0	27.2	80.0	60.0	24.0	32.8	147.9	1.8	
5	1796.250	V	63.4	32.8	-4.1	59.3	28.7	80.0	60.0	20.7	31.3	102.4	251.8	
6	2055.000	H	63.7	33.1	-3.4	60.3	29.7	80.0	60.0	19.7	30.3	121.4	16.3	
7	2063.125	V	61.5	35.0	-3.3	58.2	31.7	80.0	60.0	21.8	28.3	155.5	350.6	
8	2101.875	V	58.3	38.9	-3.2	55.1	35.7	80.0	60.0	24.9	24.3	134.8	349.0	
9	2196.250	H	60.3	31.9	-2.8	57.5	29.1	80.0	60.0	22.5	30.9	103.6	63.5	
10	2400.000	V	56.2	41.9	-2.0	54.2	39.9	80.0	60.0	25.8	20.1	134.5	354.3	
11	2591.250	V	49.0	28.4	-1.2	47.8	27.2	80.0	60.0	32.2	32.8	231.2	266.9	
12	4784.375	V	50.1	28.2	5.1	55.2	33.3	80.0	60.0	24.8	26.7	103.8	0.7	

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.

The authenticity of the test report, contact kes@kes.co.kr

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	1139.375	H	61.1	37.7	-7.2	53.9	30.5	80.0	60.0	26.1	29.5	112.6	330.7	
2	1597.500	H	55.7	35.7	-5.0	50.7	30.7	80.0	60.0	29.3	29.3	100.9	111.5	
3	1599.375	V	57.2	40.6	-4.9	52.3	35.7	80.0	60.0	27.7	24.3	160.8	192.5	
4	1793.125	V	58.6	32.6	-4.2	54.4	28.4	80.0	60.0	25.6	31.6	118.9	202.0	
5	1793.750	H	54.7	30.9	-4.2	50.5	26.7	80.0	60.0	29.5	33.3	115.4	136.3	
6	2056.875	H	63.7	31.6	-3.4	60.3	28.2	80.0	60.0	19.7	31.8	103.3	21.3	
7	2057.500	V	66.4	34.6	-3.4	63.0	31.2	80.0	60.0	17.0	28.8	129.2	349.6	
8	2196.875	V	62.3	34.6	-2.8	59.5	31.8	80.0	60.0	20.5	28.2	255.8	205.9	
9	2198.750	H	57.1	32.5	-2.8	54.3	29.7	80.0	60.0	25.7	30.3	393.9	228.3	
10	3188.750	H	45.1	27.8	0.5	45.6	28.3	80.0	60.0	34.4	31.7	219.5	71.0	
11	3190.625	V	55.8	29.3	0.5	56.3	29.8	80.0	60.0	23.7	30.2	119.7	172.3	
12	4790.000	V	50.6	29.4	5.2	55.8	34.6	80.0	60.0	24.2	25.4	101.9	209.0	

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

Test Setup Photos and Configuration

Conducted Emissions at Mains Power Ports

■ DC Mode



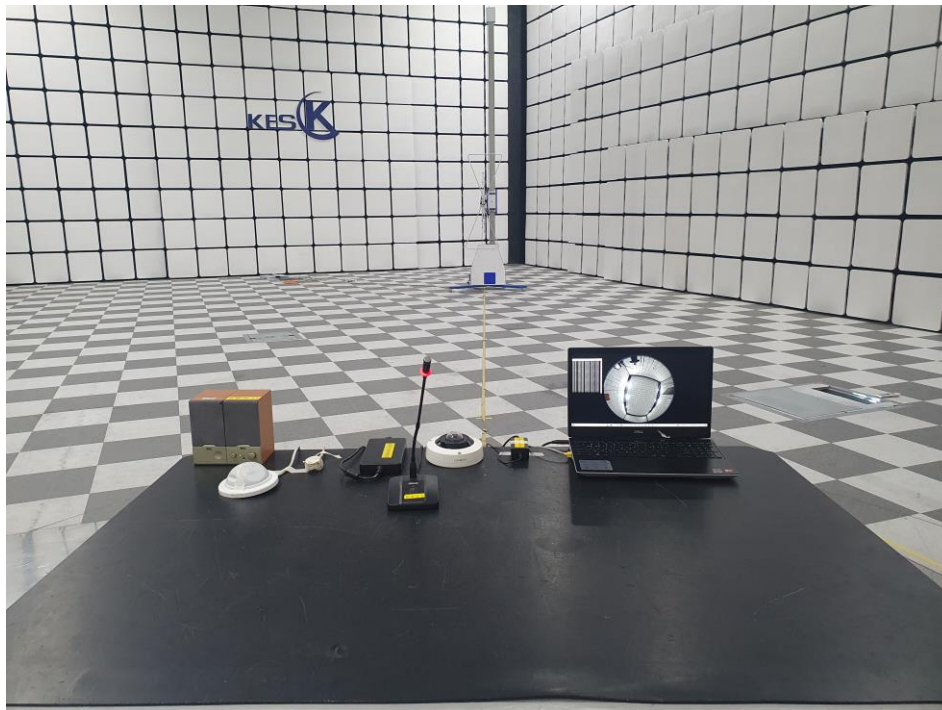
This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
The authenticity of the test report, contact kes@kes.co.kr

■ PoE Mode



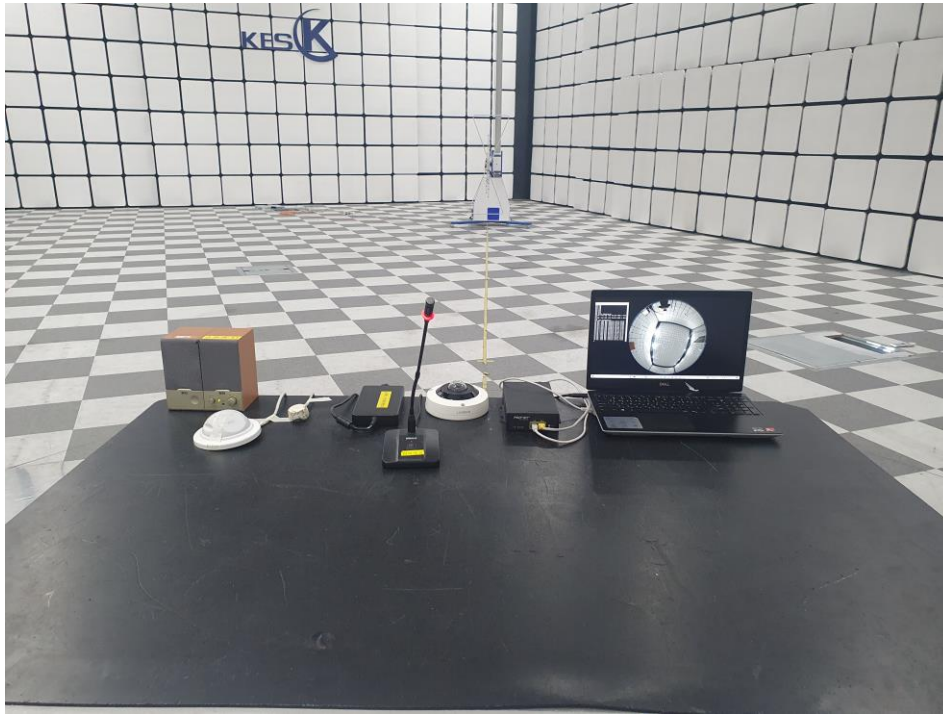
Radiated Electric Field Emissions(Below 1 GHz)

■ DC Mode



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
The authenticity of the test report, contact kes@kes.co.kr

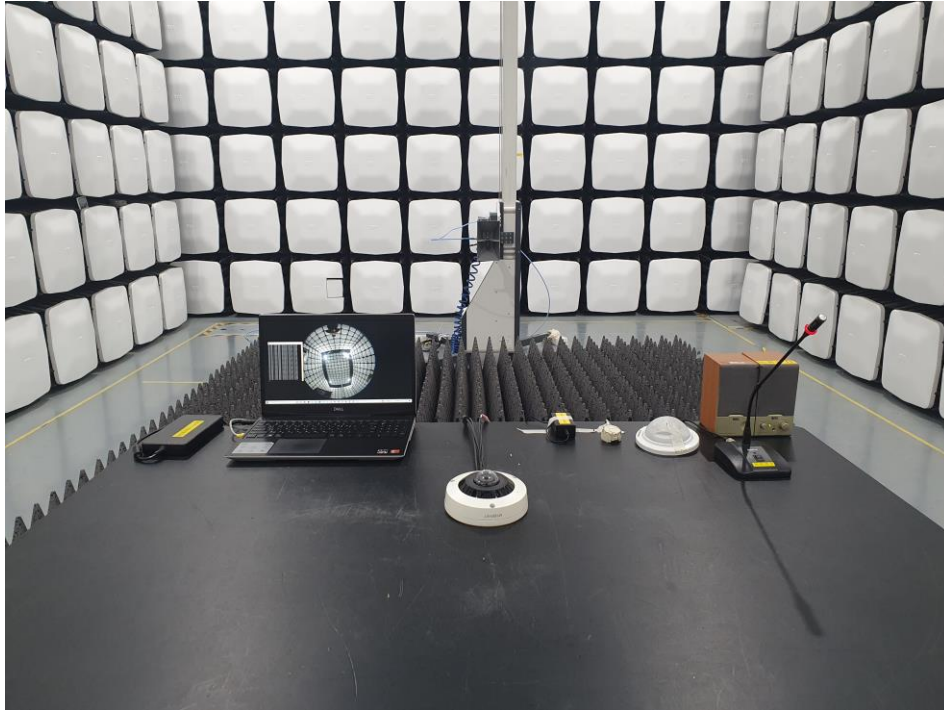
■ PoE Mode



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
The authenticity of the test report, contact kes@kes.co.kr

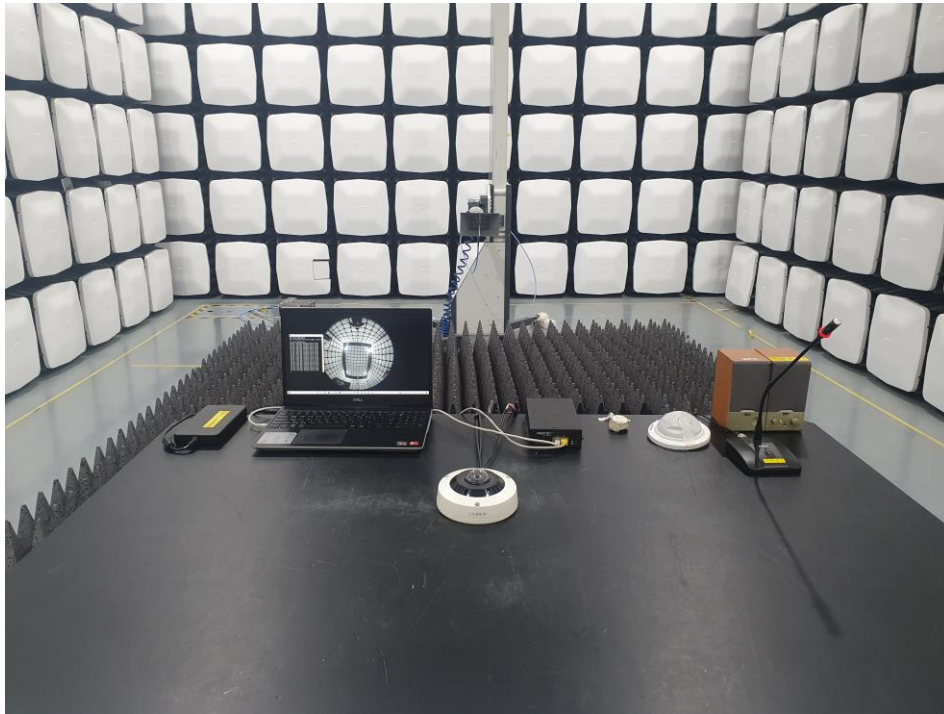
Radiated Electric Field Emissions(Above 1 GHz)

■ DC Mode



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
The authenticity of the test report, contact kes@kes.co.kr

■ PoE Mode



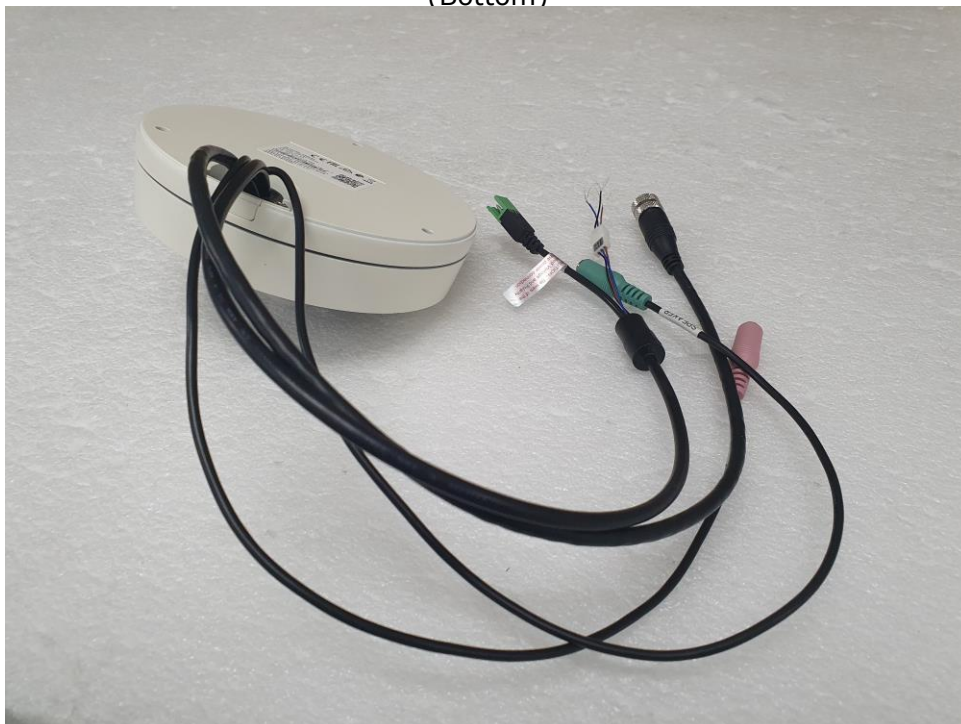
This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
The authenticity of the test report, contact kes@kes.co.kr

EUT External Photographs

(Top)



(Bottom)



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
The authenticity of the test report, contact kes@kes.co.kr

EUT Internal Photographs

(Internal View)



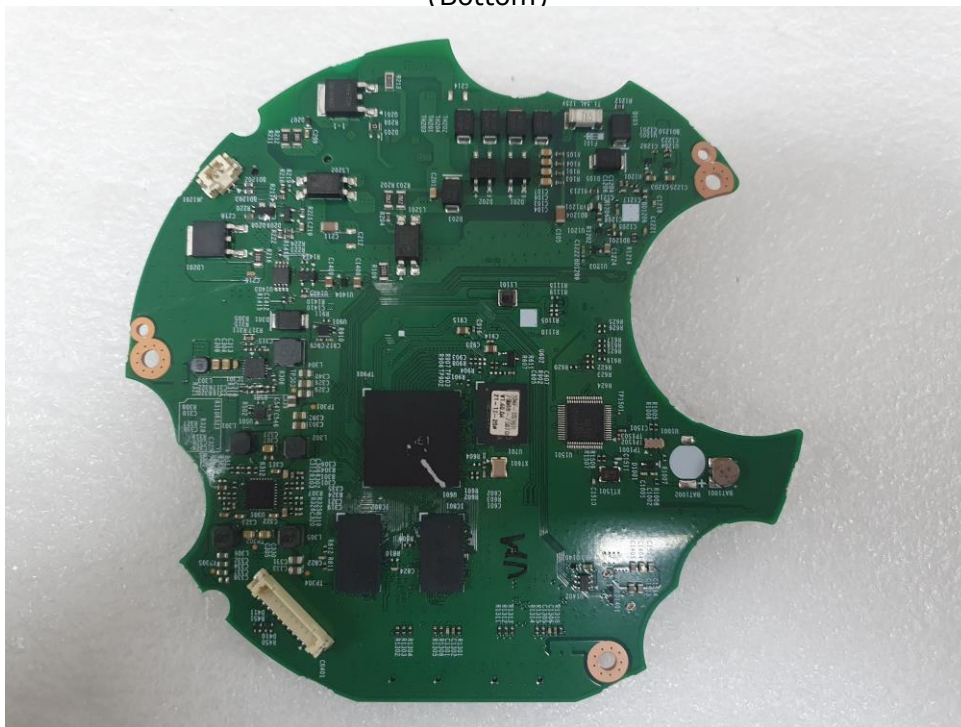
This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
The authenticity of the test report, contact kes@kes.co.kr

EUT Internal View – Board 1

(Top)



(Bottom)



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
The authenticity of the test report, contact kes@kes.co.kr

EUT Internal View – Board 2

(Top)



(Bottom)



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
The authenticity of the test report, contact kes@kes.co.kr

EUT Internal View – Lens

(Top)



(Bottom)



This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
The authenticity of the test report, contact kes@kes.co.kr

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.