TEST REPORT

KES Co., Ltd.
#3002, #3503, #3701, 40, Simin-daero365beon-gil, Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Republic of Korea
Tel : +82-31-425-6200, Fax : +82-31-341-3838

1. Client

○ Name	:	Hanwha Vision Co., Ltd.
○ Address	:	6, Pangyo-ro 319beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, Republic of Korea

2. Sample Description

◯ Product item	:	Security Camera
◯ Model name	:	TNO-C9083ER
◯ Variant model	:	-
◯ Manufacturer etc.	:	INDUS VISION Co., Ltd.
◯ Manufacturer address	:	No. 203-704 / 388 Songnae-daero, Bucheon-si, Gyeonggi-do 14502, Republic of Korea

3. Date of test : 2026. 06. 04. ~ 2026. 06. 05.

4. Location of Test : Permanent Testing Lab

○ Address : 473-21, Gayeo-ro, Yeoju-si, Gyeonggi-do, 12658, Republic of Korea

5. Test method used : VCCI-CISPR 32:2016

6. Test result : PASS

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
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This laboratory is not accredited for the test results marked *.
This test report is not related to KOLAS accreditation.

Affirmation	Tested by	Technical Manager by
	Name : SungKeun Park [박성근]2026/07/03	Name : DongHun Jang [장동훈]2026/07/03

2026. 07. 03.

KES Co., Ltd.

REPORT REVISION HISTORY

Date	Test Report No.	Revision History
2026. 07. 03.	KES-EM261852	Issued

Use of uncertainty of measurement for decisions on conformity (decision rule):

■ No decision rule is specified by the standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty(“simple acceptance” decision rule, previously known as “accuracy method”).

□ Other (to be specified, for example when required by the standard or client)

TABLE OF CONTENTS

1 Laboratory Information

1.1 Test Location

Category	Details
Addres	473-21, Gayeo-ro, Yeoju-si, Gyeonggi-do, 12658, Republic of Korea
Telephone Number	031-883-5092
Facsimile Number	031-883-5169

The measurement facility is located at 473-21, Gayeo-ro, Yeoju-si, Gyeonggi-do, 12658, Republic of Korea. The sites are constructed in conformance with the requirements of ANSI C63.4a-2017 and CISPR 16-1-4:2019

1.2 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 Test Summary

2.1 Class and Voltage

Test Class	Test Voltage
Class A	PoE

2.2 Summary of Test Results

Test Item	Test Standard	Test Result	Remark
Conducted Emissions at Mains Power Ports	VCCI CISPR 32:2016	N/A	NOTE 1
Conducted Emissions at Telecommunication Ports		PASS	-
Radiated Emissions(Below 1 ㎓)		PASS	-
Radiated Emissions(Above 1 ㎓)		PASS	-
* N/A: Not Applicable (NOTE 1) PoE port is considered a wired network port, so power-related test items are excluded.			

2.3 Remarks when standards applied

N/A

2.4 Variant Model Differences

N/A

2.5 Device Modifications

N/A

3 General Product Description

TNO-C9083ER		
Video		
Imaging Device	Size	1/2.8"
	Type	CMOS
Resolution		3840x2160, 3328x1872, 3072x1728, 2688x1520, 2592x1944, 1920x1080, 1600x1200, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x24
Max. Framerate	H.265/H.264	30fps/25fps(60Hz/50Hz)
	MJPEG	30fps(@8MP Max. 5fps)
Lens		
Focal Length (mm)		3.2~10.2
Zoom Ratio	Optical	3.2x
Max Aperture Ratio (F number)	Wide	1.6
	Tele	3.1
Angular Field of View	Horizontal	104°~31°
	Vertical	55°~17°
	Diagonal	124°~35°
Min. Object Distance		1.2m(3.93ft)
Focus Control		Simple focus
Lens Type		DC auto iris(IR corrected)
Operational		
Day & Night		Auto(ICR)
Backlight Compensation		BLC, WDR, SSDR
Digital Noise Reduction		WiseNR II(Based on AI engine), SSNR V
Motion Detection	Quantity	8ea
	Shape	8point Polygonal zones
Privacy Masking	Quantity	32ea
	Shape	4point Quadrangle zones
	Color / Option	Gray, Green, Red, Blue, Black, White
Gain Control		Low, Middle, High
White Balance		ATW, AWC, Manual, Indoor, Outdoor
LDC		Support
Electronic Shutter	Mode	Minimum, Maximum, Anti flicker
	Speed Range	1/5~1/25,000sec
Video Rotation		Flip, Mirror, Hallway view(90°/270°)
Alarm Interface	In/Out	None
Alarm Triggers		Analytics, Network disconnect, Alarm input, MQTT subscription
Alarm Events When Alarm Trigger Occurred		File upload(image): e-mail/FTP, Notification: e-mail, Handover: PTZ preset, send message by HTTP/HTTPS/TCP, Audio clip playback, MQTT: publication
Audio Streaming		None
Audio In		None
Audio Out		None
Light Type		IR LED
Light Viewable Length	Warm Light	None
	IR	30m(98.42ft)
IR Wavelength		850nm
Analytics		
Classified Object Type		Person, Vehicle
Attributes	Vehicle	Type(car, bus, truck, motorcycle, bicycle)
Thumbnail		BestShot
Analytics Events	Based on AI Engine	Object detection, Virtual line(Crossing/Direction), Virtual area(Loitering/Intrusion/Enter/Exit), Motion detection
	Normal	Defocus detection, Motion detection, Tampering, Virtual area(Appear/Disappear)
Business Intelligence	Based on AI Engine	People counting, Queue management, Heatmap, Vehicle counting
Network		

Ethernet		RJ-45(10/100BASE-T)
Video Compression		H.265/H.264: Main/High, MJPEG
Audio Compression		None
Smart Codec		Manual, WiseStream III
Bitrate Control		H.265/H.264: CBR or VBR, MJPEG: VBR
Streaming	Unicast	Up to 20 users
	Multicast	Support
	Multiple Streaming	Up to 5 profiles
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, CDP, SRTP(TCP, UDP Unicast), MQTT
	Others	SUNAPI(HTTP API), Hanwha Vision Open Platform
Direct Cloud Connection		Support
Security		
OS / Firmware Protect		Encrypted firmware, Secure boot, Signed firmware
User authentication		Digest authentication, Prevent brute-force attack
Network authentication		IEEE 802.1X(EAP-TLS, EAP-LEAP, EAP-PEAP, MSCHAPv2)
Secure Communication		HTTPS, WSS(WebSocket Secure), SRTP
Access Control		IP-based access control
Data Protect		Encryption credentials, Encrypt compress for live recording file export
Audit		Access / System / Event Log management
Device ID		Device certificate(Hanwha Vision Root CA)
Secure Storage		None
General		
Memory	RAM	2GB
	Flash	1GB
Edge Storage	Micro SD/SDHC/SDXC	None
Environmental & Electrical		
Operating Condition	Temperature	-30°C~+60°C(-22°F~+140°F)
	Humidity	0~95% RH(non-condensing)
	Others	Start up should be done at above -30°C
Storage Condition	Temperature	-50°C~+60°C(-58°F~+140°F)
	Humidity	0~95% RH(non-condensing)
Input Voltage		PoE(IEEE802.3af, Class3)
Power Consumption	PoE	Max. 12W, typical 5.3W
Mechanical		
Color		Silver
Material		Stainless(STS316L)
RAL Code		None
Product Dimensions		ø120 x 215mm(ø4.72x8.46")
Product Weight		5780g(12.74lb)
Compatible Gang Box		None

4 EUT Setup and Operation Mode

4.1 EUT Configuration

Description	Model Number	Serial Number	Manufacturer	Remarks
Security Camera	TNO-C9083ER	-	INDUS VISION Co., Ltd.	EUT
PoE Injector	PT-PSE109GBRO-AH-S	-	Dongguan PROCET Network Technology Co.,Ltd	-
Laptop	NT550XDZ	-	SAMSUNG	-
Laptop Adaptor	A13-040N2A	-	CHICONY POWER TECHNOLOGY (Chongqing) CO., LTD.	-

4.2 System Configuration

Product Name	Model Number	Serial Number	Manufacturer	Remarks
Ferrite Core	EMI 930B	-	-	-

4.3 External I/O Cabling

Mode 1

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
	Ground	Ground	Line	1.8	U
Laptop	RJ-45	PoE Injector	RJ-45(LAN)	1.2	U
	DC Jack	Laptop Adaptor	Line	1.5	U

* Unshielded=U, Shielded=S

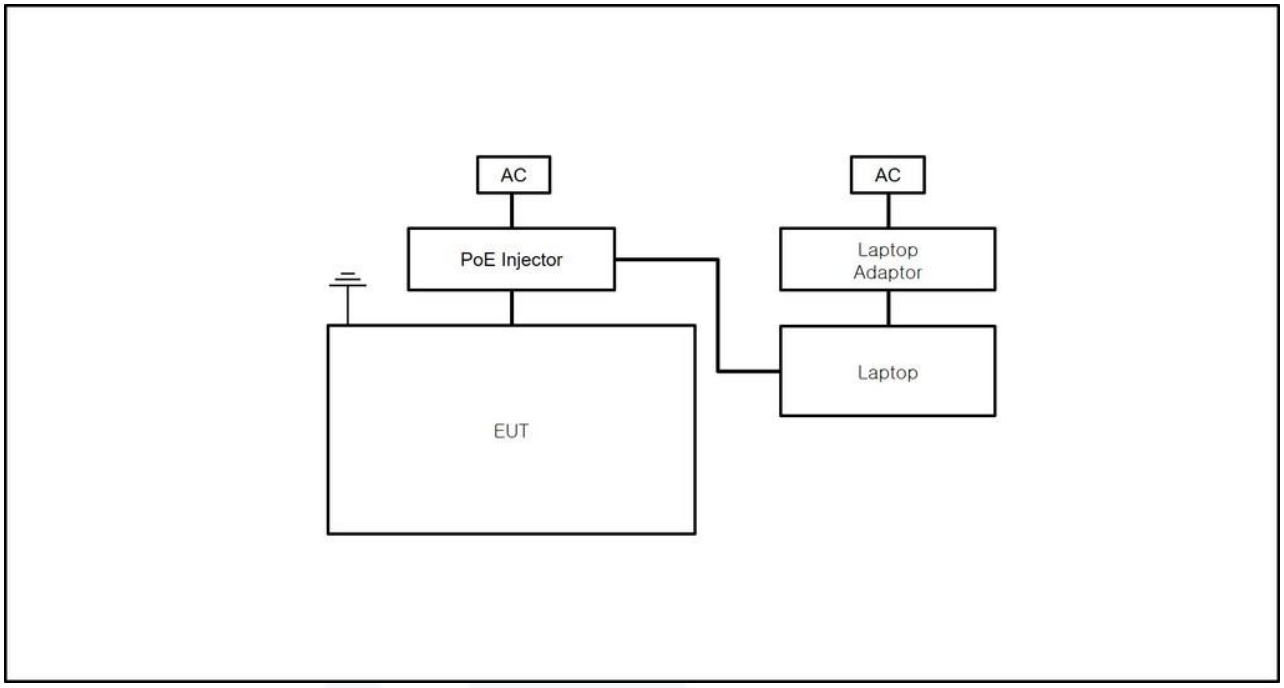
4.4 EUT Operating Mode(s)

Category	Mode	Operating
Mode 1	PoE	1. After accessing the web Viewer on the laptop, check the video output of the EUT. 2. Tested while running a ping test to verify network connectivity.

4.5 Test operating S/W

Name	Version	Manufacture Company
Web Viewer	-	Hanwha Vision Co., Ltd.

4.6 Configuration



Mode 1

5 Measurement Procedure

- Conducted Emissions

The conducted emission levels were measured on each current-carrying line with the spectrum analyzer operating in the CISPR quasi-peak mode (or peak mode if applicable). The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. If the conducted emission exceed the average limit with the instrument set to the quasi-peak mode, the measurements are made in the average mode. The emission spectrum was scanned from 150 ㎑ to 30 ㎒. The highest emission amplitudes relative to the appropriate limits were measured and have been recorded. Quasi-peak readings are distinguished with a "QP".

- Radiated Electric Field Emissions

The test was done at a SEMI ANECHOIC CHAMBER with quasi-peak detector. The final test data was measured using a Quasi-Peak detector below 1 ㎓ at 10 m or 3 m distance and a Peak and Average detector above 1 ㎓ at 3 m distance. Test was proceeded worst case test mode and cable configuration. Measurements were made with the antenna positioned in both the horizontal and vertical planes of polarization. The antenna height was varied from 1 m to 4 m (Radiated Emissions(Below 1 ㎓)) and 1 m (Radiated Emissions(Above 1 ㎓)) and the EUT was rotated 360° to find the maximum emitting point for each frequency.

Measurement procedures was In accordance with ANSI C63.4 or CISPR 32.

♦ Calculation

- Conducted Emissions

QuasiPeak[㏈uV] / CAverage [㏈uV] = Reading Value[㏈uV] + Corr. [㏈]
QuasiPeak / CAverage : The Final Value
Reading Value : Not shown in the table.
Corr. : Correction values (LISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))

- Radiated Emissions(Below 1 ㎓)

Result(QP) [㏈(㎶/m)] = (Reading(QP)[㏈(㎶)] + c.f[㏈(1/m)]
Margin(QP)[㏈] = Limit[㏈(㎶/m)] - Result(QP) [㏈(㎶/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 Emissions(Above 1 ㎓)

Result(PK/CAV) [㏈(㎶/m)] = (Reading(PK/CAV)[㏈(㎶)] + c.f[㏈(1/m)]
Margin(PK/CAV)[㏈] = Limit[㏈(㎶/m)] - Result(PK/CAV) [㏈(㎶/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

6 Test Item

6.1 Conducted Emissions at Telecommunication Ports

6.1.1 Test Equipment

Equipment Name	Model Number	Manufacturer	Serial No.	Cal. Date	Next Cal. Date	Used
SHIELD ROOM #6	-	DYMSTEC	-	-	-	■
EMC32 Measurement Software	EMC32	R&S	9.12.00	-	-	■
EMI TEST RECEIVER	ESR3	Rohde & Schwarz	101783	2025-11-03	2026-11-03	■
LISN	ENV216	Rohde & Schwarz	101787	2025-09-04	2026-09-04	■
ARTIFICIAL MAINS NETWORK	ESH2-Z5	Rohde & Schwarz	100450	2025-11-03	2026-11-03	■
PULSE LIMITER	ESH3-Z2	Rohde & Schwarz	101915	2025-11-03	2026-11-03	■
8-WIRE ISN CAT3,5	ENY81	Rohde & Schwarz	100174	2025-11-05	2026-11-05	■

6.1.2 Test Location : SHIELD ROOM #6

6.1.3 Test Conditions :

Temperature	Relative Humidity
(25.5 ~ 25.5) °C	(48.8 ~ 48.8) % R.H.

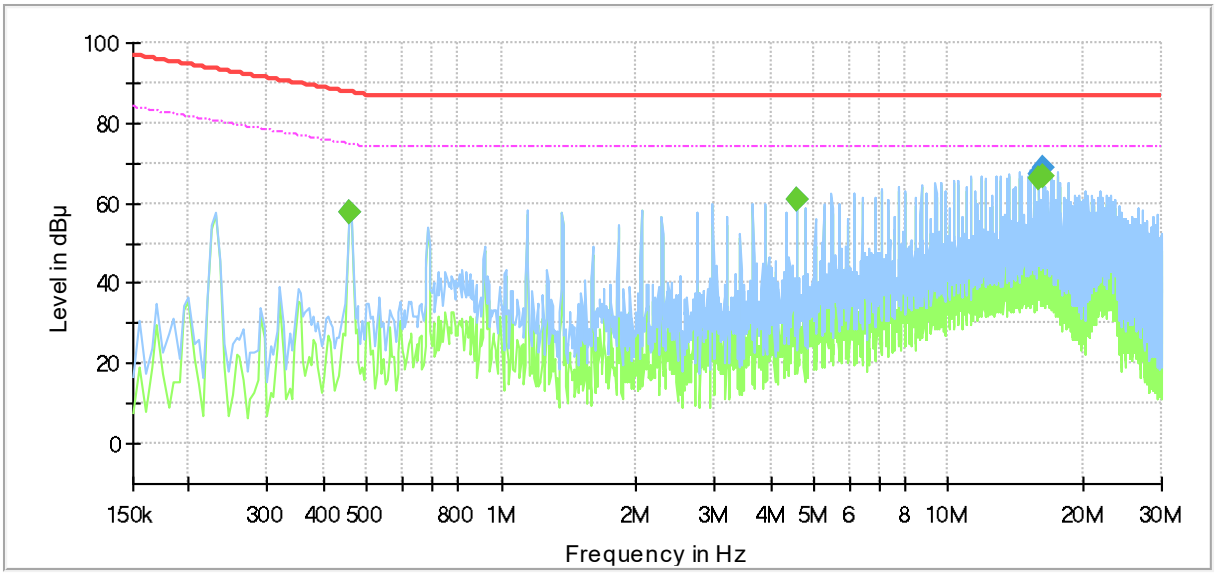
6.1.4 Test Result

○ Test Date : 2026-06-04
● Test Mode : Mode 1

Test Report

Common Information

Test Description:	Telecommunication Emission
Job No.:	KES-EM261852
Mode :	
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)
0.455000	---	57.56	74.78	17.22	1000.0	9.000	Single Line	19.3
0.455000	57.53	---	87.78	30.25	1000.0	9.000	Single Line	19.3
4.570000	---	60.61	74.00	13.39	1000.0	9.000	Single Line	19.3
4.570000	60.72	---	87.00	26.28	1000.0	9.000	Single Line	19.3
16.000000	---	66.00	74.00	8.00	1000.0	9.000	Single Line	19.6
16.000000	67.45	---	87.00	19.55	1000.0	9.000	Single Line	19.6
16.230000	---	66.66	74.00	7.34	1000.0	9.000	Single Line	19.6
16.230000	68.56	---	87.00	18.44	1000.0	9.000	Single Line	19.6

6.1.5 Remark

Complies with the test requirements.

6.2 Radiated Emissions(Below 1 ㎓)

6.2.1 Test Equipment

Equipment Name	Model Number	Manufacturer	Serial No.	Cal. Date	Next Cal. Date	Used
SEMI ANECHOIC CHAMBER #4(10 m)	-	DYMSTEC	-	-	-	■
EP5/RE Software	EP5/RE	TOYO	6.0.0	-	-	■
EMI TEST RECEIVER	ESU26	Rohde & Schwarz	100551	2026-02-12	2027-02-12	■
AMPLIFIER	SCU 01	Rohde & Schwarz	100574	2026-04-24	2027-04-24	■
TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	715	2024-11-08	2026-11-08	■

6.2.2 Test Location : SEMI ANECHOIC CHAMBER #4(10 m) Measurement Distance : □ 3 m, ■ 10 m

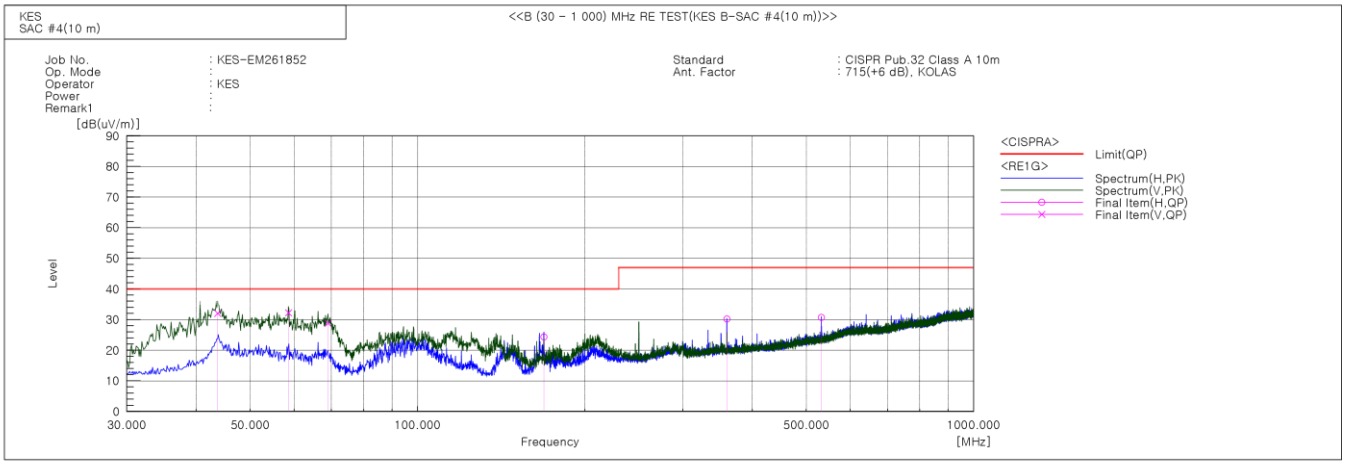
6.2.3 Test Conditions :

Temperature	Relative Humidity
(23.8 ~ 23.9) °C	(53.1 ~ 53.2) % R.H.

6.2.4 Test Result

○ Test Date : 2026-06-04

● Test Mode : 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	43.701	V	53.6	-21.6	32.0	40.0	8.0	110.0	259.0	
2	58.615	V	54.2	-22.0	32.2	40.0	7.8	137.0	153.0	
3	69.043	V	53.2	-24.4	28.8	40.0	11.2	196.0	357.0	
4	168.831	H	48.3	-24.0	24.3	40.0	15.7	299.0	199.0	
5	360.043	H	45.3	-15.1	30.2	47.0	16.8	245.0	10.0	
6	532.218	H	41.0	-10.3	30.7	47.0	16.3	200.0	131.0	

※ The data is the result measured by the detector in Quasi-Peak mode on the Peak graph.

6.2.5 Remark

Complies with the test requirements.

6.3 Radiated Emissions(Above 1 ㎓)

6.3.1 Test Equipment

Equipment Name	Model Number	Manufacturer	Serial No.	Cal. Date	Next Cal. Date	Used
SEMI ANECHOIC CHAMBER #3	-	DYMSTEC	-	-	-	■
EP5/RE Software	EP5/RE	TOYO	6.0.0	-	-	■
EMI TEST RECEIVER	ESU26	Rohde & Schwarz	100517	2025-07-08	2026-07-08	■
PREAMPLIFIER	8449B	AGILENT	3008A01967	2026-03-04	2027-03-04	■
ATTENUATOR	8491A	HP	35496	2026-02-12	2027-02-12	■
DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H. SYSTEM,INC	781	2026-03-06	2027-03-06	■

6.3.2 Test Location : SEMI ANECHOIC CHAMBER #3

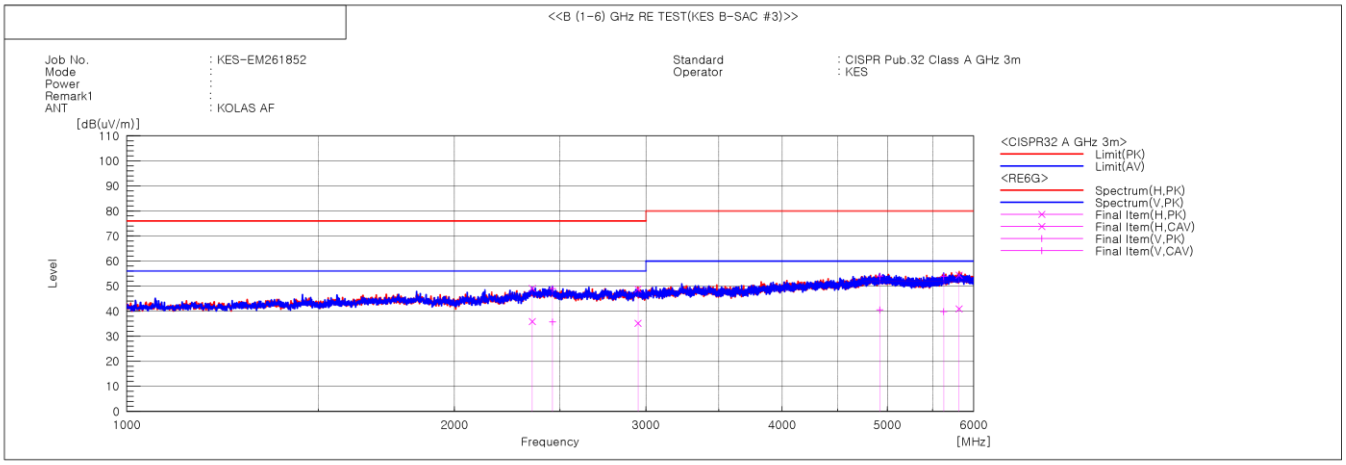
6.3.3 Test Conditions :

Temperature	Relative Humidity
(23.6 ~ 23.7) °C	(47.7 ~ 47.8) % R.H.

6.3.4 Test Result

○ Test Date : 2026-06-05

● Test Mode : Mode 1



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]	Angle [deg]	Remark
1	2358.751	H	43.4	30.2	5.7	49.1	35.9	76.0	56.0	26.9	20.1	301.8	
2	2461.243	V	42.9	29.6	6.1	49.0	35.7	76.0	56.0	27.0	20.3	52.5	
3	2949.375	H	41.9	28.3	6.9	48.8	35.2	76.0	56.0	27.2	20.8	94.3	
4	4918.728	V	40.2	26.7	13.8	54.0	40.5	80.0	60.0	26.0	19.5	335.9	
5	5630.639	V	39.6	25.5	14.3	53.9	39.8	80.0	60.0	26.1	20.2	2.1	
6	5818.414	H	39.2	25.7	15.2	54.4	40.9	80.0	60.0	25.6	19.1	354.5	

※ The data is the result of measured by the detector in PK and CISPR Average on the Peak graph.

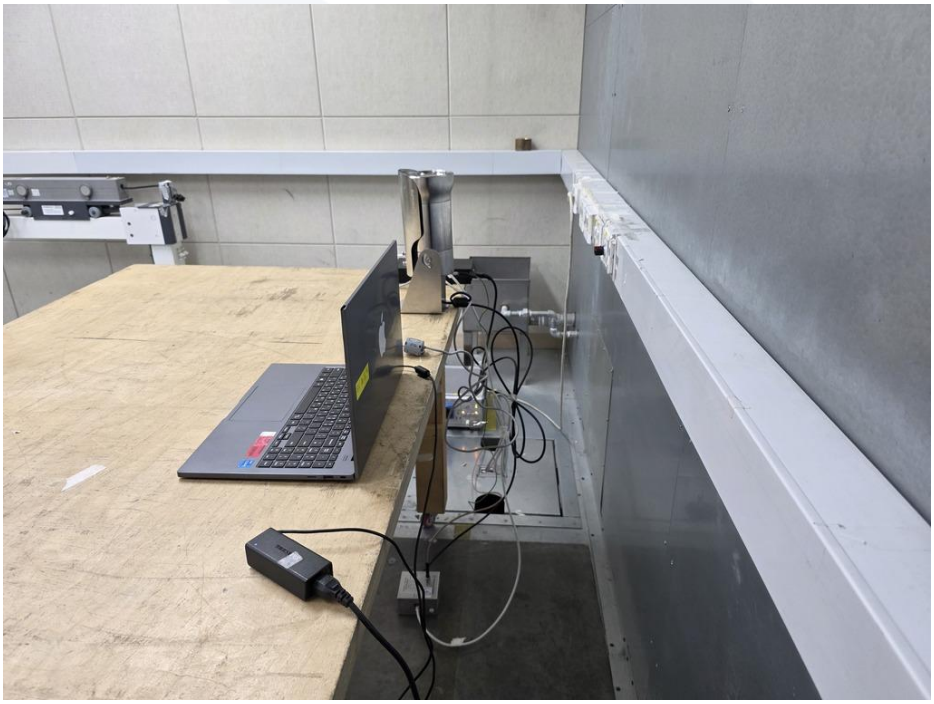
6.3.5 Remark

Complies with the test requirements.

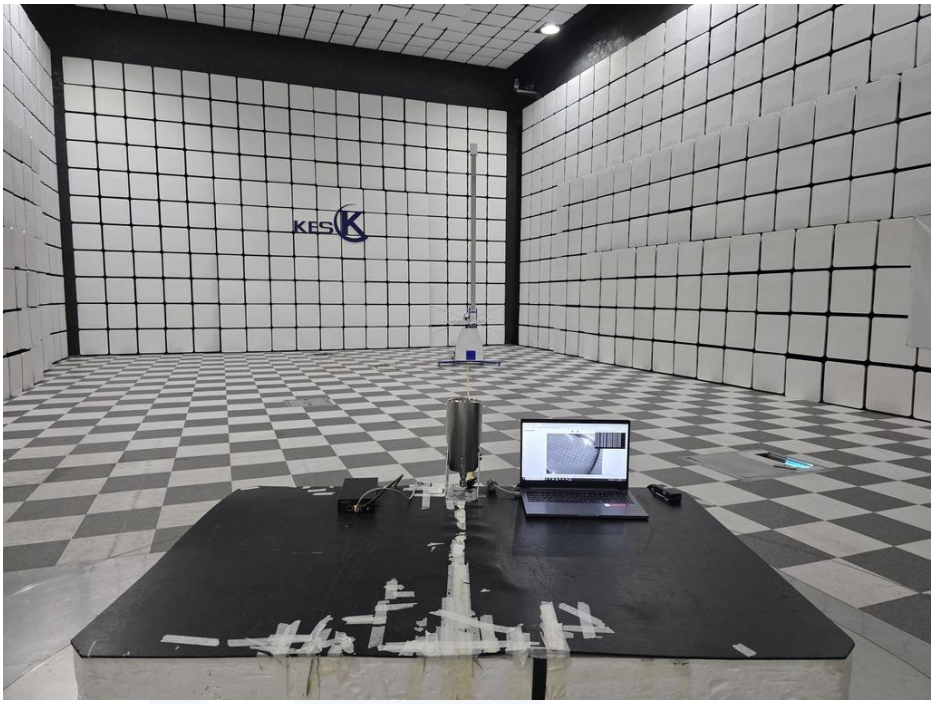
7 Test Setup Photos and EUT Photographs

7.1 Test Setup Photos

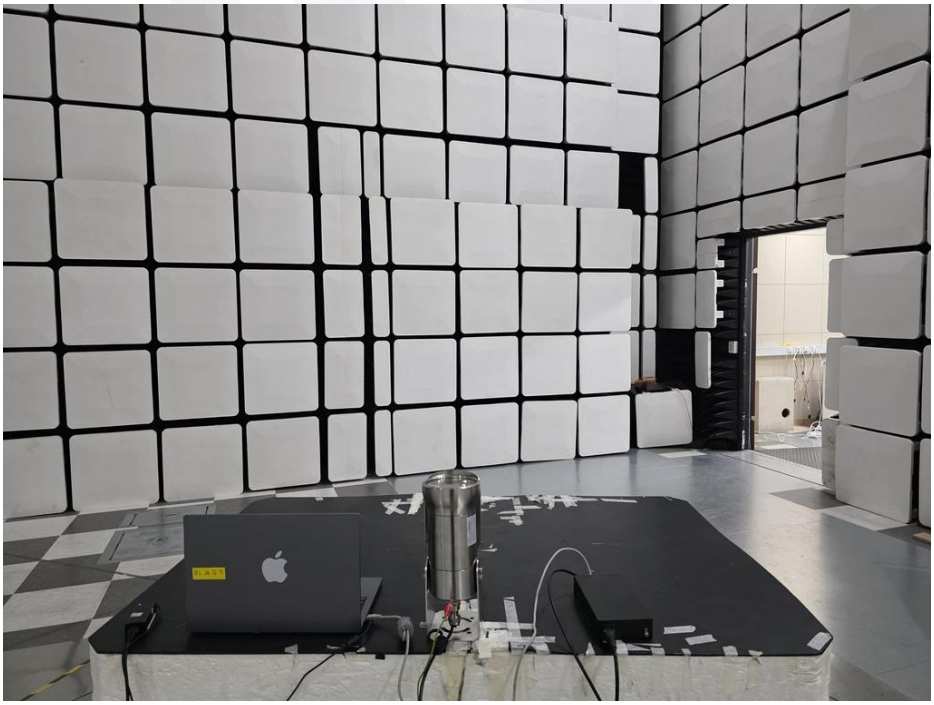
<Conducted Emissions at Telecommunication Ports - Front>



<Conducted Emissions at Telecommunication Ports - Rear>



<Radiated Emissions(Below 1 ㎓) - Front>



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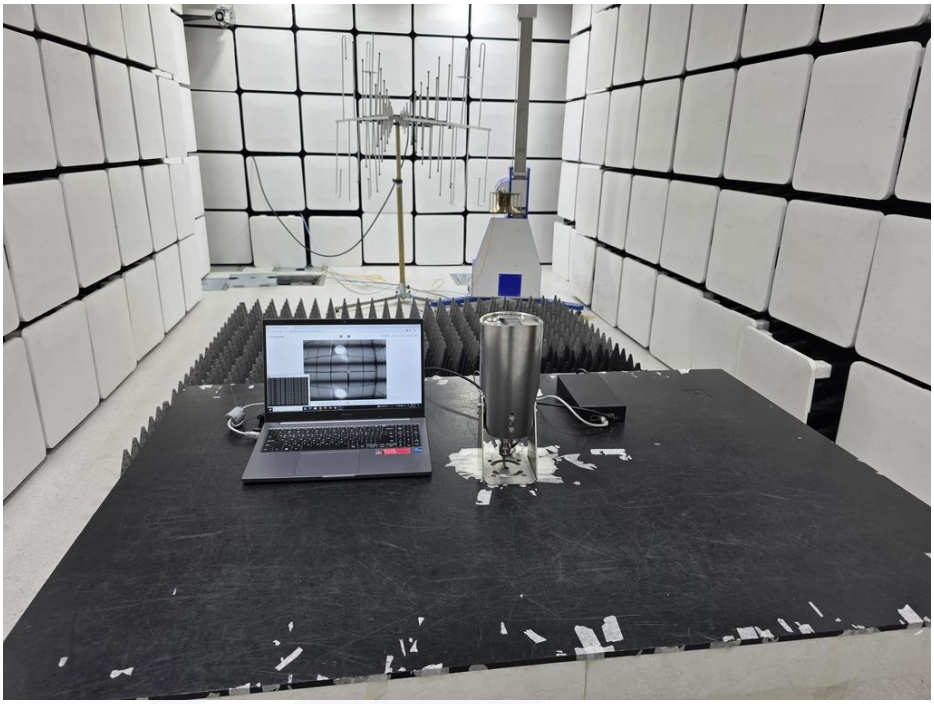
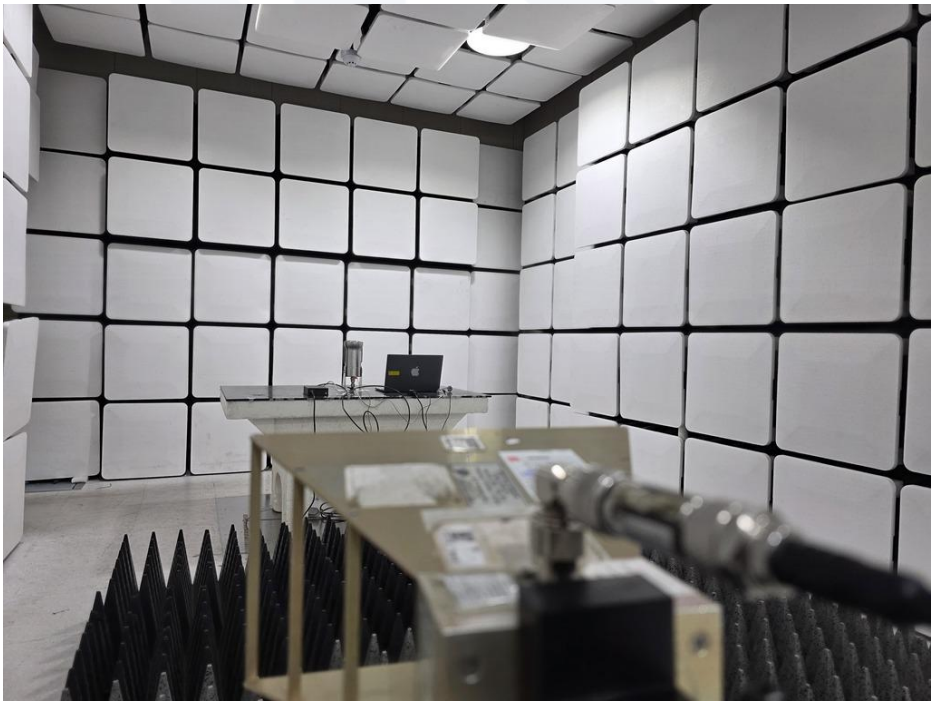


<Radiated Emissions(Above 1 ㎓) - Front>

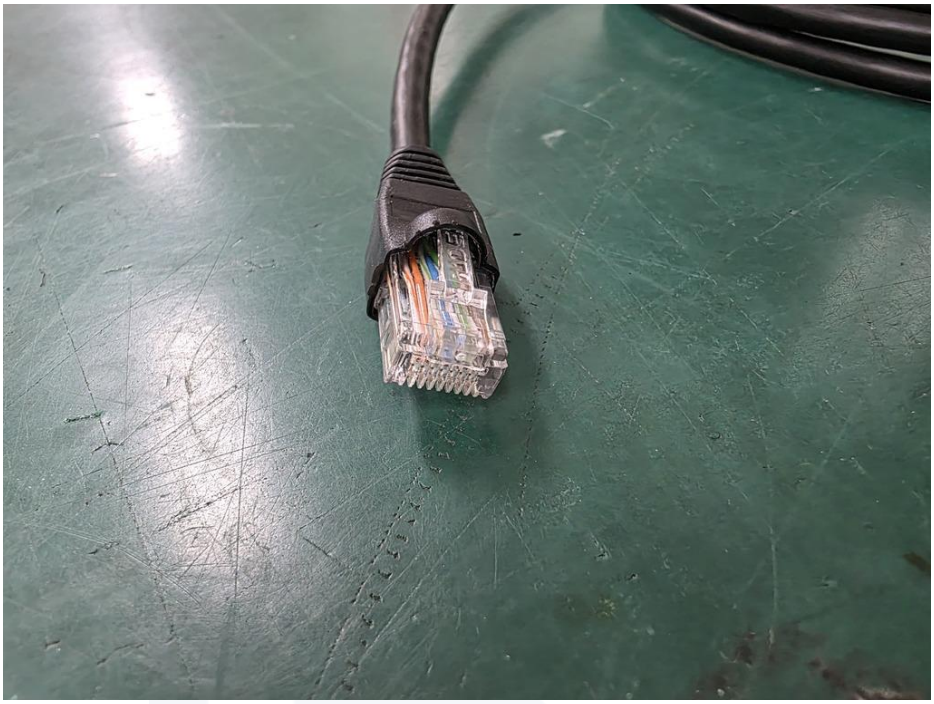


<Radiated Emissions(Above 1 ㎓) - Rear>

7.2 EUT Photographs

<EUT External Photographs - Top>

<EUT External Photographs - Bottom>



<Port-1>

<Port-2>

<EUT Internal Photographs>

7.3 Label

Name	:	Hanwha Vision Co., Ltd.
Product item	:	Security Camera
Model name	:	TNO-C9083ER

この装置は、クラスＡ情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 ＶＣＣＩ－Ａ

The End.