



TEST REPORT



Report No. : KES-EM254242

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KES Co., Ltd.

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1. Client

Applicant : Hanwha Vision Co., Ltd

Applicant Address : 6, Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea

2. Sample Description

Product name : NETWORK CAMERA

Model/Type No. : XNV-C7083R

Variant Model : -

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 Ward, Bac Ninh Province, Vietnam
2. 173-25, Saneop-ro, Gwonseon-gu, Suwon-si, Gyeonggi-do, Korea (Suwon Industrial Complex)

3. Date of Receipt : Dec. 02, 2025

4. Test date : Dec. 05, 2025 ~ Dec. 07, 2025

5. Date of Issue : Dec. 19, 2025

6. Test Results : In Compliance

Tested by

Reviewed by

Dong Yun, Lee
EMC Test Engineer

Dae Jung, Choi
EMC Technical Manager

This test report is not related to KS Q ISO/IEC 17025 and KOLAS.

KES-QP16-F01(00-23-01-01)

KES Co., Ltd.

The authenticity of this test report can be found on the verification page of our website (www.kes.co.kr).

**REPORT REVISION HISTORY**

Date	Test Report No.	Revision History
Dec. 19, 2025	KES-EM254242	Issued

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1.0 General Product Description

Main Specifications of EUT are:

Video	
Imaging Device	1/2.8" progressive CMOS
Resolution	2592x1520, 2560x1440, 1920x1080, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240
Max. Framerate	H.265/H.264: Max. 60fps/50fps(60Hz/50Hz)(WDR off) Max. 30fps/25fps(60Hz/50Hz)(WDR on) MJPEG: Max. 30fps/25fps(60Hz/50Hz)
NETD	None
Pixel Size	None
Min. Illumination	Color: 0.038Lux(F1.4, 1/30sec, 30IRE) B/W : 0.0038Lux(F1.4, 1/30sec, 30IRE), 0Lux(IR LED on), 30/25fps Color: 0.076Lux(F1.4, 1/60sec, 30IRE) B/W : 0.0076Lux(F1.4, 1/60sec, 30IRE), 0Lux(IR LED on), 60/50fps
Video Out	USB: Micro USB Type B, 1280x720 for installation
Video Transmission Distance	None
Lens	
Focal Length (Zoom Ratio)	2.8~10mm(3.6x) motorized varifocal(TBD)
Max. Aperture Ratio	(TBD)F1.4(Wide) ~ F3.0(Tele)
Angular Field of View	(TBD) H: 109.7°(Wide) ~ 30.4°(Tele) V: 60.8°(Wide) ~ 17.8°(Tele) D: 131.3°(Wide) ~ 35.3°(Tele)
Min. Object Distance	0.5m(1.64ft)
Focus Control	Simple focus, Manual
Lens Type	DC auto iris with hall sensor (IR corrected)
Mount Type	None
Optional Lens	None
Pan / Tilt / Rotate	
Pan / Tilt / Rotate Range	TBD(Pan ±177 이상, Tilt ±75 이상, Rotate ±178이상) * 기존 WN5 X사양 (0°~354° / 0°~67° / 0°~355°)
Pan Range	None
Pan Speed	None
Tilt Range	None
Tilt Speed	None
Rotate Range	None
Sequence	None
Preset Accuracy	None
Operational	
Camera Title	Displayed up to 85 characters
Direction Indicator	None
Day & Night	Auto(ICR)
Backlight Compensation	BLC, HLC, WDR, SSDR
Wide Dynamic Range	extremeWDR (120dB)
Digital Noise Reduction	WiseNRⅡ(Based on AI engine), SSNRV
Digital Image Stabilization	Support(built-in gyro sensor)
Defog	Support
Motion Detection	8ea, 8point Polygonal zones



Privacy Masking	32ea, 4point Quadrangle zones - Color : Gray, Green, Red, Blue, Black, White - Mosaic
Gain Control	Support
White Balance	ATW / Narrow ATW / AWC / Manual / Indoor / Outdoor
LDC	Support (Fill/stretch mode)
Electronic Shutter Speed	Minimum / Maximum / Anti flicker (2~1/12,000sec) Auto prefer shutter control(Based on AI engine)
Digital PTZ	Support
Video Rotation	Flip, Mirror, Hallway view(90°/270°)
Analytics	- Analytics events based on AI engine(NPU) : Object detection (Person/Face/Vehicle(car/truck/bus/bicycle/bike)/Licence plate), IVA (Virtual line/Area, Enter/Exit, Loitering, direction, intrusion) - Analytics events : Defocus detection, Motion detection, Tampering, Fog detection, Audio detection, Sound classification, Shock detection, Appear/Disappear
Business Intelligence	Based on AI engine(NPU) : People counting, Queue management, Heatmap
Serial Interface	None
Alarm I/O	2 configurable I/O ports
Alarm Triggers	Analytics, Network disconnect, Alarm input, App event, Time schedule
Alarm Events	When alarm trigger occurred - File upload(image) : e-mail/FTP - File upload(video clip) : FTP - Notification : e-mail - Recording : SD/SDHC/SDXC or NAS recording at event triggers - Alarm output - Handover(PTZ preset, Send message by HTTP/HTTPS/TCP) - Audio clip playback - PTZ preset
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	WiseIR40m(131.23ft)(TBD)
IR Illuminator (Optional)	None
Water Removal	None
Auto Tracking	None
Coaxial Protocol	None
Color Palettes	None
Radiometry	
Temperature Detect Range	None
Temperature Accuracy	None
Temperature Detection	None
Additional	None
Network	
Ethernet	Metal shielded RJ-45(10/100BASE-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, WiseStreamIII(Based on AI engine)
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(20 users) / Multicast Multiple streaming(Up to 10 profiles, 3 virtual channel support)



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, UPnP, Bonjour, LLDP, SRTP (TCP, UDP Unicast)
Security	HTTPS(SSL) Login Authentication Digest Login Authentication IP Address Filtering User access log 802.1X Authentication(EAP-TLS, EAP-LEAP, EAP-PEAP MSCHAPv2) Device Certificate(Hanwha Techwin Root CA, pre-installed) Secure by default certificate HTPM (Hanwha Trusted platform module) Secure OS/Boot/Storage, Verify firmware forgery
Application Programming Interface	ONVIF Profile S/G/T SUNAPI(HTTP API) Wisenet open platform
General	
Webpage Language	English, Korean, Chinese, French, Italian, Spanish, German, Japanese, Russian, Swedish,, Portuguese, Czech, Polish, Turkish, Dutch, Greek, Hungarian
Web Viewer	None
Edge Storage	Micro SD/SDHC/SDXC 1slot 512GB
Memory	2GB RAM, 512MB Flash
Environmental & Electrical	
Operating Temperature / Humidity	-40°C~+55°C(-40°F ~ +131°F) * Maximum temperature : +60°C (intermittent) NEMA TS-2 : 74°C * Start up should be done at above -20°C less than 95%RH(non-condensing), 100%RH(condensing)(TBD) Humidity control /w GORE vent
Storage Temperature / Humidity	-50°C ~ +60°C(-58°F ~ +140°F) / Less than 90% RH
Certification	IP66/IP67/NEMA4X, IK10
Input Voltage	PoE(IEEE802.3af, Class3), 12VDC
Power Consumption	TBD
Mechanical	
Color / Material	White / Aluminum Hard-coated dome bubble
RAL Code	RAL9003
Product Dimensions / Weight	Ø160x118mm(Ø6.30x4.65"), 1450g(3.20 lb) (TBD)
Compatible Conduit hole / Gangbox	1/2" (M20) single, double, 4" octagon, 4" square
Hanging Mount (Dome)	SBP-167HMW
Skin Cover (Dome)	None
Weather Cap (Dome)	SBV-160WCW
Power Module	None
Backbox	None
DORI (EN62676-4 standard)	
Detect (25PPM/ 8PPF)	Wide: 36.5m(119.76ft) / Tele: 183.8m(603.05ft)
Observe (63PPM/ 19PPF)	Wide: 14.6m(47.9ft) / Tele: 73.5m(241.22ft)
Recognize (125PPM/ 38PPF)	Wide: 7.3m(23.95ft) / Tele: 36.8m(120.61ft)
Identify (250PPM/ 76PPF)	Wide: 3.7m(11.98ft) / Tele: 18.4m(60.31ft)



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 230 V, 50 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	XNV-C7083R	-	HANWHA VISION VIETNAM COMPANY LIMITED	EUT

1.5 System Configuration

Description	Model Number	Serial Number	Manufacturer	Remarks
-	-	-	-	-

1.6 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
AC/DC Adaptor	2ACB022F	-	Channel Well Technology (Guangzhou) Co., Ltd.	-
PoE Injector	PT-PSE109GBRO-A	-	Dongguan PROCET Network Technology Co.,Ltd	-
LED Alarm	-	-	-	-
Button Alarm	-	-	-	-
Headset	K550	-	Britz®	-
Micro SD Card	-	-	Sandisk	8 GB
Laptop	LG15N54	506NZGK000615	LG	-
Laptop Adaptor	PA-1650-43(65W)	OF58U63849302Y609	LG	-



1.7 External I/O Cabling

■ Mode 1

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
EUT	2 Pin	AC/DC Adaptor	2 Pin	0.8	U
	RJ-45 (LAN)	Laptop	RJ-45 (LAN)	3.1	U
	Micro SD Card Slot	Micro SD Card	Micro SD Card Slot	-	-
	Alarm OUT	LED Alarm	Alarm IN	3.1	U
	Alarm IN	Button Alarm	Alarm OUT	3.3	U
	Audio IN (MIC)	Headset	Audio OUT Audio IN	1.8	U
	Audio OUT (SPEAKER)				
Laptop	DC Jack	Laptop Adaptor	DC Jack	1.5	U

* Unshielded=U, Shielded=S

■ Mode 2

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
EUT	RJ-45 (PoE)	PoE Injector	RJ-45 (PoE)	3.1	U
	Micro SD Card Slot	Micro SD Card	Micro SD Card Slot	-	-
	Alarm OUT	LED Alarm	Alarm IN	3.1	U
	Alarm IN	Button Alarm	Alarm OUT	3.3	U
	Audio IN (MIC)	Headset	Audio OUT Audio IN	1.8	U
	Audio OUT (SPEAKER)				
Laptop	DC Jack	Laptop Adaptor	DC Jack	1.5	U
	RJ-45 (LAN)	PoE Injector	RJ-45 (LAN)	1.0	U

* Unshielded=U, Shielded=S



1.8 EUT Operating Mode(s)

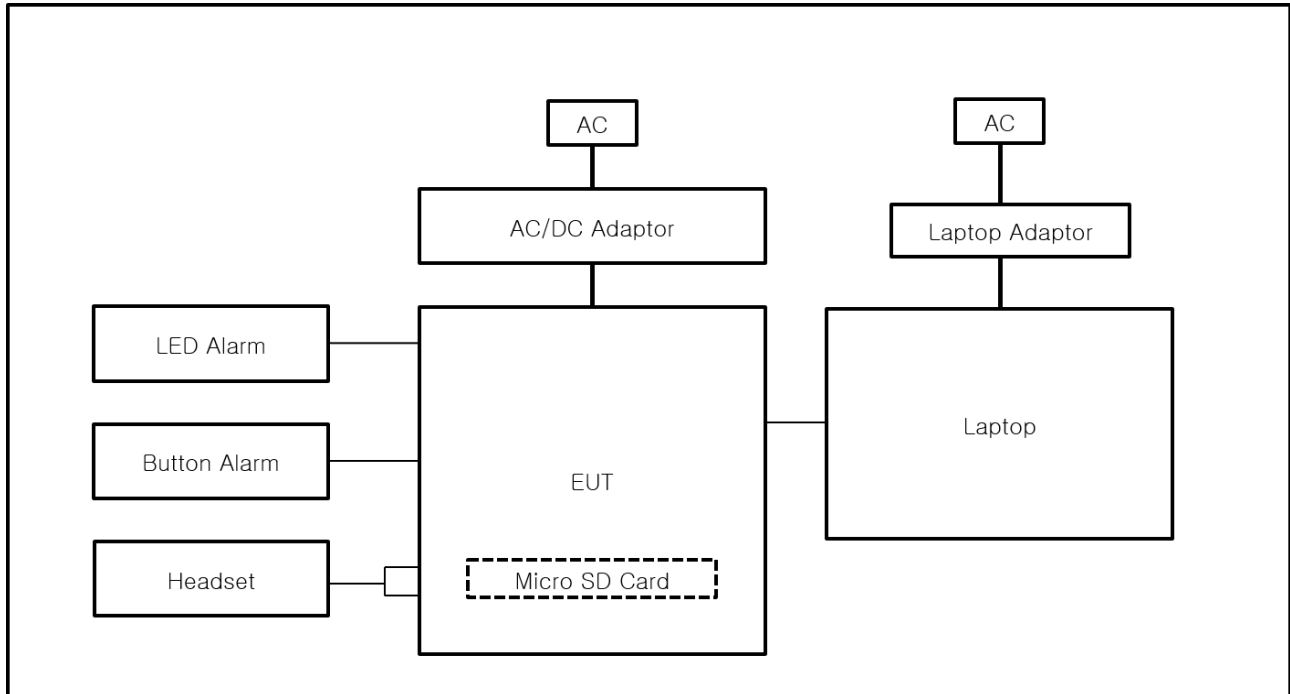
Test mode	Test Voltage	operating
Mode 1	AC/DC Adaptor	- Check the network behavior of the EUT with the laptop's ping test - View images of the camera through the Web Viewer - Play the 1 kHz tone through the Web Viewer to see the sound output with the headset - When the alarm is pressed, make sure the button alarm is working - After testing, check the recording with Micro SD Card
Mode 2	PoE Injector	

EUT Test operating S/W		
Name	Version	Manufacture Company
Web Viewer	-	HANWHA VISION VIETNAM COMPANY LIMITED

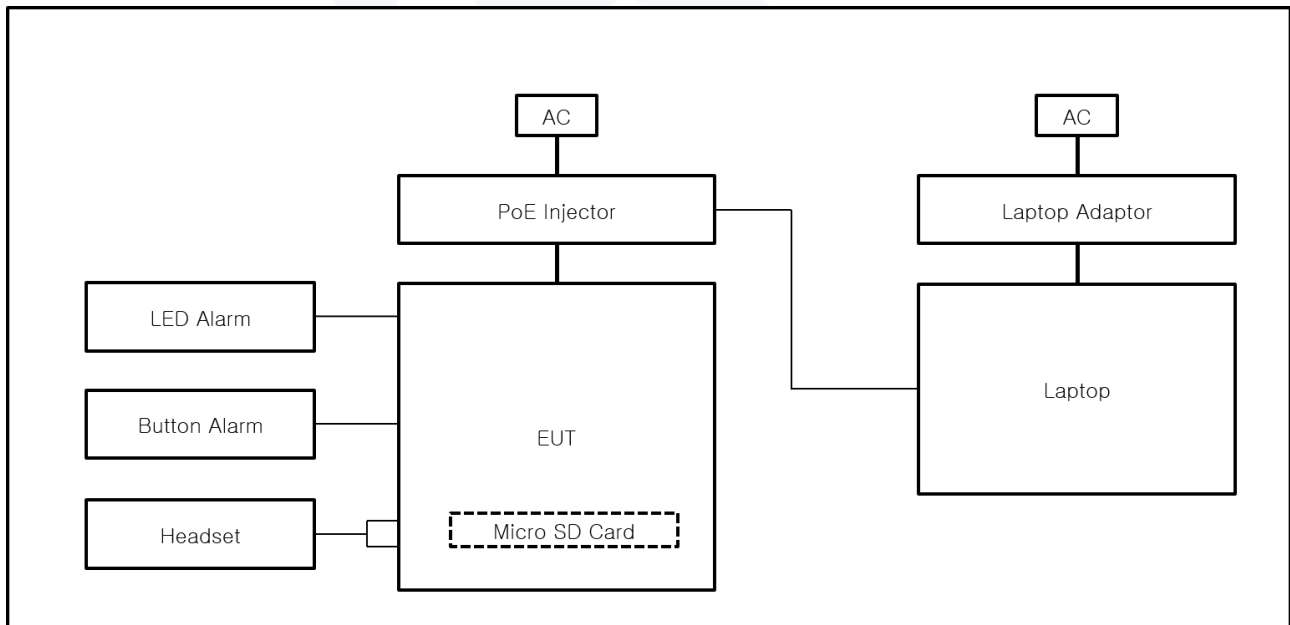


1.9 Configuration

■ Mode 1



■ Mode 2



**1.10 Remarks When Standards Applied**

N/A

1.11 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.

1.12 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

1.13 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 0008



2.0 Test Regulations

The emissions tests were performed according to following regulations:

- ☒ **EMC – Directive 2014/30/EU**
- ☒ EN 50121-1:2017
- ☒ EN 50121-4:2016/A1:2019
- ☒ EN IEC 61000-3-2:2019
- ☒ EN 61000-3-3:2013/A2:2021





2.1 Conducted Emissions at Mains Power Ports

Test Date

Dec. 05, 2025

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	11. 03, 2026
☒	LISN	ENV216	R & S	101786	01. 09, 2026
☒	ARTIFICIAL MAINS NETWORK	ESH2-Z5	R & S	100450	11. 03, 2026
☒	PULSE LIMITER	ESH3-Z2	R & S	101915	11. 03, 2026

Test Conditions

Temperature: (20,4 ~ 20,4) °C
Relative Humidity: (34,5 ~ 34,5) % 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

RemarksSee Appendix A for test data.



2.2 Conducted Emissions at Telecommunication Ports

Test Date

Dec. 05, 2025

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	11. 03, 2026
☒	LISN	ENV216	R & S	101786	01. 09, 2026
☒	ARTIFICIAL MAINS NETWORK	ESH2-Z5	R & S	100450	11. 03, 2026
☒	PULSE LIMITER	ESH3-Z2	R & S	101915	11. 03, 2026
☒	8-WIRE ISN CAT3,5	ENY81	R & S	100174	11. 05, 2026

Test Conditions

Temperature: (20,4 ~ 20,4) °C
Relative Humidity: (34,5 ~ 34,5) % 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

RemarksSee Appendix A for test data.



2.3 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Dec. 05, 2025

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	02. 13, 2026
☒	AMPLIFIER	SCU 01	R & S	100603	11. 03, 2026
☒	BILOG ANTENNA	VULB 9168	SCHWARZBECK	9168-461	05. 09, 2026
☒	ATTENUATOR	6806.17.A	HUBER+SUHNER	-	02. 13, 2026

Test Conditions

Temperature: (20,1 ~ 20,7) °C

Relative Humidity: (35,3 ~ 35,9) % 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

RemarksSee Appendix A for test data.



2.4 Radiated Electric Field Emissions(Above 1 GHz)

Test Date

Dec. 05, 2025

Test Location

SEMI ANECHOIC CHAMBER #5

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	ES10/RE	TOYO Corporation	2022.01.000	-
☒	EMI TEST RECEIVER	ESU26	Rohde & Schwarz	100552	02. 13, 2026
☒	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	414	01. 13, 2026
☒	PREAMPLIFIER	8449B	HP	3008A00538	04. 30, 2026
☒	ATTENUATOR	8491B	HP	23094	02. 13, 2026

Test Conditions

Temperature: (20,2 ~ 20,8) °C

Relative Humidity: (36,2 ~ 36,8) % R.H.

Frequency Range of Measurement

1 GHz to 6 GHz

Instrument Settings

IF Band Width: 1 MHz

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

RemarksSee Appendix A for test data.



2.5 Harmonic Current Emissions

Test Date

Dec. 06, 2025

Test Location

Electro wave Shieldroom #7

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	net.control	EM TEST	2.1.4	-
☒	DIGITAL POWER ANALYZER	DPA 500N	EM TEST	V1024106759	03. 31, 2026
☒	POWER SOURCE	ACS 500N6	EM TEST	V1024106760	-

Test Conditions

Temperature: (20,7 ~ 20,7) °C
Relative Humidity: (36,7 ~ 36,7) % R.H.

Classification of Equipment for Harmonic Current Emissions

- ☒ Class A
☐ Class B
☐ Class C(Below 25 W)
☐ Class C(Above 25 W)
☐ Class D

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

- See Appendix A for test data.
- The LAN port is regarded as a wired communication network port and power-related ports are not tested.



2.6 Voltage Fluctuations and Flicker

Test Date

Dec. 06, 2025

Test Location

Electro wave Shieldroom #7

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	net.control	EM TEST	2.1.4	-
☒	DIGITAL POWER ANALYZER	DPA 500N	EM TEST	V1024106759	04. 01, 2026
☒	POWER SOURCE	ACS 500N6	EM TEST	V1024106760	-

Test Conditions

Temperature: (20,4 ~ 21,0) °C
Relative Humidity: (36,4 ~ 37,0) % R.H.

Test Results

The requirements are:

- ☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

Remarks

- See Appendix A for test data.
- The LAN port is regarded as a wired communication network port and power-related ports are not tested.



3.0 Criteria for Compliance

Criteria for compliance was based on the following guidelines:

General performance criteria

The general principles (performance criteria) for the evaluation of the immunity test results are the following.

Performance criteria A

The apparatus shall continue to operate as intended during and after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended.

Performance criteria B

The apparatus shall continue to operate as intended after the test. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer, when the apparatus is used as intended. The performance level may be replaced by a permissible loss of performance. During the test, degradation of performance is however allowed. No change of actual operating state or stored data is allowed. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, either of these may be derived from the product description and documentation and what the user may reasonably expect from the apparatus if used as intended.

Performance criteria C

Temporary loss of function is allowed, provided the function is self-recoverable or can be restored by the operation of the controls.



3.1 Electrostatic Discharge

Reference Standard

EN 61000-4-2:2009

Test Date

Dec. 05, 2025

Test Location

EMS-ESD: Electro wave Shieldroom#6

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	ESD SIMULATOR	ESS-2000	Noise Ken	ESS01Z0454	01. 21, 2026
☒	HCP	-	KES	-	-
☒	VCP	-	Noise Ken	-	-

Test Conditions

Temperature: (21,4 ~ 21,6) °C
Relative Humidity: (36,2 ~ 36,4) % R.H.
Atmospheric Pressure: (100,8 ~ 100,8) kPa

Test SpecificationsDischarge Factor: ≥ 1 s

Discharge Impedance: 330 ohm / 150 pF

Kind of Discharge: Air, Contact (direct and indirect)

Polarity: Positive and Negative

Number of Discharge: ■ 10 at all locations for Air discharge
■ 10 at all locations for Contact discharge

Discharge Voltage:	Contact	Air	HCP	VCP
	☐ 2 kV	☒ 2 kV	☐ 2 kV	☐ 2 kV
	☐ 4 kV	☒ 4 kV	☐ 4 kV	☐ 4 kV
	☒ 6 kV	☐ 6 kV	☒ 6 kV	☒ 6 kV
	☐ 8 kV	☒ 8 kV	☐ 8 kV	☐ 8 kV
	☐ 15 kV	☐ 15 kV	☐ 15 kV	☐ 15 kV

Notes: HCP: Horizontal Coupling Plane

VCP: Vertical Coupling Plane

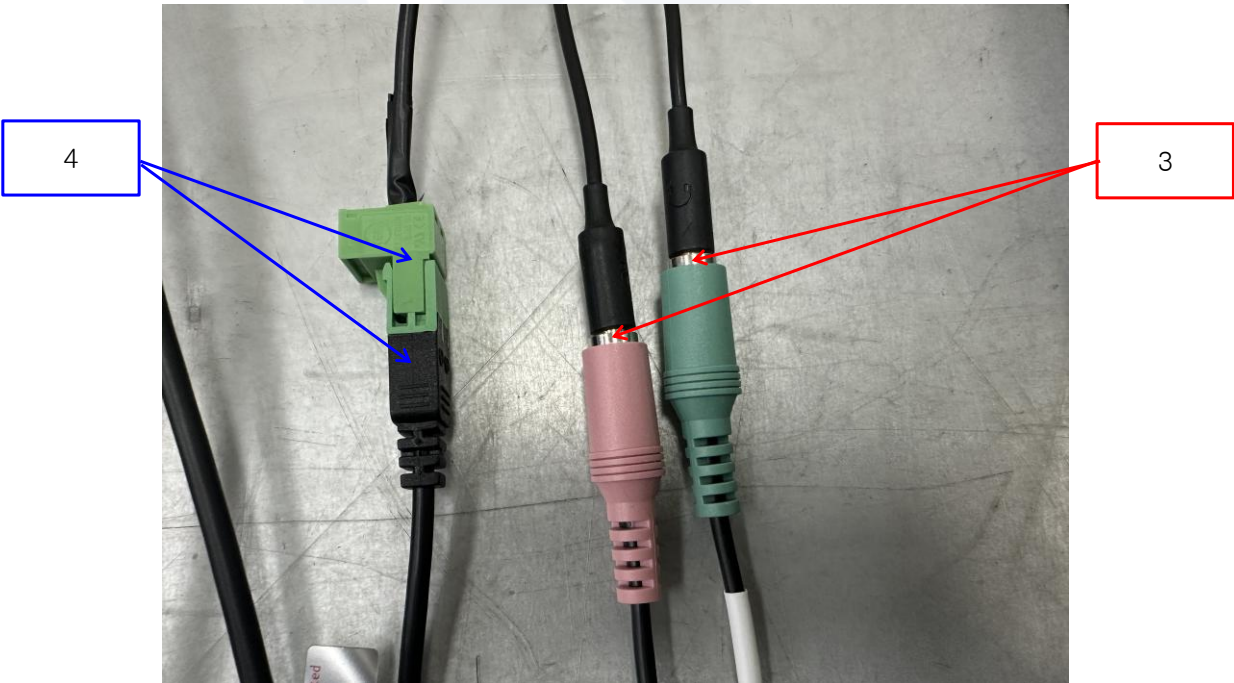
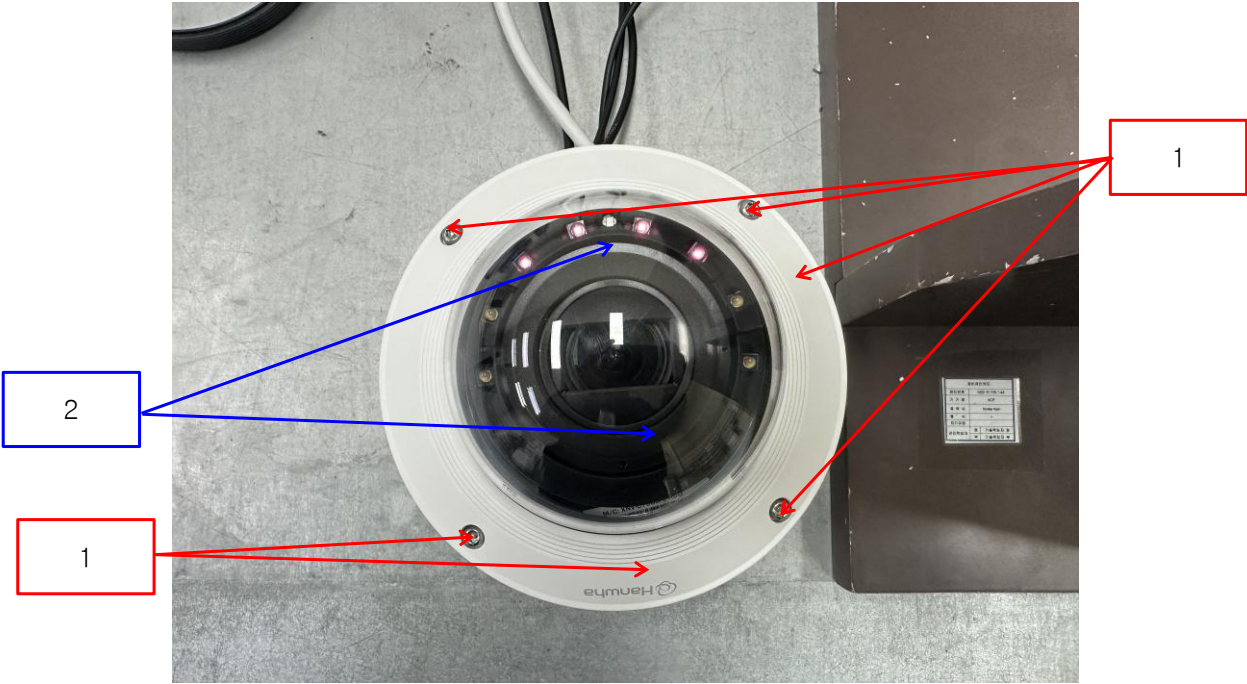
Required Performance Criteria: ☒ B



Location of Discharge:

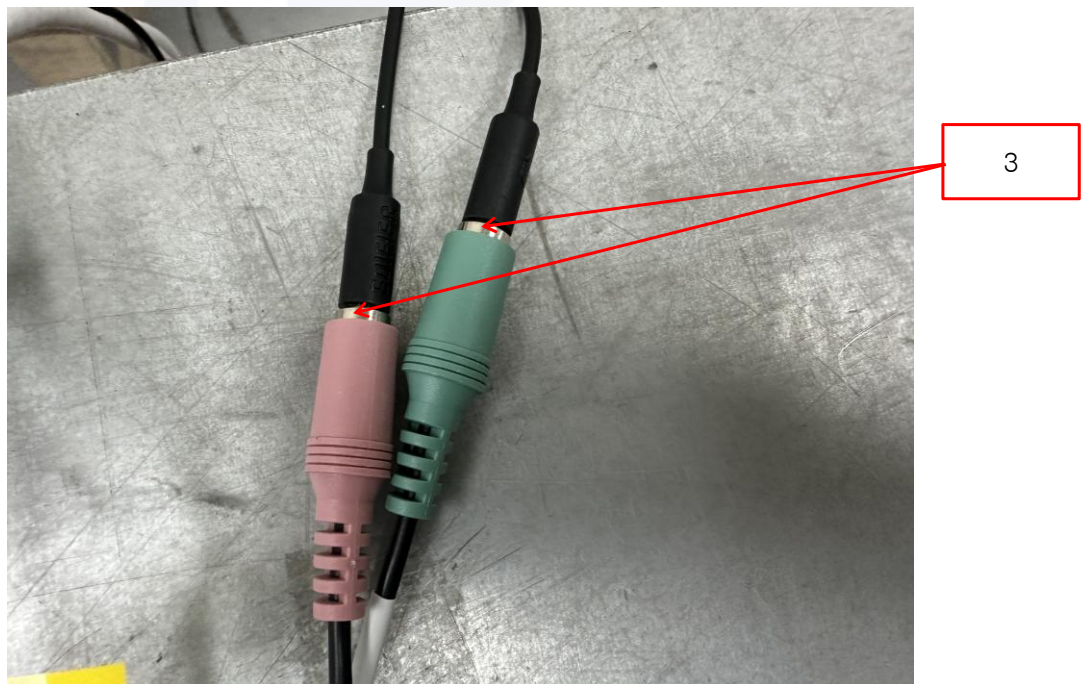
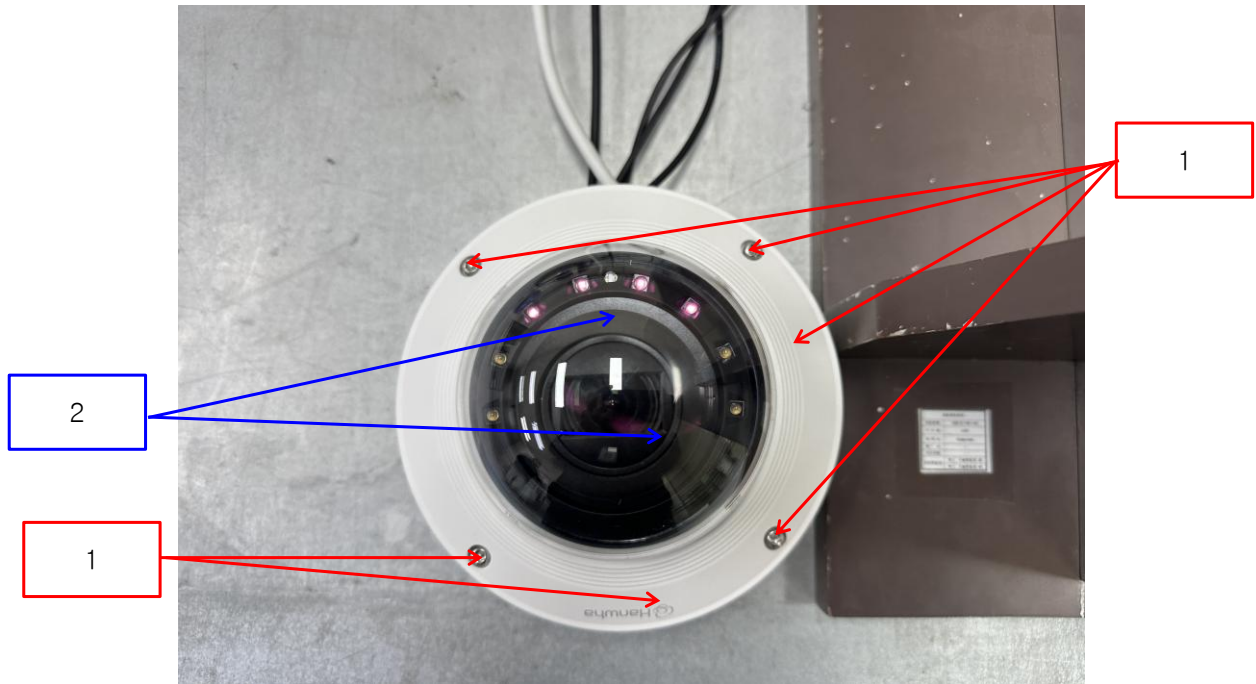


■ Mode 1





■ Mode 2



**Test Data**

■ Mode 1

Indirect Discharge

No.	Test Point	Discharge Method	Observations	Remarks
1	HCP Contact	Contact Discharge	A	-
2	VCP Contact	Contact Discharge	A	-

Direct Discharge

No.	Test Point	Discharge Method	Observations	Remarks
1	Enclosure 1, Screw	Contact Discharge	A	-
2	Enclosure 2	Air Discharge	A	-
3	Port 1	Contact Discharge	A	-
4	Port 2	Air Discharge	A	-

■ Mode 2

Indirect Discharge

No.	Test Point	Discharge Method	Observations	Remarks
1	HCP Contact	Contact Discharge	A	-
2	VCP Contact	Contact Discharge	A	-

Direct Discharge

No.	Test Point	Discharge Method	Observations	Remarks
1	Enclosure 1, Screw	Contact Discharge	A	-
2	Enclosure 2	Air Discharge	A	-
3	Port	Contact Discharge	A	-

Note: "Blank" = Not performed

Observations:

- A – No response observed from EUT
- B – Unit shuts down then automatically restarts when full voltage is restored.
- C – Unit shuts down then manually restarts when full voltage is restored or Loss of function.

Test Results

- ☒ Test result reference
- ☐ NOT APPLICABLE

Remarks

Any degradations of performance was not observed during in the test.



3.2 Radio-frequency Electromagnetic Field

Reference Standard

EN IEC 61000-4-3:2020

Test Date

Dec. 06, 2025

Test LocationEMS-RS: ☒ SEMI ANECHOIC CHAMBER #3 ☐ SEMI ANECHOIC CHAMBER #4(10 m)**Test Equipment**

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMS Test S/W	EMC32	R & S	10.10.02	-
☒	SIGNAL GENERATOR	SMB 100A	Rohde & Schwarz	108252	07. 28, 2026
☒	HIGH POWER DUAL AMP	SSA532	SUNGSAN	SSA532-001	-
☒	POWER METER	E4419B	Agilent	GB40203000	02. 13, 2026
☒	AVERAGE POWER SENSOR	E9301A	Agilent	MY52170007	02. 13, 2026
☒	AVERAGE POWER SENSOR	E9301A	Agilent	MY41498669	02. 13, 2026
☒	STACKED DOUBLE LOG-PER- ANTENNA	STPL9128 E	Schwarzbeck	9128ES-121	-
☒	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	03. 05, 2026

Test Conditions

Temperature: (20,4 ~ 21,2) °C
Relative Humidity: (38,3 ~ 39,1) % R.H.
Atmospheric Pressure: (100,5 ~ 100,5) kPa



Test Specifications

Antenna Polarization: Horizontal & Vertical unless indicated otherwise

Antenna Distance: ☒ 3 m

Frequency Range: ☒ 80 MHz to 800 MHz [10V/m]
[Field Strength] ☒ 800 MHz to 1 GHz [20 V/m]
☒ 1,4 GHz to 2,0 GHz [10 V/m]
☒ 2,0 GHz to 2,7 GHz [5 V/m]
☒ 5,1 GHz to 6,0 GHz [3 V/m]

Modulation: ☒ 80 % AM, 1 kHz sine wave

Frequency Step: ☒ 1 % step

Dwell Time: ☐ 1 s ☒ 3 s

of Sides Radiated: ☒ 4

Required Performance Criteria: ☒ A

**Test Data**

■ Mode 1

Side Exposed	Observations	
	Horizontal	Vertical
Front	A	A
Right	A	A
Back	A	A
Left	A	A

■ Mode 2

Side Exposed	Observations	
	Horizontal	Vertical
Front	A	A
Right	A	A
Back	A	A
Left	A	A

Note: "Blank" = Not performed

Observations:

- A – No response observed from EUT
- B – Unit shuts down then automatically restarts when full voltage is restored.
- C – Unit shuts down then manually restarts when full voltage is restored or Loss of function.

Test Results

- ☒ Test result reference
- ☐ NOT APPLICABLE

Remarks

Any degradations of performance was not observed during in the test.



3.3 Fast Transients

Reference Standard

EN 61000-4-4:2012

Test Date

Dec. 07, 2025

Test Location

EMS-EFT: Electro wave Shieldroom #7

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMS Test S/W	iec.control	EM TEST	5.4.8	-
☒	ULTRA COMPACT SIMULATOR	UCS 500N7	EM TEST	P1608172950	11. 05, 2026
☒	MOTOR VARIAC	MV2616	EM TEST	P1552169719	11. 05, 2026
☒	CAPACITIVE COUPLING CLAMP	HFK	EM TEST	P1633183115	11. 05, 2026

Test Conditions

Temperature: (20,8 ~ 20,8) °C
Relative Humidity: (36,5 ~ 36,5) % R.H.
Atmospheric Pressure: (101,0 ~ 101,0) kPa

Test Specifications

Pulse Amplitude & Polarity: ☒ ± 2.0 kV ☐ ± 4.0 kV
(Power Lines)

Pulse Amplitude & Polarity: ☒ ± 2.0 kV ☐ ± 4.0 kV
(Signal Lines)

Pulse Amplitude & Polarity: ☐ ± 1.0 kV
(Earth Lines)

Burst Period: ☒ 300 ms

Repetition Rate: ☒ 5 kHz

Duration of Test Voltage: ☒ ≥ 1 min

Required Performance Criteria: ☒ A

**Test Data**

■ Mode 1

☒ Input a.c. power ports – Coupling/Decoupling Network used

Mode of Application	Observations	
	(+) Burst (kV)	(-) Burst (kV)
L	A	A
N	A	A
L – N	A	A

☐ Input d.c. power ports – Coupling/Decoupling Network used

Mode of Application	Observations	
	(+) Burst (kV)	(-) Burst (kV)
-	-	-

☒ Signal ports and telecommunication ports – Coupling Clamp used

Mode of Application	Observations	
	(+) Burst (kV)	(-) Burst (kV)
RJ-45 (LAN)	A	A
Alarm IN	A	A
Alarm OUT	A	A

☐ Earth ports – Coupling Clamp used

Mode of Application	Observations	
	(+) Burst (kV)	(-) Burst (kV)
-	-	-

**■ Mode 2**☐ Input a.c. power ports – Coupling/Decoupling Network used

Mode of Application	Observations	
	(+) Burst (kV)	(-) Burst (kV)
-	-	-

☐ Input d.c. power ports – Coupling/Decoupling Network used

Mode of Application	Observations	
	(+) Burst (kV)	(-) Burst (kV)
-	-	-

☒ Signal ports and telecommunication ports – Coupling Clamp used

Mode of Application	Observations	
	(+) Burst (kV)	(-) Burst (kV)
RJ-45 (PoE)	A	A
Alarm IN	A	A
Alarm OUT	A	A

☐ Earth ports – Coupling Clamp used

Mode of Application	Observations	
	(+) Burst (kV)	(-) Burst (kV)
-	-	-

Note: “Blank” = Not performed

Observations:

A – No response observed from EUT

B – Unit shuts down then automatically restarts when full voltage is restored.

C – Unit shuts down then manually restarts when full voltage is restored or Loss of function.

Test Results☒ Test result reference☐ NOT APPLICABLE**Remarks**Any degradations of performance was not observed during in the test.



3.4 Surges

Reference Standard

EN 61000-4-5:2014+A1:2017

Test Date

Dec. 07, 2025

Test Location

EMS-Surge: Electro wave Shieldroom #7

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMS Test S/W	iec.control	EM TEST	5.4.8	-
☒	ULTRA COMPACT SIMULATOR	UCS 500N7	EM TEST	P1608172950	11. 05, 2026
☒	MOTOR VARIAC	MV2616	EM TEST	P1552169719	11. 05, 2026
☒	CDN	CNV 508N1	EM TEST	P1610176296	11. 05, 2026

Test Conditions

Temperature: (20,4 ~ 21,2) °C
Relative Humidity: (36,1 ~ 36,9) % R.H.
Atmospheric Pressure: (101,0 ~ 101,0) kPa

**Test Specifications****AC Power Lines**

Source Impedance: 12 ohm for common mode and 2 ohm for differential mode

Surge Amplitude :
Common Mode
☐ (2,0) kV
Differential Mode
☒ (1,0) kVNumber of Surges: ☒ 5 surges per angleAngle: ☒ 0°, 90°, 180°, 270° (input AC power port)Polarity: ☒ Positive & NegativeRepetition Rate: ☒ 1 surge per min ☐ 1 surge per 30 sec.Required Performance Criteria: ☒ B**DC Power Lines**Source Impedance: 42 ohm
Surge Amplitude: Common Mode
☐ (2,0) kV
Differential Mode
☐ (1,0) kVNumber of Surges: ☐ 5 SurgesPolarity: ☐ Positive & NegativeRepetition Rate: ☐ 1 surge per min ☐ 1 surge per 30 sec.Required Performance Criteria: ☐ B**Signal Lines**Source Impedance: 42 ohm
Surge Amplitude: Common Mode
☐ (2,0) kV
Differential Mode
☒ (1,0) kVNumber of Surges: ☒ 5 SurgesPolarity: ☒ Positive & NegativeRepetition Rate: ☒ 1 surge per min ☐ 1 surge per 30 sec.Required Performance Criteria: ☒ B

**Test Data**

■ Mode 1

☒ Line to Line – Differential Mode

Mode of Application	Observations	
	(+) Surge (kV)	(-) Surge (kV)
L – N	A	A

☐ Line to Earth – Common Mode

Mode of Application	Observations	
	(+) Surge (kV)	(-) Surge (kV)
-	-	-

Signal Lines☒ Line to Line – Differential Mode

Mode of Application	Observations	
	(+) Surge (kV)	(-) Surge (kV)
RJ-45 (LAN)	A	A

☐ Line to Earth – Common Mode

Mode of Application	Observations	
	(+) Surge (kV)	(-) Surge (kV)
-	-	-



☒ Mode 2

☐ Line to Line – Differential Mode

Mode of Application	Observations	
	(+) Surge (kV)	(-) Surge (kV)
-	-	-

☐ Line to Earth – Common Mode

Mode of Application	Observations	
	(+) Surge (kV)	(-) Surge (kV)
-	-	-

Signal Lines

☒ Line to Line – Differential Mode

Mode of Application	Observations	
	(+) Surge (kV)	(-) Surge (kV)
RJ-45 (PoE)	A	A

☐ Line to Earth – Common Mode

Mode of Application	Observations	
	(+) Surge (kV)	(-) Surge (kV)
-	-	-

Note: “Blank” = Not performed

Observations:

A – No response observed from EUT

B – Unit shuts down then automatically restarts when full voltage is restored.

C – Unit shuts down then manually restarts when full voltage is restored or Loss of function.

Test Results

☒ Test result reference

☐ NOT APPLICABLE

Remarks

Any degradations of performance was not observed during in the test.



3.5 Conducted Disturbance

Reference Standard

EN 61000-4-6:2014

Test Date

Dec. 07, 2025

Test Location

EMS-CS: Electro wave Shieldroom #7

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMS Test S/W	icd.control	EM TEST	8.0.0	-
☒	TEST SYSTEM FOR CONDUCTED AND RADIATED	NSG4070	TESEQ	65585	11. 03, 2026
☒	ATTENUATOR	ATT 6/80	EM TEST	P1614178148	11. 03, 2026
☒	CDN	CDN M016	TESEQ	43694	11. 03, 2026
☒	CDN	CDN M016	TESEQ	43697	11. 03, 2026
☒	EM CLAMP	KEMZ 801A	TESEQ	44099	11. 05, 2026
☒	CDN	CDN T8 RJ45	SCHWARZBECK	00103	07. 07, 2026

Test Conditions

Temperature: (20,4 ~ 21,2) °C
Relative Humidity: (36,1 ~ 36,9) % R.H.
Atmospheric Pressure: (101,0 ~ 101,0) kPa

Test Specifications

Frequency Range: ☒ 150 kHz to 80 MHz
Voltage Level: ☒ 10 Vrms
Modulation: ☒ 80 % AM, 1 kHz sine wave
Frequency Step: ☒ 1 % step
Dwell Time: ☐ 1 s ☒ 3 s
Required Performance Criteria: ☒ A

**Test Data**

■ Mode 1

☒ Input a.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Observations
L – N	CDN	A

☐ Input d.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Observations
-	-	-

☒ Signal ports and telecommunication ports

Coupling Location (Line Stressed)	Coupling Method	Observations
RJ-45 (LAN)	CDN	A
Alarm IN	Clamp	A
Alarm OUT	Clamp	A

☐ Earth ports

Coupling Location (Line Stressed)	Coupling Method	Observations
-	-	-

**■ Mode 2**☐ Input a.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Observations
-	-	-

☐ Input d.c. power ports

Coupling Location (Line Stressed)	Coupling Method	Observations
-	-	-

☒ Signal ports and telecommunication ports

Coupling Location (Line Stressed)	Coupling Method	Observations
RJ-45 (PoE)	CDN	A
Alarm IN	Clamp	A
Alarm OUT	Clamp	A

☐ Earth ports

Coupling Location (Line Stressed)	Coupling Method	Observations
-	-	-

Notes: CDN = Coupling Decoupling Network
"blank" = Not performed

Observations:

- A – No response observed from EUT
B – Unit shuts down then automatically restarts when full voltage is restored.
C – Unit shuts down then manually restarts when full voltage is restored or Loss of function.

Test Results

- ☒ Test result reference
☐ NOT APPLICABLE

Remarks

Any degradations of performance was not observed during in the test.



3.6 Power Frequency Magnetic Field Immunity

Reference Standard

EN 61000-4-8:2010

Test Date

Dec. 07, 2025

Test Location

EMS-Magnetic: Electro wave Shieldroom #7

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMS Test S/W	iec.control	EM TEST	5.4.8	-
☒	EMS Test S/W	NET.CONTROL	EM TEST	1.2.11	11. 05, 2026
☒	ULTRA COMPACT SIMULATOR	UCS 500N7	EM TEST	P1608172950	11. 05, 2026
☒	MOTOR VARIAC	MV2616	EM TEST	P1552169719	11. 05, 2026
☒	MAGNETIC FIELD COIL	MS 100N	EM TEST	P1536163691	02. 14, 2026
☒	CURRENT TRANSFORMER	MC 26100	EM TEST	P1550168963	11. 05, 2026
☒	MULTIFUNCTION AC/DC POWER SOURCE	NETWAVE 7-400	EM TEST	P1614178393	11. 05, 2026
☒	MAGNETICFIELD COIL	INA 703	Teseq AG	3006	02. 14, 2026

Test Conditions

Temperature: (20,7 ~ 20,9) °C
Relative Humidity: (36,4 ~ 36,6) % R.H.
Atmospheric Pressure: (101,0 ~ 101,0) kPa



Test Specifications

Field Strength(Power Source): ☒ 100 A/m (ac)

☒ 300 A/m (dc)

Frequency (ac): ☒ 16.7 Hz ☒ 50 Hz ☐ 60 Hz

Frequency (dc): ☒ 0 Hz

Required Performance Criteria: ☒ A



**Test Data**

■ Mode 1

☒ Immersion method

Coil orientation	Observations
X	A
Y	A
Z	A

☐ Proximity method

Coil orientation	Observations
X	-
Y	-
Z	-

■ Mode 2

☒ Immersion method

Coil orientation	Observations
X	A
Y	A
Z	A

☐ Proximity method

Coil orientation	Observations
X	-
Y	-
Z	-

Note: "blank" = Not performed

Observations:

- A – No response observed from EUT
- B – Unit shuts down then automatically restarts when full voltage is restored.
- C – Unit shuts down then manually restarts when full voltage is restored or Loss of function.

Test Results☒ Test result reference☐ NOT APPLICABLE**Remarks**Any degradations of performance was not observed during in the test.



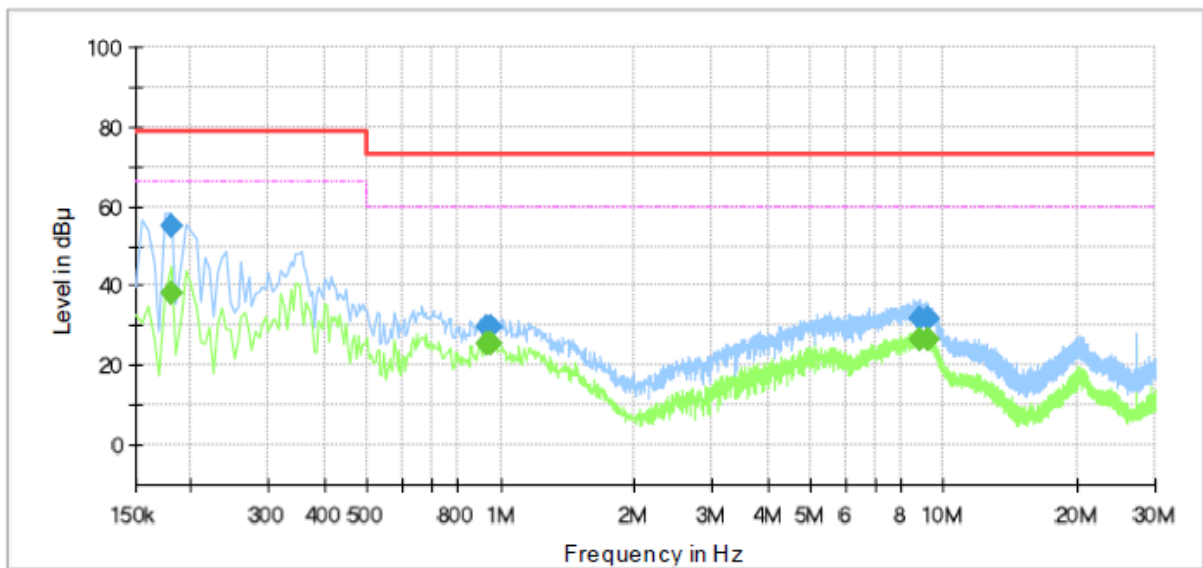
APPENDIX A – TEST DATA

Conducted Emissions at Mains Power Ports

■ Mode 1

[HOT]

Test Description: Conducted Emission
Job No.: KES-EM254242
Phase: L
Mode: Mode 1
Operator Name: KES

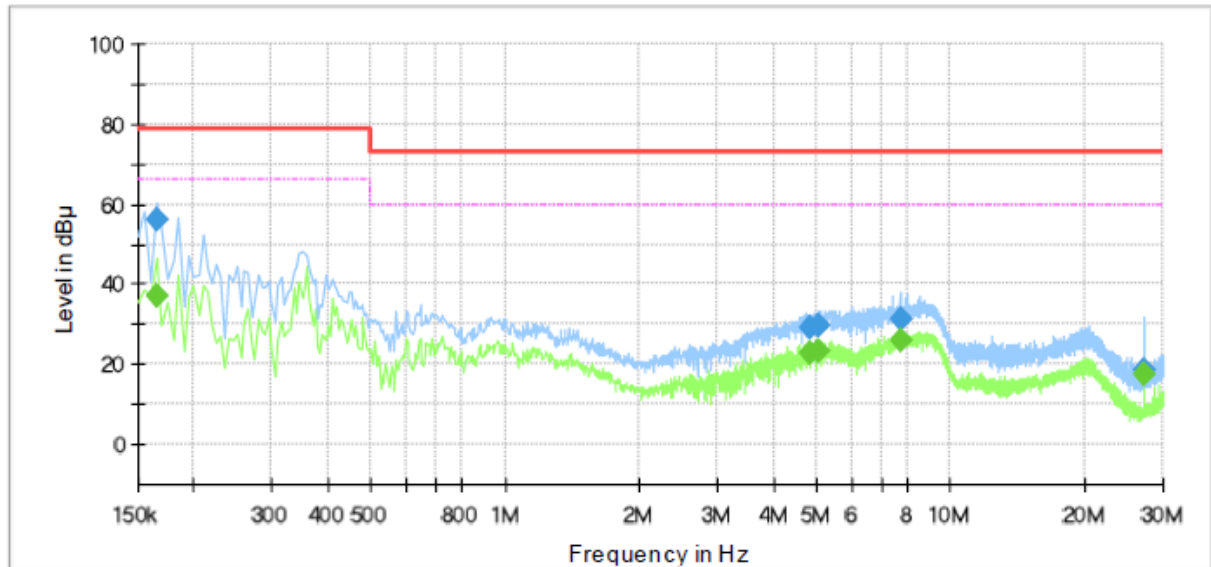


Final_Result

Frequency (MHz)	QuasiPeak (dB μ V)	CAverage (dB μ V)	Limit (dB μ V)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.180000	---	38.11	66.00	27.89	1000.0	9.000	L1	19.5
0.180000	54.81	---	79.00	24.19	1000.0	9.000	L1	19.5
0.930000	---	25.35	60.00	34.65	1000.0	9.000	L1	19.6
0.930000	29.79	---	73.00	43.21	1000.0	9.000	L1	19.6
0.955000	---	25.32	60.00	34.68	1000.0	9.000	L1	19.6
0.955000	29.41	---	73.00	43.59	1000.0	9.000	L1	19.6
8.800000	---	26.68	60.00	33.32	1000.0	9.000	L1	20.0
8.800000	31.95	---	73.00	41.05	1000.0	9.000	L1	20.0
9.185000	---	26.28	60.00	33.72	1000.0	9.000	L1	20.0
9.185000	31.60	---	73.00	41.40	1000.0	9.000	L1	20.0

**[NEUTRAL]**

Test Description: Conducted Emission
Job No.: KES-EM254242
Phase: N
Mode: Mode 1
Operator Name: KES

**Final_Result**

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.165000	---	37.02	66.00	28.98	1000.0	9.000	N	19.5
0.165000	56.37	---	79.00	22.63	1000.0	9.000	N	19.5
4.835000	---	22.80	60.00	37.20	1000.0	9.000	N	19.9
4.835000	28.89	---	73.00	44.11	1000.0	9.000	N	19.9
5.075000	---	23.33	60.00	36.67	1000.0	9.000	N	19.9
5.075000	29.42	---	73.00	43.58	1000.0	9.000	N	19.9
7.700000	---	25.91	60.00	34.09	1000.0	9.000	N	20.0
7.700000	31.24	---	73.00	41.76	1000.0	9.000	N	20.0
27.095000	---	17.55	60.00	42.45	1000.0	9.000	N	20.5
27.095000	18.82	---	73.00	54.18	1000.0	9.000	N	20.5

◆ Calculation

QuasiPeak[dBuV] / CAverage [dBuV] = Reading Value[dBuV] + Corr. [dB]

QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

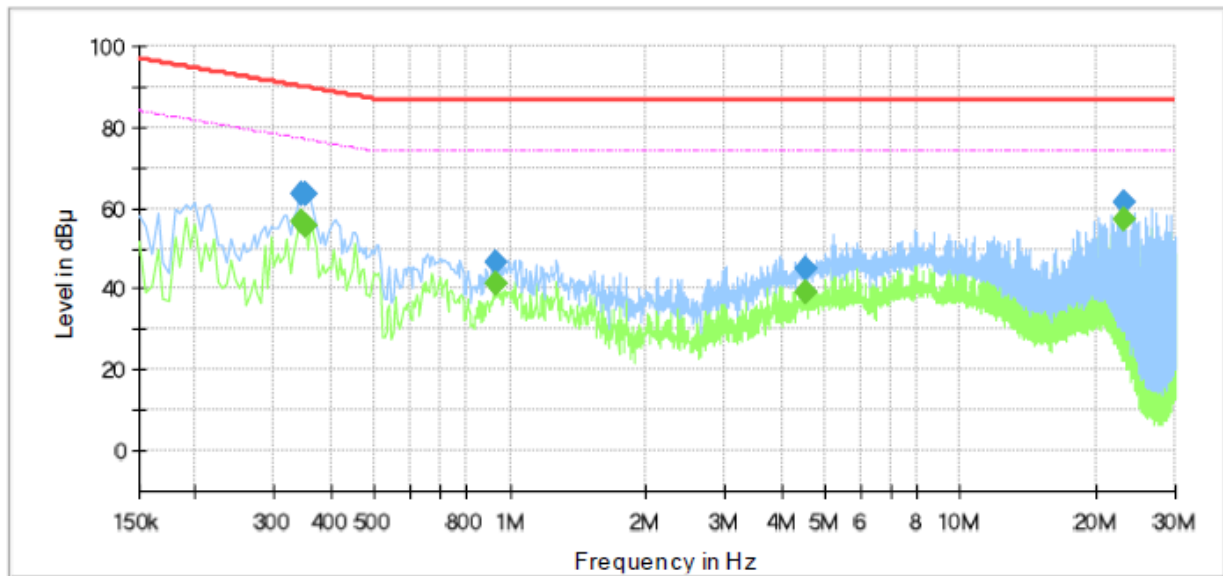
Corr. : Correction values (LISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))

**Conducted Emissions at Telecommunication Ports**

■ Mode 1

[100 Mbps]

Test Description: Telecommunication Emission
Job No.: KES-EM254242
Mode : Mode 1
Speed : 100 Mbps
Operator Name: KES

**Final_Result**

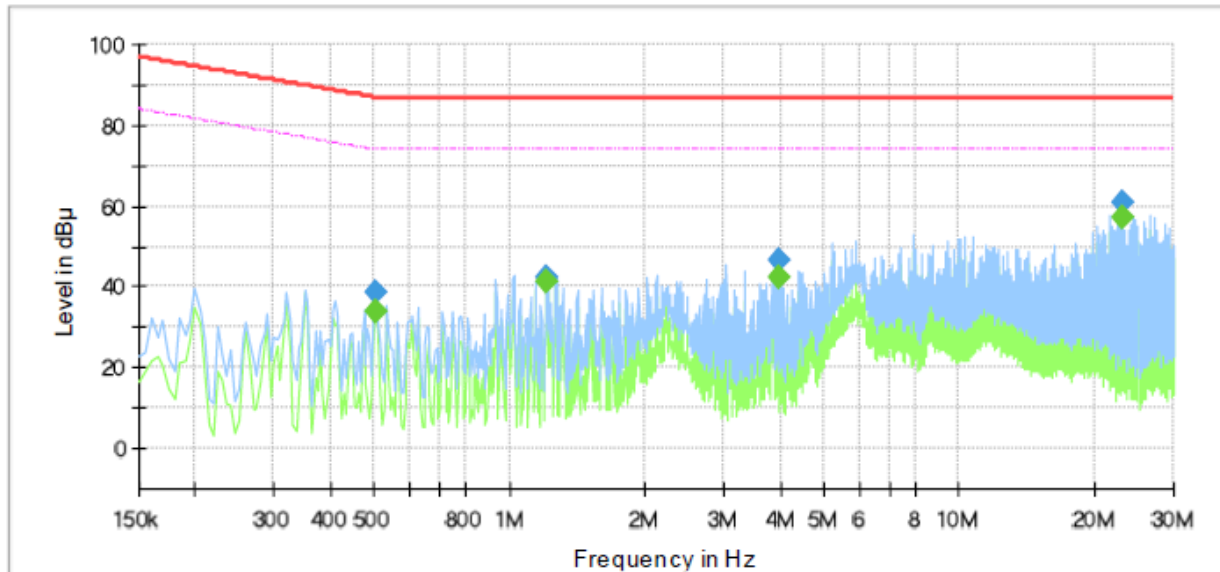
Frequency (MHz)	QuasiPeak (dB μ V)	CAverage (dB μ V)	Limit (dB μ V)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.345000	---	56.64	77.08	20.44	1000.0	9.000	Single Line	19.4
0.345000	63.58	---	90.08	26.52	1000.0	9.000	Single Line	19.4
0.350000	---	55.64	76.96	21.32	1000.0	9.000	Single Line	19.4
0.350000	63.36	---	89.96	26.60	1000.0	9.000	Single Line	19.4
0.930000	---	41.19	74.00	32.81	1000.0	9.000	Single Line	19.2
0.930000	46.47	---	87.00	40.53	1000.0	9.000	Single Line	19.2
4.535000	---	39.31	74.00	34.69	1000.0	9.000	Single Line	19.3
4.535000	44.81	---	87.00	42.19	1000.0	9.000	Single Line	19.3
23.130000	---	57.39	74.00	16.61	1000.0	9.000	Single Line	19.8
23.130000	61.13	---	87.00	25.87	1000.0	9.000	Single Line	19.8



■ Mode 2

[100 Mbps]

Test Description: Telecommunication Emission
Job No.: KES-EM254242
Mode : Mode 2
Speed : 100 Mbps
Operator Name: KES



Final_Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.505000	---	34.11	74.00	39.89	1000.0	9.000	Single Line	19.3
0.505000	38.46	---	87.00	48.54	1000.0	9.000	Single Line	19.3
1.215000	---	41.50	74.00	32.50	1000.0	9.000	Single Line	19.2
1.215000	42.43	---	87.00	44.57	1000.0	9.000	Single Line	19.2
3.955000	---	42.20	74.00	31.80	1000.0	9.000	Single Line	19.3
3.955000	46.57	---	87.00	40.43	1000.0	9.000	Single Line	19.3
23.130000	---	57.20	74.00	16.80	1000.0	9.000	Single Line	19.8
23.130000	60.78	---	87.00	26.22	1000.0	9.000	Single Line	19.8

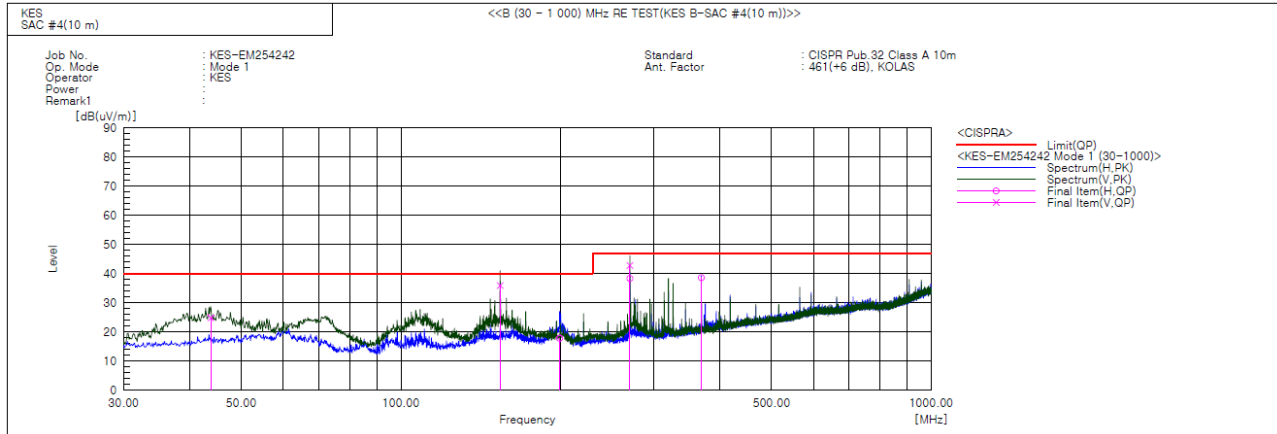
◆ Calculation

QuasiPeak[dBuV] / CAverage [dBuV] = Reading Value[dBuV] + Corr. [dB]

QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

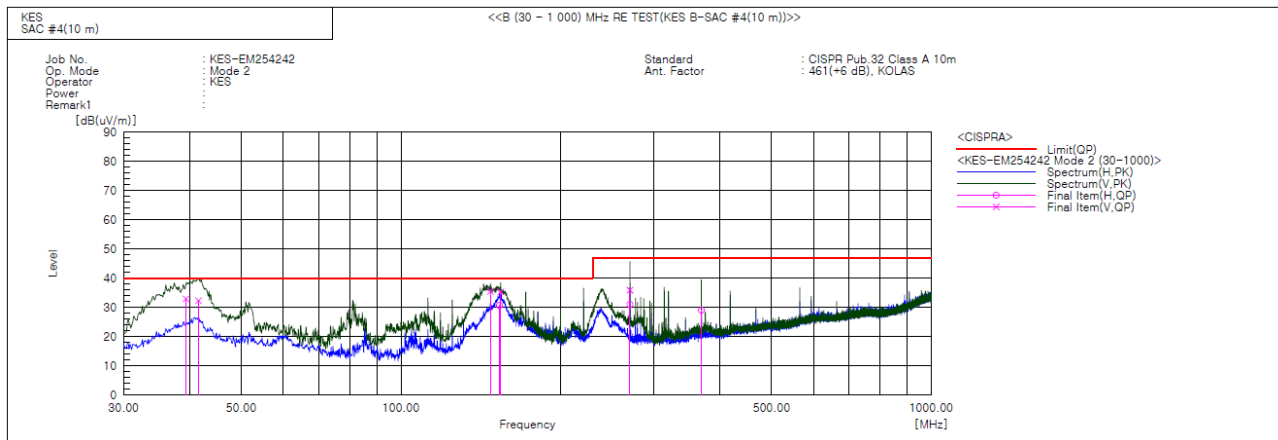
Corr. : Correction values (ISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))

**Radiated Electric Field Emissions(Below 1 GHz)****■ Mode 1****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	43.823	V	45.7	-20.9	24.8	40.0	15.2	155.0	260.0	
2	153.796	V	55.1	-19.2	35.9	40.0	4.1	106.0	92.0	
3	199.265	H	39.8	-22.0	17.8	40.0	22.2	399.0	181.0	
4	270.318	V	61.2	-18.4	42.8	47.0	4.2	102.0	212.0	
5	270.318	H	56.7	-18.4	38.3	47.0	8.7	390.0	268.0	
6	368.651	H	53.2	-14.6	38.6	47.0	8.4	212.0	42.0	



■ Mode 2



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	39.336	V	54.3	-21.4	32.9	40.0	7.1	110.0	201.0	
2	41.519	V	53.5	-21.2	32.3	40.0	7.7	106.0	227.0	
3	147.491	V	54.8	-19.3	35.5	40.0	4.5	113.0	186.0	
4	153.311	H	49.9	-19.2	30.7	40.0	9.3	396.0	285.0	
5	154.281	V	54.5	-19.2	35.3	40.0	4.7	102.0	348.0	
6	270.318	V	54.3	-18.4	35.9	47.0	11.1	104.0	123.0	
7	270.318	H	49.4	-18.4	31.0	47.0	16.0	391.0	19.0	
8	368.651	H	43.6	-14.6	29.0	47.0	18.0	393.0	285.0	

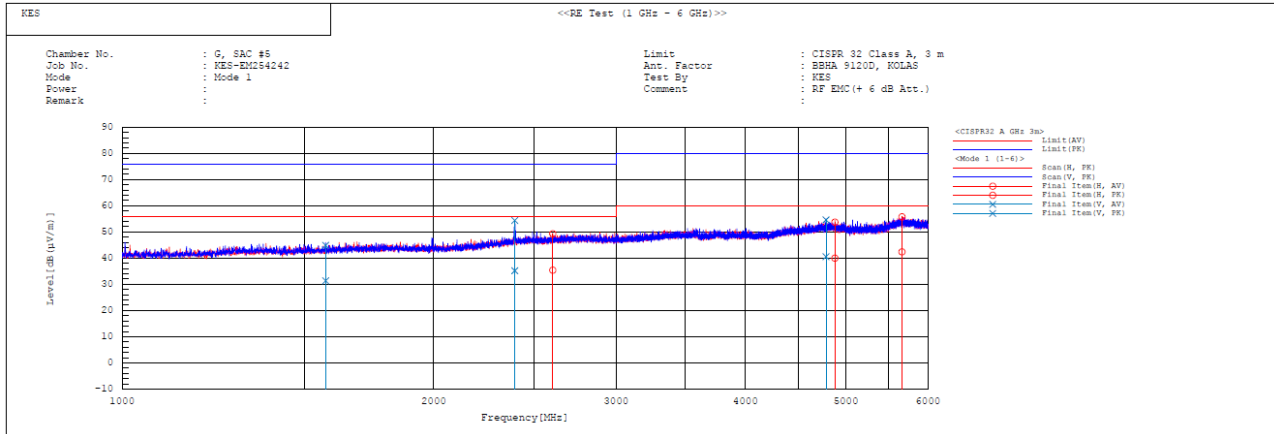
◆ Calculation

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

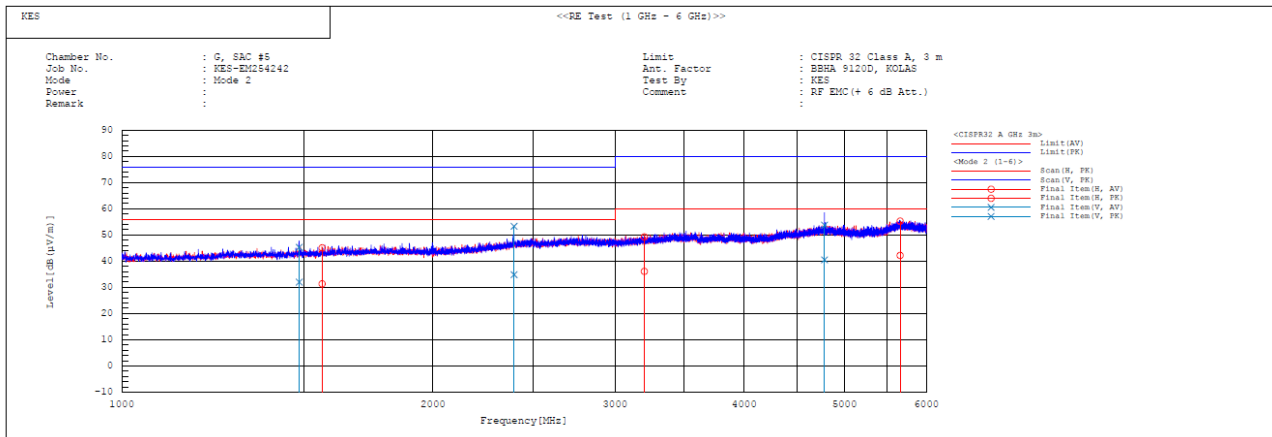
Limit(QP) : Limit value, c.f : (ANT Factor + Cable Loss - Preamp Factor), Margin: Margin value

**Radiated Electric Field Emissions(Above 1 GHz)****Mode 1****Final Result**

No.	Frequency [MHz]	Pol	Reading AV [dB(μV)]	Reading PK [dB(μV)]	c.f [dB(l/m)]	Result AV [dB(μV/m)]	Result PK [dB(μV/m)]	Limit AV [dB(μV/m)]	Limit PK [dB(μV/m)]	Margin AV [dB]	Margin PK [dB]	Height [cm]	Angle [deg]	Remark
1	1572.641	V	30.0	43.5	1.4	31.4	44.9	56.0	76.0	24.6	31.1	100.0	146.9	
2	2395.171	V	30.2	49.4	5.0	35.2	54.4	56.0	76.0	20.8	21.6	100.0	166.4	
3	2606.557	H	29.9	43.8	5.5	35.4	49.3	56.0	76.0	20.6	26.7	100.0	28.7	
4	4785.638	V	28.8	42.8	11.8	40.6	54.6	60.0	80.0	19.4	25.4	100.0	77.3	
5	4879.933	H	27.8	41.5	12.2	40.0	53.7	60.0	80.0	20.0	26.3	100.0	158.8	
6	5664.104	H	28.4	41.8	14.0	42.4	55.8	60.0	80.0	17.6	24.2	100.0	319.3	



Mode 2



No.	Frequency	Pol	Reading	Reading	c.f	Result	Result	Limit	Limit	Margin	Margin	Height	Angle	Remark
	[MHz]		AV	PK		AV	PK	AV	PK	AV	PK			
			[dB(μV)]	[dB(μV)]	[dB(1/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB(μV/m)]	[dB]	[dB]	[cm]	[deg]	
1	1484.569	V	30.9	44.2	1.1	32.0	45.3	56.0	76.0	24.0	30.7	100.0	4.4	
2	1562.673	H	30.0	43.7	1.4	31.4	45.1	56.0	76.0	24.6	30.9	100.0	135.6	
3	2396.038	V	29.8	48.3	5.0	34.8	53.3	56.0	76.0	21.2	22.7	100.0	320.9	
4	3201.558	H	29.1	42.3	7.0	36.1	49.3	60.0	80.0	23.9	30.7	100.0	169.7	
5	4783.411	V	28.7	41.9	11.8	40.5	53.7	60.0	80.0	19.5	26.3	100.0	159.4	
6	5659.130	H	28.2	41.3	14.0	42.2	55.3	60.0	80.0	17.8	24.7	100.0	110.6	

◆ 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(PK/CAV) : Limit value, c.f : (ANT Factor + Cable Loss -Preamp Factor), Margin: Margin value

**Harmonic Current Emissions and Voltage Fluctuations and Flicker**

■ Mode 1

Average harmonic current results

Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	0.048			
2	0.002	0.192	1.080	n/a
3	0.043	1.864	2.300	PASS
4	0.002	0.443	0.430	n/a
5	0.044	3.827	1.140	PASS
6	0.002	0.656	0.300	n/a
7	0.042	5.426	0.770	PASS
8	0.002	0.803	0.230	n/a
9	0.039	9.672	0.400	PASS
10	0.002	0.991	0.184	n/a
11	0.037	11.066	0.330	PASS
12	0.002	1.159	0.153	n/a
13	0.034	16.083	0.210	PASS
14	0.002	1.363	0.131	n/a
15	0.030	20.264	0.150	PASS
16	0.002	1.415	0.115	n/a
17	0.027	20.687	0.132	PASS
18	0.002	1.539	0.102	n/a
19	0.024	20.410	0.118	PASS
20	0.002	1.643	0.092	n/a
21	0.021	13.043	0.161	PASS
22	0.001	1.776	0.084	n/a
23	0.018	12.075	0.147	PASS
24	0.001	1.836	0.077	n/a
25	0.015	10.897	0.135	0.015
26	0.001	1.962	0.071	0.001
27	0.012	9.878	0.125	0.012
28	0.001	2.191	0.066	0.001
29	0.010	8.277	0.116	0.010
30	0.001	2.116	0.061	0.001
31	0.008	7.192	0.109	0.008
32	0.001	2.245	0.058	0.001
33	0.006	6.319	0.102	0.006
34	0.001	2.220	0.054	0.001
35	0.006	5.823	0.096	0.006
36	0.001	2.348	0.051	0.001
37	0.005	5.839	0.091	0.005
38	0.001	2.397	0.048	0.001
39	0.005	5.785	0.087	0.005
40	0.001	2.389	0.046	0.001

Note: Harmonic currents less than 0.6 % of the input current measured under the test conditions, or less than 5 mA, whichever is greater, are disregarded.

* Application of limits for average is 100% except for odd harmonics from 21 to 39, where 150% applies.



Test Data - Harmonics (continued)

Maximum harmonic current results

Hn	I _{eff} [A]	% of Limit	Limit [A]	Result
1	0.049			
2	0.003	0.180	1.620	n/a
3	0.044	1.266	3.450	PASS
4	0.002	0.342	0.645	n/a
5	0.044	2.569	1.710	PASS
6	0.002	0.497	0.450	n/a
7	0.042	3.640	1.155	PASS
8	0.002	0.611	0.345	n/a
9	0.039	6.499	0.600	PASS
10	0.002	0.759	0.276	n/a
11	0.037	7.420	0.495	PASS
12	0.002	0.871	0.230	n/a
13	0.034	10.791	0.315	PASS
14	0.002	1.024	0.197	n/a
15	0.031	13.595	0.225	PASS
16	0.002	1.090	0.173	n/a
17	0.028	13.889	0.199	PASS
18	0.002	1.167	0.153	n/a
19	0.024	13.749	0.178	PASS
20	0.002	1.250	0.138	n/a
21	0.021	13.177	0.161	PASS
22	0.002	1.327	0.125	n/a
23	0.018	12.224	0.147	PASS
24	0.002	1.377	0.115	n/a
25	0.015	11.081	0.135	PASS
26	0.002	1.452	0.106	n/a
27	0.013	10.078	0.125	PASS
28	0.002	1.636	0.099	n/a
29	0.010	8.493	0.116	PASS
30	0.001	1.586	0.092	n/a
31	0.008	7.418	0.109	PASS
32	0.001	1.671	0.086	n/a
33	0.007	6.552	0.102	PASS
34	0.001	1.607	0.081	n/a
35	0.006	6.049	0.096	PASS
36	0.001	1.760	0.077	n/a
37	0.006	6.062	0.091	PASS
38	0.001	1.762	0.073	n/a
39	0.005	5.957	0.087	PASS
40	0.001	1.835	0.069	n/a

Note: Harmonic currents less than 0.6 % of the input current measured under the test conditions, or less than 5 mA, whichever is greater, are disregarded.

* Application of limits for average is 100% except for odd harmonics from 21 to 39, where 150% applies.



Test Data - Voltage Fluctuations

Maximum Flicker results

■ Mode 1

Flicker Measurements					
	Plt	Max Pst	Max Dc	Max Dmax	Max Tmax
Line 1:	0.028	0.028	0	< 0.2	0
Limits:	0.65	1	3.3	4	0.5
Results:	PASS	PASS	PASS	PASS	PASS

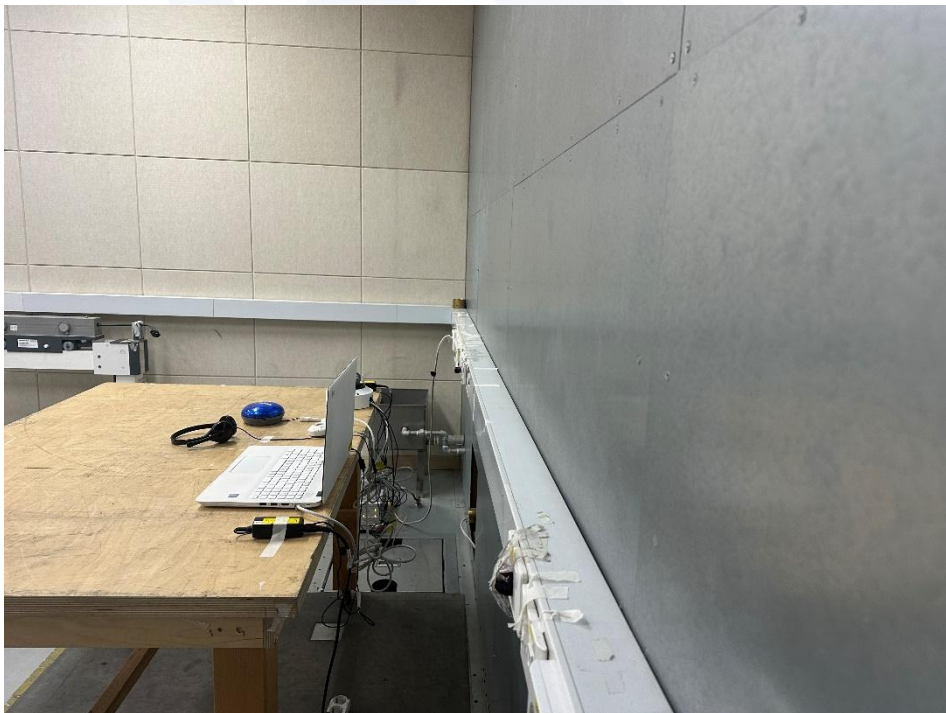
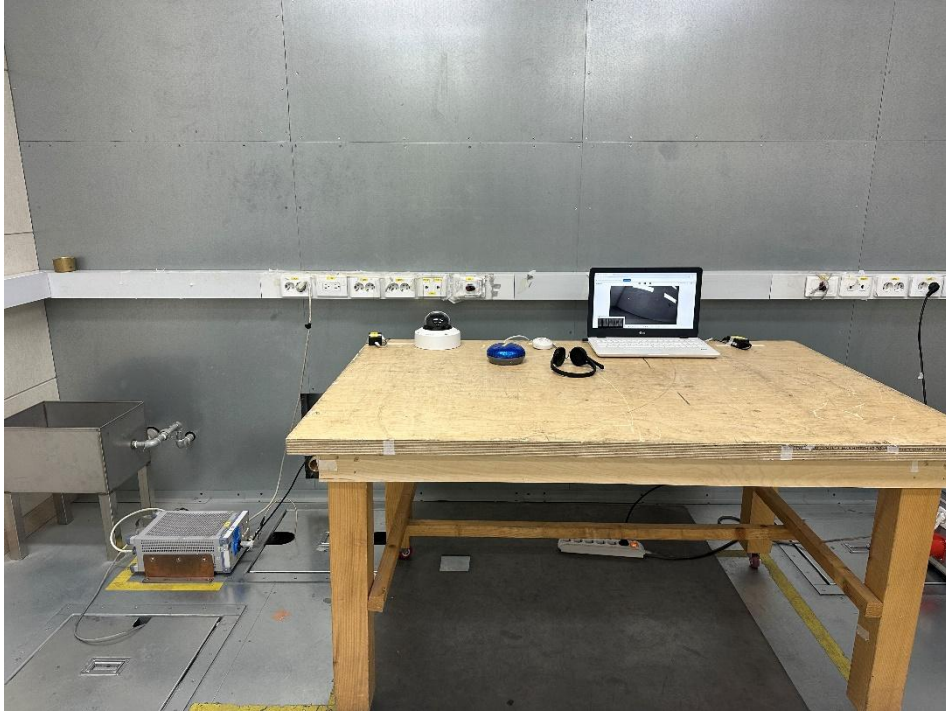




Test Setup Photos and Configuration

Conducted Emissions at Mains Power Ports

■ Mode 1





Conducted Emissions at Telecommunication Ports

■ Mode 1





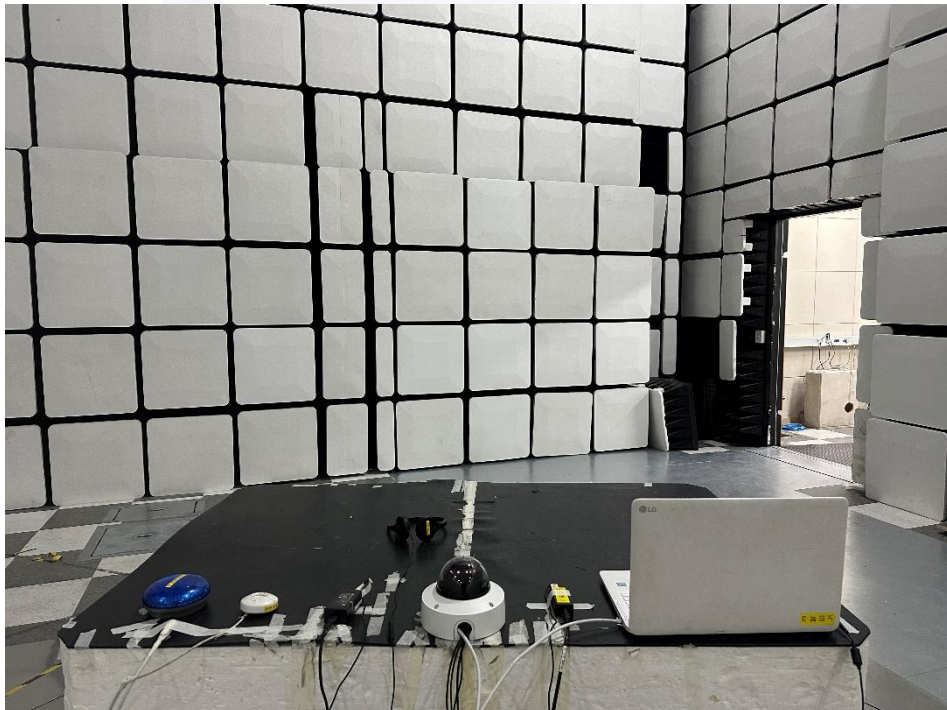
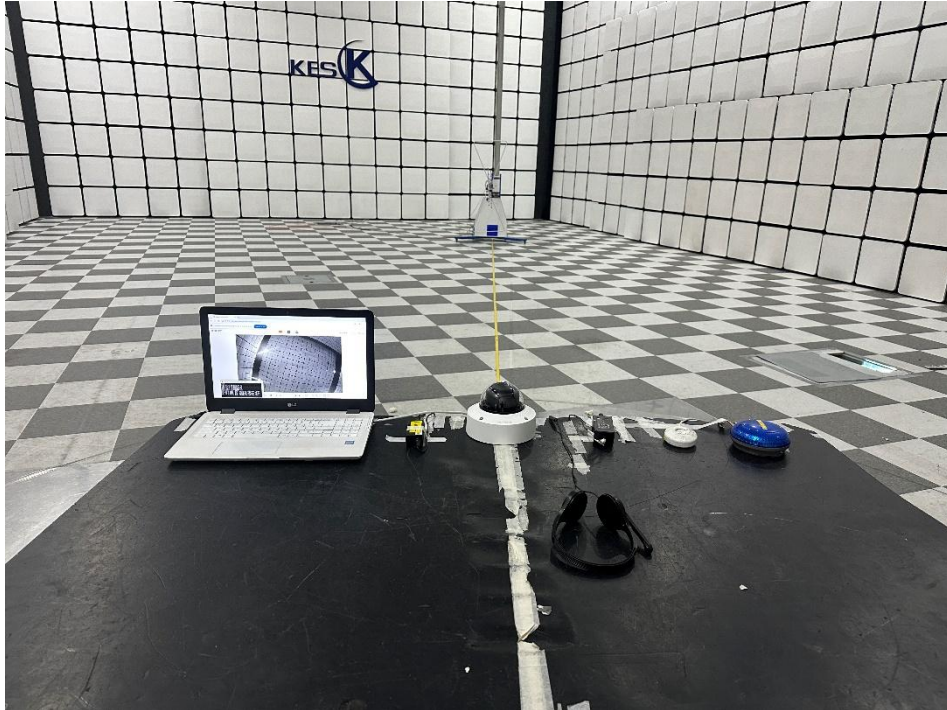
■ Mode 2





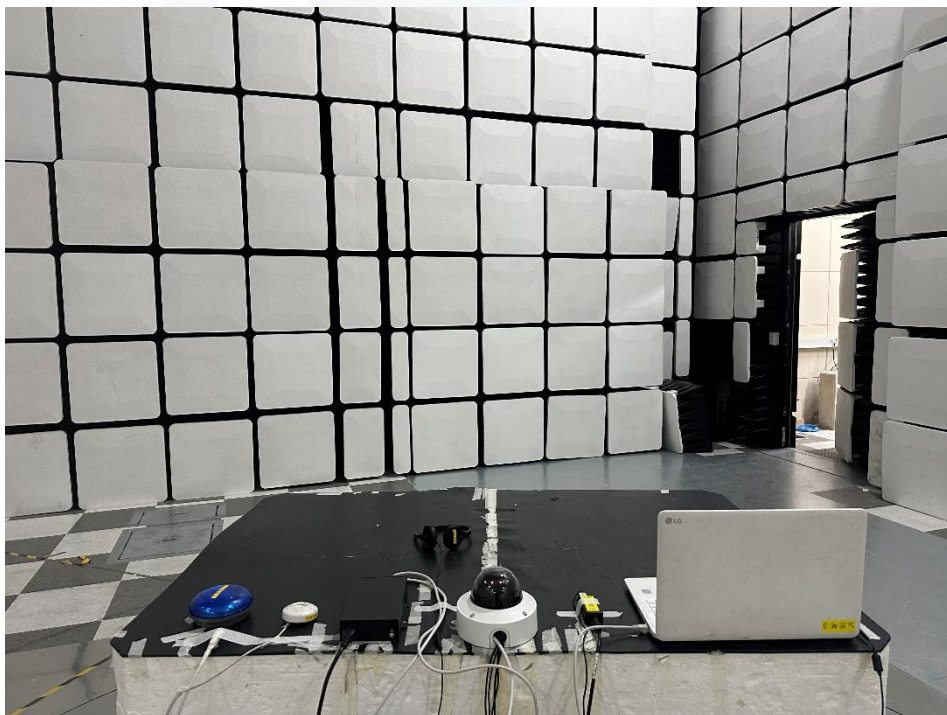
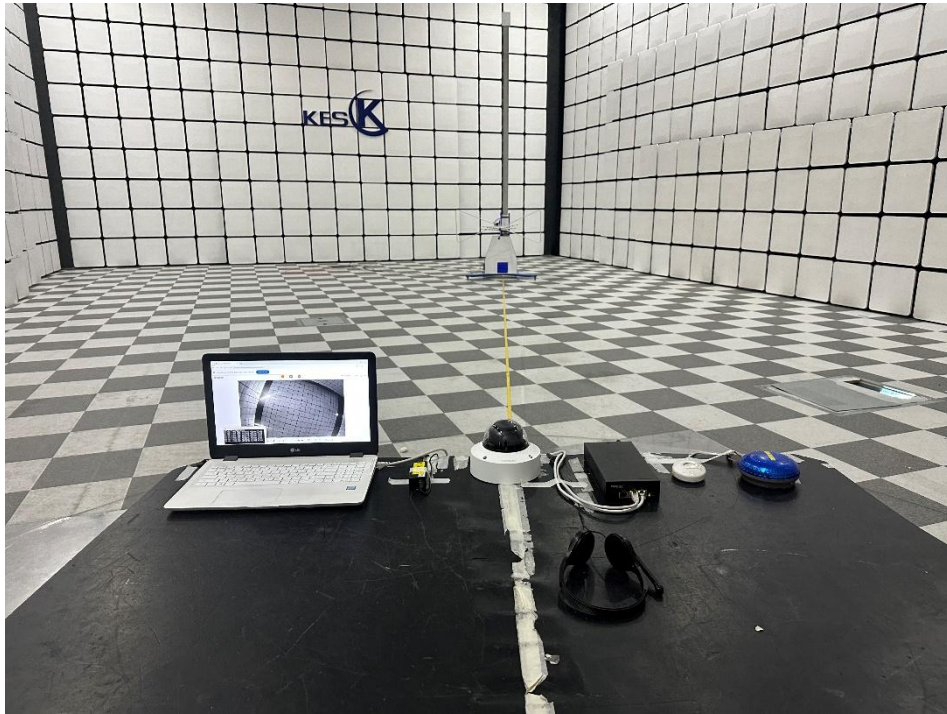
Radiated Electric Field Emissions(Below 1 GHz)

■ Mode 1





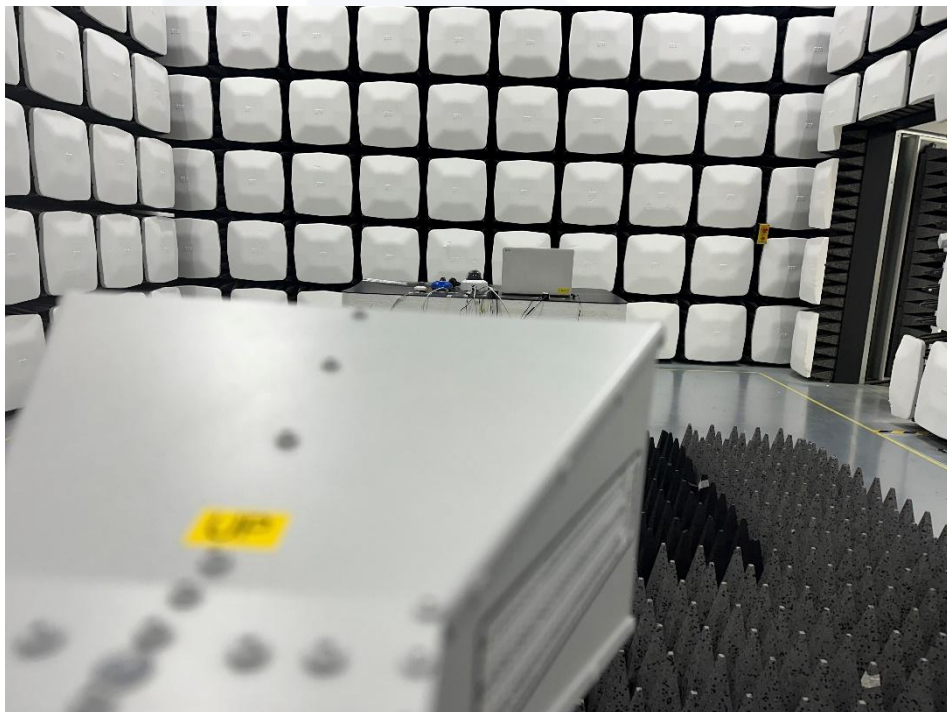
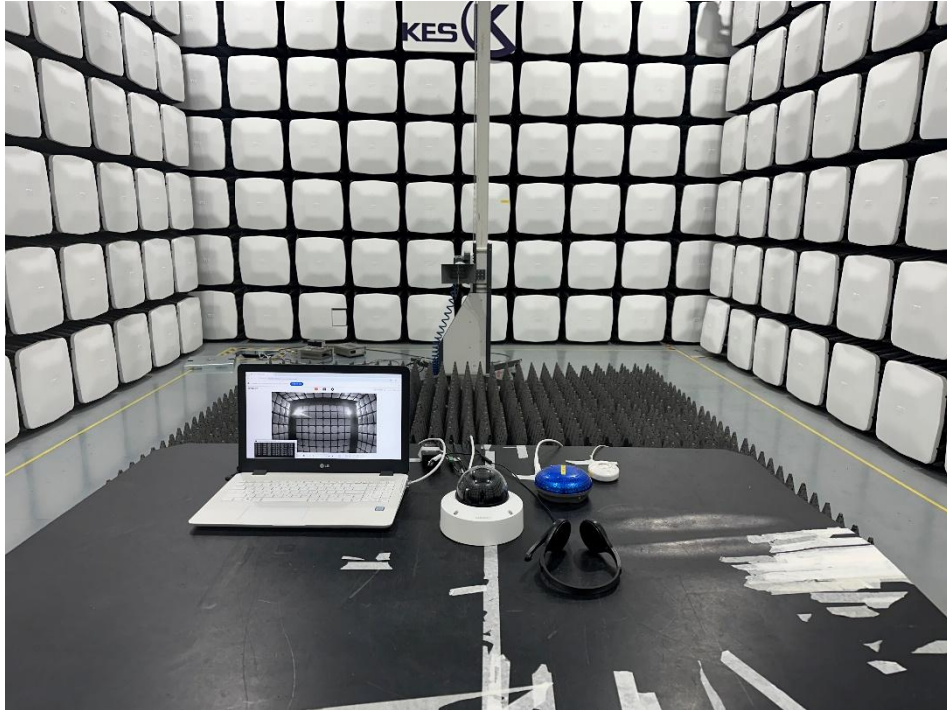
■ Mode 2





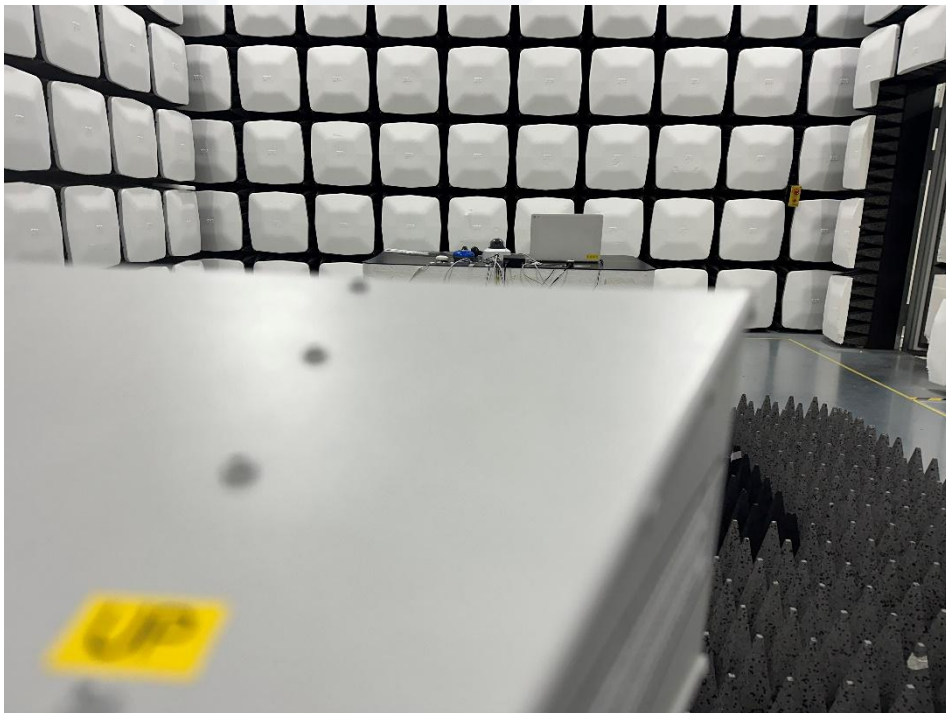
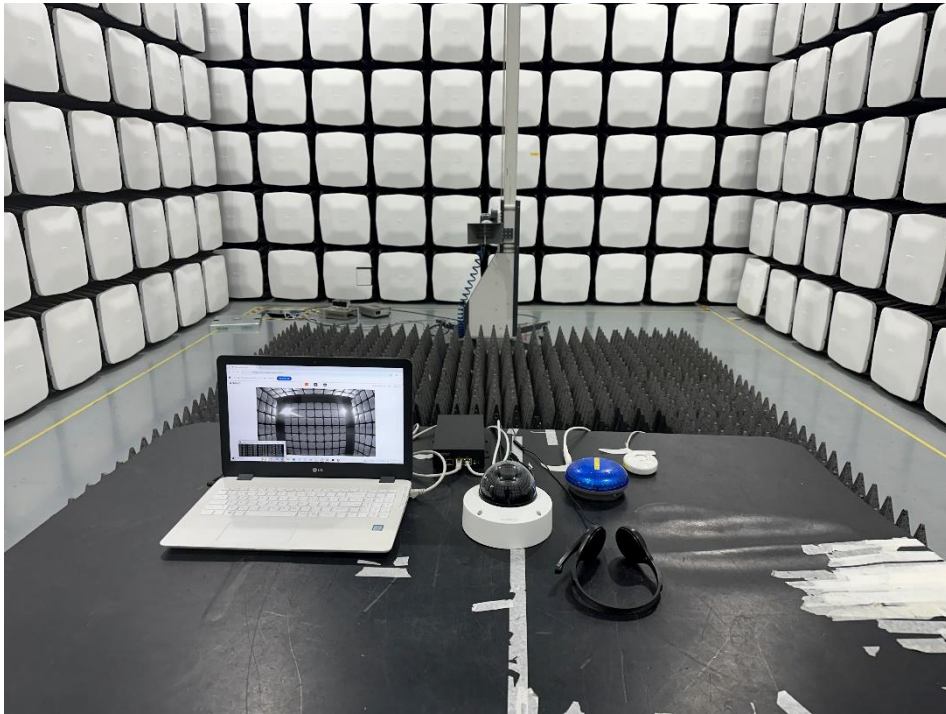
Radiated Electric Field Emissions(Above 1 GHz)

■ Mode 1





■ Mode 2





Harmonic Current Emissions and Voltage Fluctuations and Flicker

■ Mode 1





Electrostatic Discharge

■ Mode 1



■ Mode 2



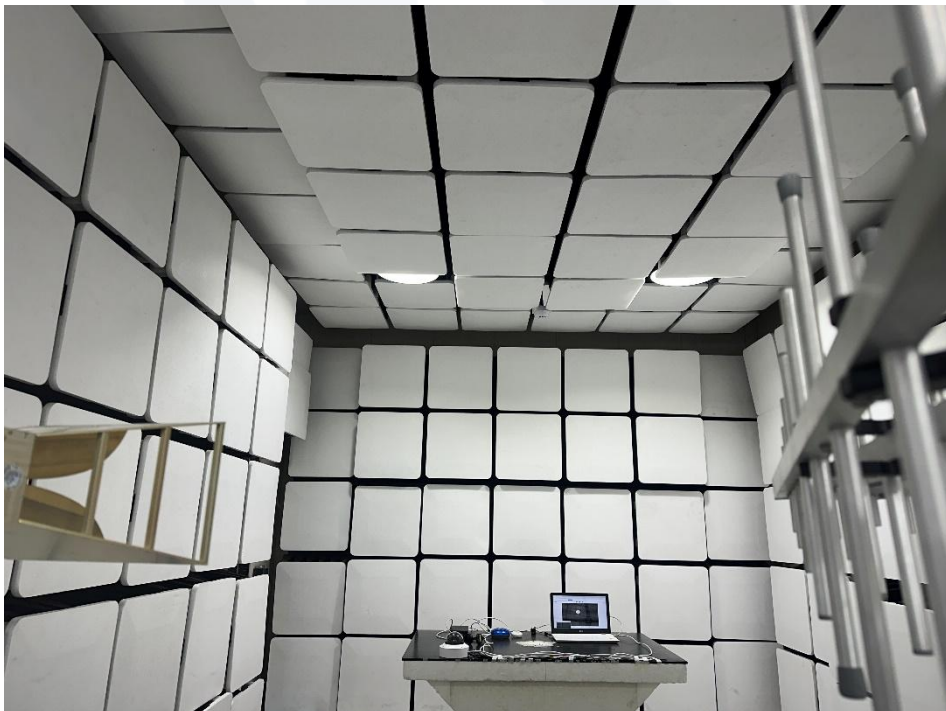


Radio-frequency Electromagnetic Field

■ Mode 1



■ Mode 2



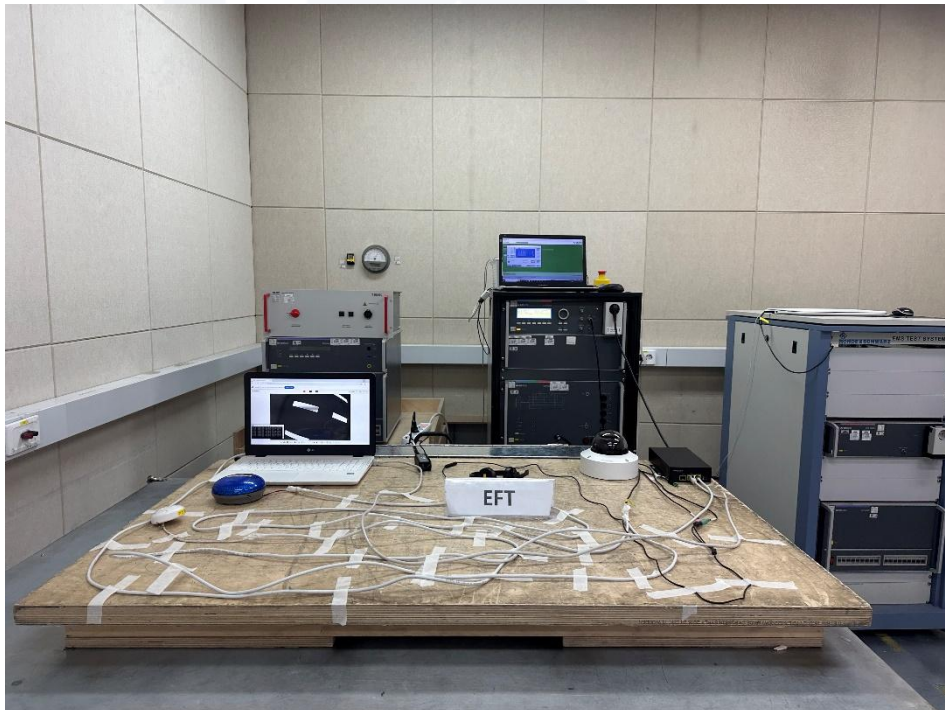


Fast Transients

■ Mode 1



■ Mode 2





Surges

■ Mode 1



■ Mode 2





Conducted Disturbance

■ Mode 1



■ Mode 2





Power Frequency Magnetic Field Immunity

■ Mode 1

[16.7 Hz (AC), 100 A/m]



[50 Hz (AC), 100 A/m]





[0 Hz (DC), 300 A/m]





■ Mode 2

[16.7 Hz (AC), 100 A/m]



[50 Hz (AC), 100 A/m]





[0 Hz (DC), 300 A/m]





EUT External Photographs

(Top)



(Bottom)





EUT Internal Photographs





Label



Name : Hanwha Vision Co., Ltd.
Product item : NETWORK CAMERA
Model name : XNV-C7083R

The End.

