



EMC TEST REPORT

Test Report No. : KES-EM-23T0254
Date of Issue : Mar. 17, 2023
Product name : Network Camera
Model/Type No. : TNV-C7013RC
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 : Feb. 21, 2023
Test date : Mar. 03, 2023 ~ Mar. 07, 2023
Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Dae Soo, Kim
EMC Test Engineer

Reviewed by

Seong Min, Choi
EMC Technical Manager

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

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REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Mar. 17, 2023	KES-EM-23T0254	Issued

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1.0 General Product Description

Main Specifications of EUT are:

Imaging Device		1/1.8" progressive CMOS	Radiometry		Temperature Detect Range	None
Resolution		2048x1536, 1920x1080, 1600x1200, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360, 320x240.	Temperature Accuracy		None	
			Temperature Detection		None	
Max. Framerate		H.265/H.264: Max. 30fps/25fps(60Hz/50Hz) MJPEG: Max. 30fps@3MP Max. 5fps	Additional		None	
NETD		None	Network		Ethernet	Metal shielded RJ-45(10/100BASE-T)
Pixel Size		None	Video Compression		H.265/H.264: Main/Baseline/High, MJPEG	G.711 u-law /G.726 Selectable
Min. Illumination		Color: 0.04Lux(F2.0, 1/30sec, 30IRE) BW: 0.04Lux(F2.0, 1/30sec, 30IRE), 0Lux(IR LED on)	Audio Compression		G.726(ADPCM) 8KHz, G.711 8KHz	G.726: 16Kbps, 24Kbps, 32Kbps, 40Kbps
					AAC-LC: 48Kbps at 16KHz	
Video Out		None	Smart Codec		Manual(Sea area), WiseStream II, WiseStream III(Based on AI engine)	
Video Transmission Distance		None	Video Quality Adjustment		H.264/H.265: Target bitrate level control MJPEG: Target bitrate level control	
Lens			Bitrate Control		H.264/H.265: CBR or VBR MJPEG: VBR	
Focal Length (Zoom Ratio)		2.39mm fixed focal	Streaming		Unicast(20 users) / Multicast Multiple streaming(Up to 10 profiles, 3 virtual channel support)	
Max. Aperture Ratio		F2.0	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	
Angular Field of View		H: 128°, V: 100°				
Min. Object Distance		0.5m(1.64ft)	SIP support (VoIP, Peer-to-peer, SIP/P)		None	
Focus Control		Fixed	Security		TPM 2.0(FIPS 140-2 level 2)	
Lens Type		None			HTTPS(SSL) Login Authentication	
Mount Type		None			Digest Login Authentication	
Optional Lens		None			IP Address Filtering	
Pan / Tilt / Rotate					User access log	
Pan / Tilt / Rotate Range		None	Application Programming Interface		802.1X Authentication(EAP-TLS, EAP-LEAP, EAP-PEAP MSCHAPv2)	
Pan Range		None			Device Certificate(Hanwha Techwin Root CA, pre-installed)	
Pan Speed		None			Secure by default certificate	
Tilt Range		None			Secure OS/Boot/Storage, Verify firmware forgery	
Tilt Speed		None			ONVIF Profile S/G/T/M	
Rotate Range		None	SUNAPI(HTTP API)		Wisenet open platform	
Sequence		None				
Preset Accuracy		None				
Operational			General			
Camera Title		Displayed up to 85 characters	Webpage Language		None	
Direction Indicator		None	Web Viewer		None	
Day & Night		Auto(ICR)	Edge Storage		Micro SD/SDHC/SDXC 1slot 1TB	
Backlight Compensation		BLC, HLC, WDR, SDR	Memory		4096MB RAM, 512MB Flash	
Wide Dynamic Range		extremeWDR (120dB)	Environmental & Electrical			
Digital Noise Reduction		WiseNRII(Based on AI engine), SSNR V	Operating Temperature / Humidity		-10°C ~ +55°C (14°F ~ +131°F) 0~95% RH(non-condensing) Humidity control /w AIR vent	
Digital Image Stabilization		Support	Storage Temperature / Humidity		-50°C ~ +60°C(-58°F ~ +140°F) / 0~90% RH	
Defog		Support	Certification		IP66, IP6K9K, IK10+	
Motion Detection		8ea, 8point polygonal zones	Input Voltage		PoE(IEEE802.3af, Class3)	
Privacy Masking		32ea, 4point Quadrangle zones - Color: Gray/Green/Red/Blue/Black/White - Mosaic	Power Consumption		PoE: Max 12.95W, typical 9.7W DC : Max 12.7W, typical 9.0W	
Gain Control		Off / Max Gain / Manual	Mechanical			
White Balance		ATW / Narrow ATW / AWC / Manual / Indoor / Outdoor	Color / Material		White / Aluminum	
LDC		None	RAL Code		RAL9003	
Electronic Shutter Speed		Minimum / Maximum / Anti flicker (2~1/12,000sec) Prefer shutter control(Based on AI engine)	Product Dimensions / Weight		198.3(W)x104.8(H)x198.6(D)mm(7.87"x4.13"x7.82"), 1.935g (4.27lb)	
Digital PTZ		Support(Preset, Group)	Compatible Conduit hole / Gangbox		None	
Video Rotation		Flip, Mirror, Halfway view(90°/270°)	Hanging Mount (Dome)		None	
Analytics		Classified object type : Person/Face/Vehicle/License plate Support DetectionShot Analytics events based on AI engine - Object detection, Virtual line(Crossing/Direction), Virtual area(Loitering/Intrusion/Enter/Exit) Analytics events - Defocus detection, Motion detection, Tampering, Audio detection, Sound classification, Virtual area(Appear/Disappear), Clothes color detection(Orange/Black/Red, @400lux)	Skin Cover		None	
			Skin Cover (Dome)		SPG-VAN13W	
			Weather Cap (Dome)		None	
			Power Module		None	
			Backbox		None	
Business Intelligence		None	Certifications & Standards			
Serial Interface		None	Network		None	
Alarm I/O		2 configurable I/O ports * Support Alarm via optional SPM-4210 I/O box	EMC		FCC 47 CFR 15 Subpart B Class A ICES-3(A)/NMB-3(A) CEA/UKCA - EN 55032 Class A, EN 50130-4, EN 61000-3-2, EN 61000-3-3 VCCI CISPR 32 Class A RCM AS/NZS CISPR 32 Class A KS C 9832 Class A , KS C 9835	
Alarm Triggers		Analytics, Network disconnect, Alarm input, App event, Time schedule, MQTT				
Alarm Events		When alarm trigger occurred - File upload(image): e-mail/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 - MQTT: publication				
Audio Streaming		None				
Audio In		Selectable(mic in/line in), Built-in MIC Supply voltage: 2.5VDC(4mA), Input impedance: 2K Ohm * Support Audio via optional SPM-4210 I/O box				
Audio Out		Line out, Max. output level: 1Vrms	Safety		UL 62368-1, CAN/CSA C22.2 NO. 62368-1 IEC/EN 62471	
IR Viewable Length		Wise IR 15m(49.21ft)	Environment		IEC/EN 63000 IEC/EN 60529 IP66, ISO 20653 IP6K9K, IEC/EN 62262 IK10+	
IR Illuminator (Optional)		None	Video		None	
IR Radiation angle		None	DORI (EN62676-4 standard)			
IR LED		None	Detect (25PPM/ 8PPF)		35.1m(115.16ft)	
IR Wavelength		None	Observe (63PPM/ 19PPF)		14m(45.93ft)	
IR Operation		None	Recognize (125PPM/ 38PPF)		7.0m(22.97ft)	
Water Removal		None	Identify (250PPM/ 76PPF)		3.5m(11.48ft)	
Auto Tracking		None	LPR/ANPR/MMCR			
Coaxial Protocol		None	Speed Description		None	
Color Palettes		None	Speed limit		None	
			Min. Forward Distance		None	
			Max. Forward Distance		None	
			Max. Horizontal Angle		None	
			Max. Vertical Angle		None	
			Horizontal Offset		None	
			Camera Height		None	
			Lane Coverage		None	
			Vehicle Recognition		None	
			Available Countries		None	
			Wisenet Road AI LPR/ANPR/MMCR			
			Solution		None	
			Speed Description		None	
			Lane Coverage		None	
			Speed limit		None	
			Min. Forward Distance		None	
			Max. Forward Distance		None	
			Max. Horizontal Angle		None	
			Max. Vertical Angle		None	
			Horizontal Offset		None	
			Camera Height		None	
			Vehicle Recognition		None	
			Available Countries		None	

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1.1 Test Voltage & Frequency

Unless indicated otherwise on the individual data sheet or test results, the test voltage and frequency was as indicated below.

☒ AC 120 V, 60 Hz ☒ 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	TNV-C7013RC	-	HANWHA VISION VIETNAM COMPANY LIMITED	EUT

1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
AC / DC ADAPTOR	KPL-048F-VI	-	I.T.E POWER SUPPLY	-
PoE SWITCH	POE29U-1AT(PL)	3115156G00001 3	Phihong Technology Co., Ltd.	-
LAPTOP	Latitude 5300	8C47BE45C060	DELL INC.	-
LAPTOP ADAPTOR	HA65NM130	-	Chicony Power Technology(Suzhou)Co., Ltd.	-
HEADSET	K550	-	Britz®	-
BUTTON ALARM	-	-	-	-
ALARM	-	-	-	-
SMART PHONE	SM-N920	-	SAMSUNG	-
Micro SD card	-	-	SanDisk	-

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)	DC JACK	AC / DC ADAPTOR	DC JACK	1.2	U
	RJ-45	LAPTOP	RJ-45	3.1	U
	MIC	HEADSET	MIC	1.8	U
	SPEAKER		SPEAKER	1.7	U
	ALARM IN	BUTTON ALARM	ALARM OUT	3.1	U
	ALARM OUT	ALARM	ALARM IN	3.1	U
	Micro SD Slot	Micro SD card	Micro SD Slot	-	-

* 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 SWITCH	RJ-45 (PoE)	3.1	U
	MIC	HEADSET	MIC	1.8	U
	SPEAKER		SPEAKER	3.0	U
	ALARM IN	BUTTON ALARM	ALARM OUT	3.1	U
	ALARM OUT	ALARM	ALARM IN	3.1	U
	Micro SD Slot	Micro SD card	Micro SD Slot	-	-

* Unshielded=U, Shielded=S

1.7 EUT Operating Mode(s)

Test Mode	operating
Operation	1. Network ping test on the EUT and laptop. 2. Check if the image is output normally through the laptop's WEB VIEWER. 3. Run 1KHz Tone on the smartphone connected to the peripheral laptop to verify that it is output to the headset normally. 4. After the test, check if the micro SD card recorded properly.

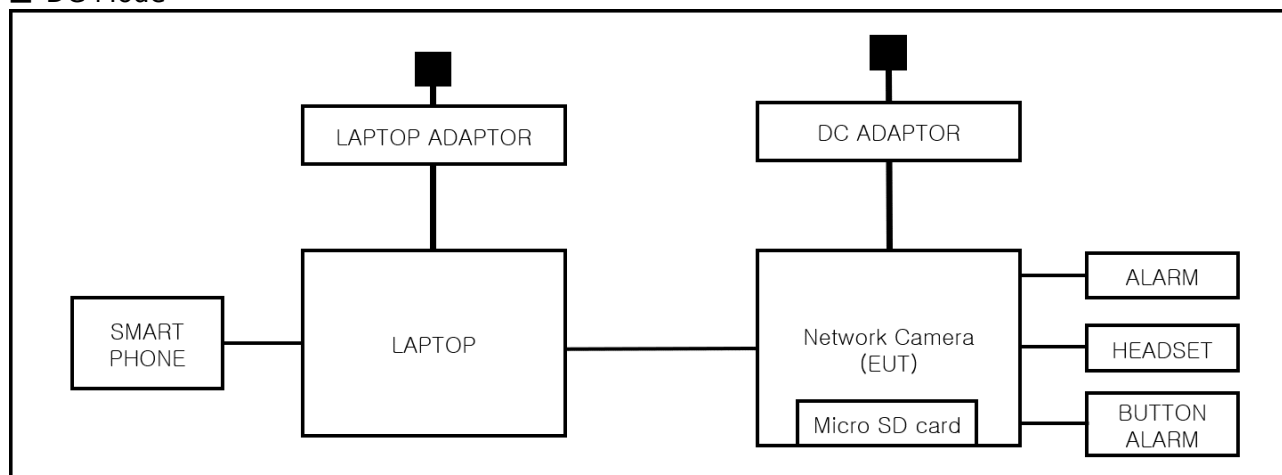
EUT Test operating S/W		
Name	Version	Manufacture Company
Web Viewer	-	Hanwha Vision Co., Ltd

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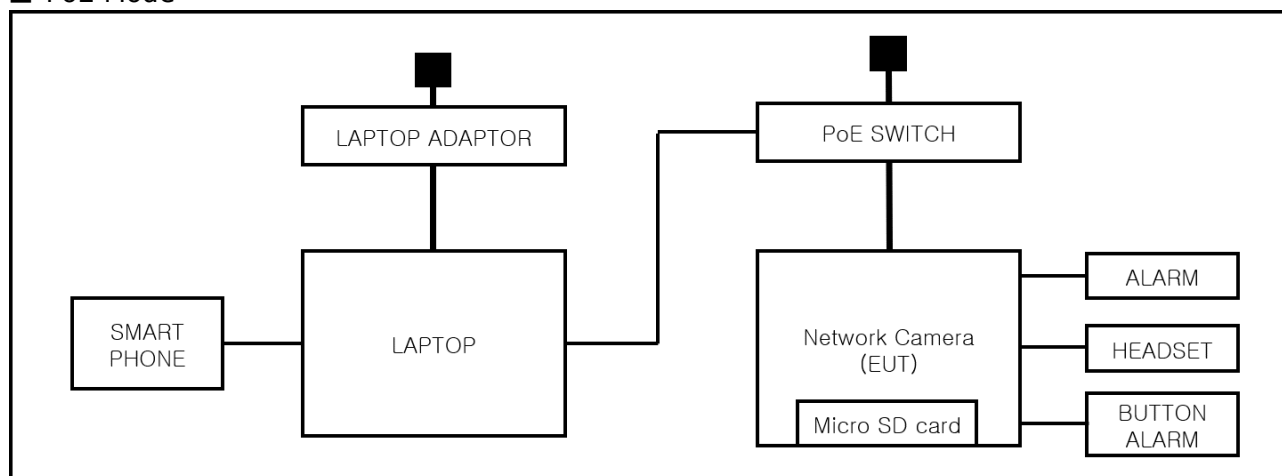
1.8 Configuration

■ AC Main
 □ DC Main

■ DC Mode



■ PoE Mode



1.9 Remarks when standards applied

N/A

1.10 Calibration Details of Equipment Used for Measurement

Test equipment and test accessories are calibrated on regular basis. The maximum time between calibrations is one year or what is recommended by the manufacturer, whichever is less.

1.11 Test Facility

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

1.12 Laboratory Accreditations and Listings

Country	Agency	Scope of Accreditation	Logo
KOREA	RRA	EMI (3 m & 10 m Semi-Anechoic Chamber and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 KR0100
International	KOLAS	EMI (3 m & 10 m Semi-Anechoic Chamber and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 KT489
USA	FCC	3 m & 10 m Semi-Anechoic Chamber Conducted test site to perform FCC Part 15/18 measurements.	 KR0100
Canada	ISED	3 m & 10 m Semi-Anechoic Chamber and Conducted test site	 23298
JAPAN	VCCI	EMI (3 m & 10 m Semi-Anechoic Chamber and conducted test site)	 C-20136, T-20137, R-20181, G-20176
Europe	TÜV SÜD	EMI (3 m & 10 m Semi-Anechoic Chamber and conducted test site) EMS (ESD, RS, EFT/Burst, Surge, CS, Magnetic, Dips and interruptions)	 CARAT 001633 0004

2.0 Test Regulations

The emissions tests were performed according to following regulations:

☒ **47 CFR Part 15, Subpart B**

☐ CISPR 22:2009 +A1:2010

☐ Class A

☐ Class B

☒ ANSI C63.4a-2017

☒ Class A

☐ Class B

☒ **IC Regulation ICES-003 Issue 7**

☐ CAN/CSA-CISPR 32:17

☐ Class A

☐ Class B

☒ ANSI C63.4a-2017

☒ Class A

☐ Class B

2.1 Conducted Emissions at Mains Power Ports

Test Date

Mar. 06, 2023

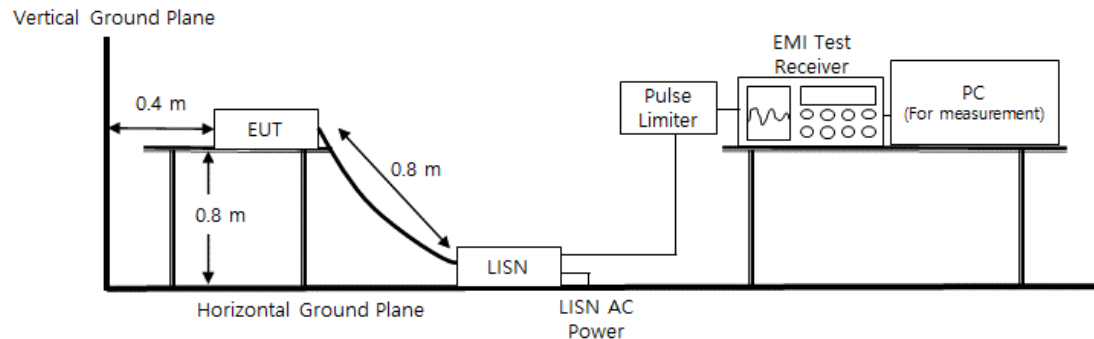
Test Location

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, 11, 2023
☒	LISN	ENV216	R & S	101787	11, 10, 2023
☒	LISN	ESH2-Z5	R & S	100450	11, 10, 2023
☒	PULSE LIMITER	ESH3-Z2	R & S	101915	11, 10, 2023

Diagram of test setup





KES Co., Ltd.

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Test Conditions

Temperature: (24,2 ± 0,0) °C

Relative Humidity: (43,2 ± 0,1) % R.H.

Frequency Range of Measurement

150 kHz to 30 MHz

Instrument Settings

IF Band Width: 9 kHz

Test Results

The requirements are:

- ☒ PASS
- ☐ NOT PASS
- ☐ NOT APPLICABLE

Remarks

See Appendix A for test data.

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2.2 Radiated Electric Field Emissions(Below 1 GHz)

Test Date

Mar. 03, 2023

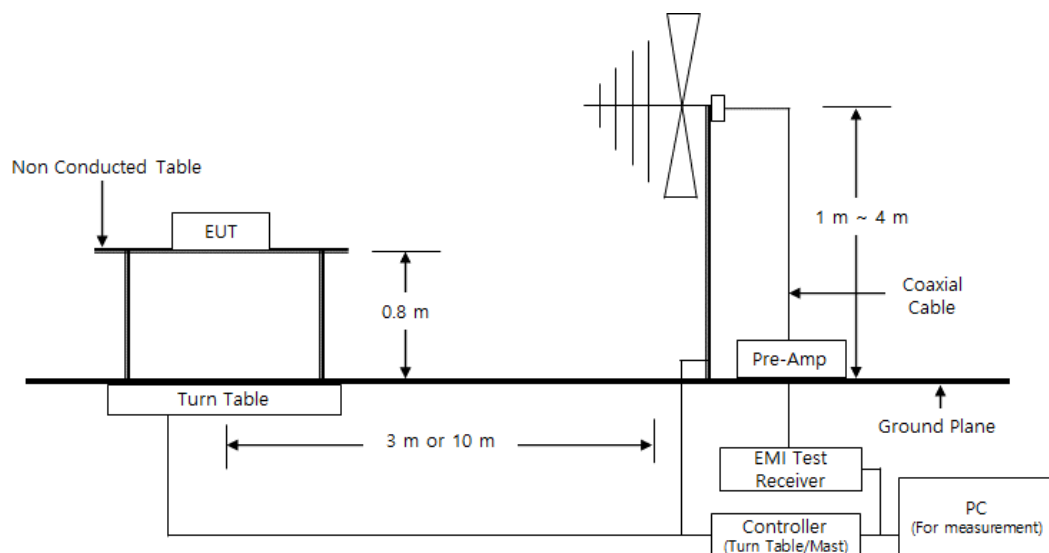
Test Location

☐ OPEN AREA TEST SITE #2 ☒ SEMI ANECHOIC CHAMBER #4(10m)

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.0	-
☒	EMI TEST RECEIVER	ESU26	R & S	100551	03, 31, 2023
☒	AMPLIFIER	SCU 01	R & S	100603	11, 10, 2023
☒	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	715	11, 17, 2024
☒	ATTENUATOR	8491A	HP	32173	03, 03, 2024

Diagram of test setup





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Test Conditions

Temperature: (23,9 ± 0,1) °C
Relative Humidity: (43,1 ± 0,1) % R.H.

Frequency Range of Measurement

30 MHz to 1 GHz

Instrument Settings

IF Band Width: 120 kHz

Test Results

The requirements are:

- ☒ PASS
- ☐ NOT PASS
- ☐ NOT APPLICABLE

Remarks

See Appendix A for test data.

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2.3 Radiated Electric Field Emissions(Above 1 GHz)

Test Date

Mar. 05, 2023

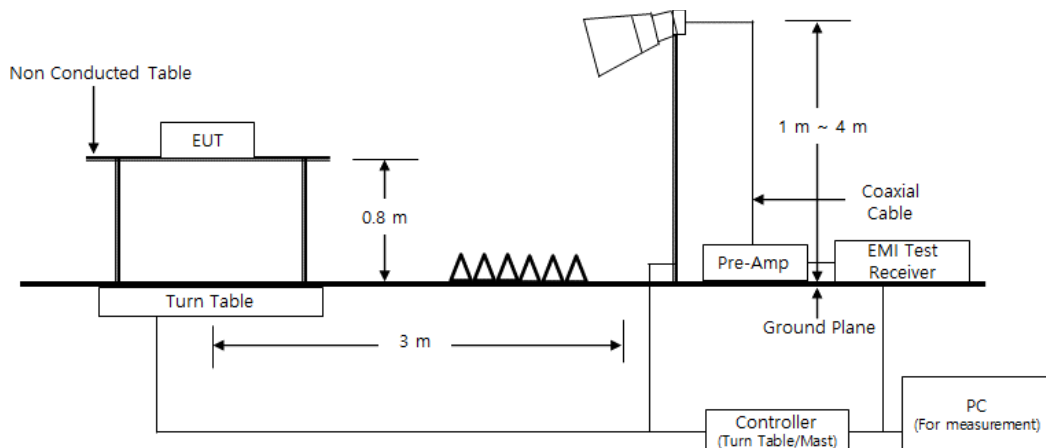
Test Location

SEMI ANECHOIC CHAMBER #4(10m)

Test Equipment

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
☒	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.0	-
☒	EMI TEST RECEIVER	ESU26	R & S	100551	03, 31, 2023
☒	PREAMPLIFIER	8449B	AGILENT	3008A01742	11, 07, 2023
☒	ATTENUATOR	8491A	HP	35496	03, 03, 2024
☒	HORN ANTENNA	BBHA 9120D	SCHWARZBECK	9120D-1802	11, 08, 2023

Diagram of test setup





KES Co., Ltd.

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Test Conditions

Temperature: $(23,5 \pm 0,1) ^\circ\text{C}$
Relative Humidity: $(43,2 \pm 0,1) \% \text{ R.H.}$

Frequency Range of Measurement

1 GHz to 5 GHz

Instrument Settings

IF Band Width: 1 MHz

Test Results

The requirements are:

- ☒ PASS
- ☐ NOT PASS
- ☐ NOT APPLICABLE

Remarks

See Appendix A for test data.

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APPENDIX A – TEST DATA

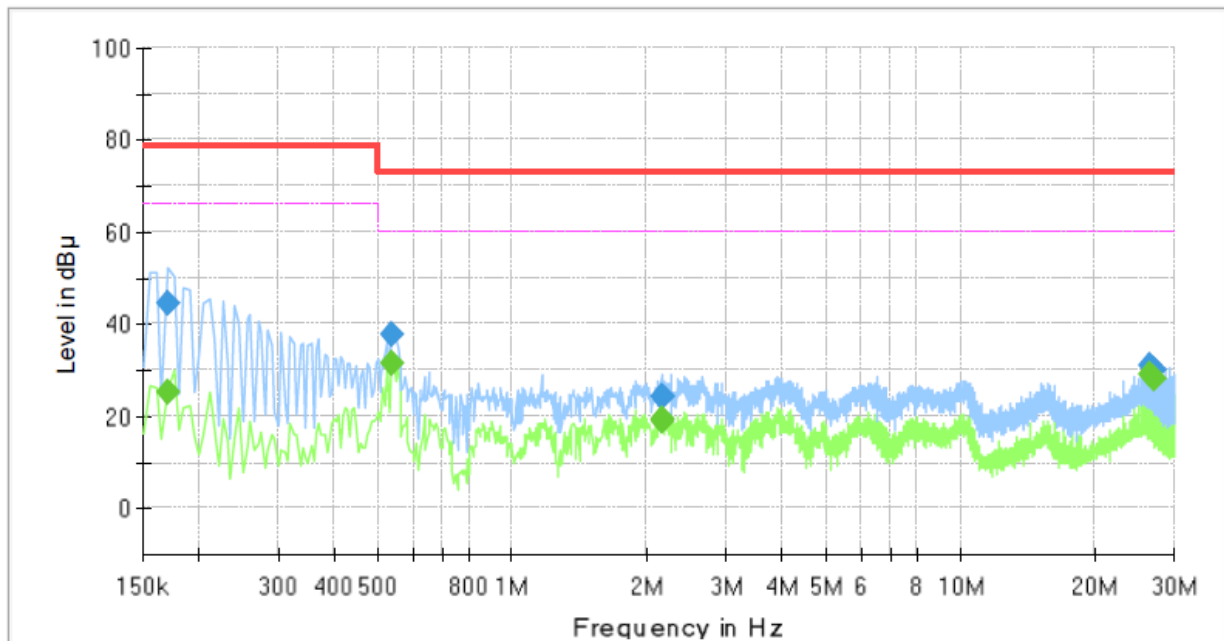
Conducted Emissions at Mains Power Ports

■ DC Mode

HOT LINE

Common Information

Test Description:	Conducted Emission
Model No.:	TNV-C7013RC
Phase:	H
Mode:	DC
Operator Name:	KES



Final Result

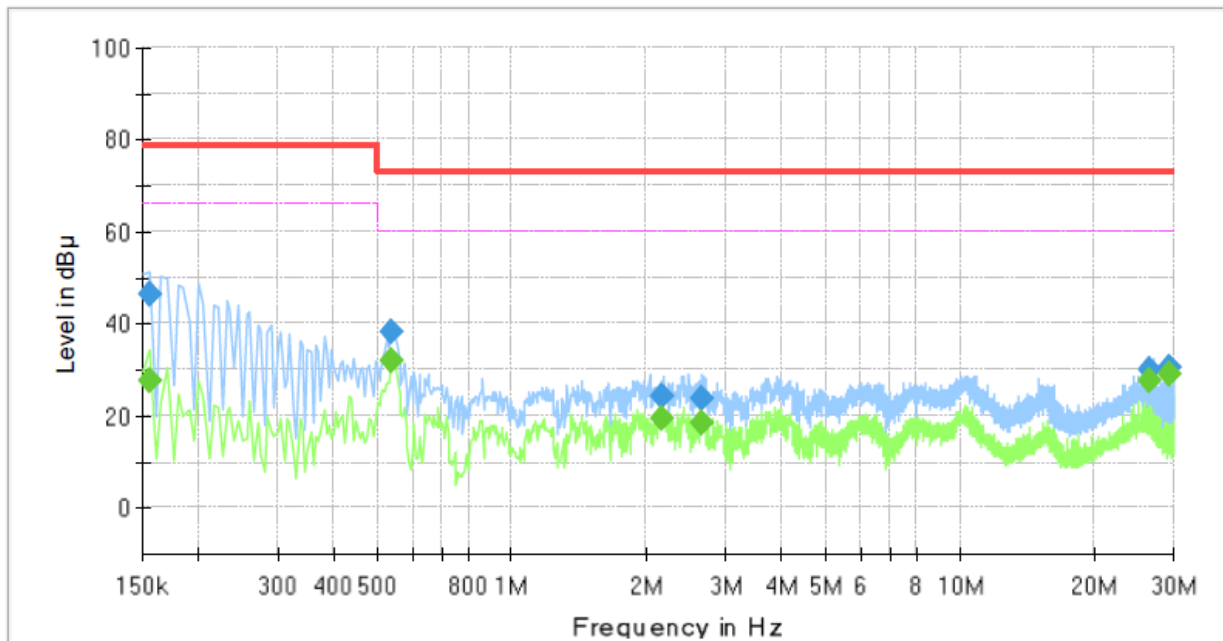
Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.170000	---	25.21	66.00	40.79	1000.0	9.000	L1	19.5
0.170000	44.45	---	79.00	34.55	1000.0	9.000	L1	19.5
0.535000	---	31.57	60.00	28.43	1000.0	9.000	L1	19.8
0.535000	37.64	---	73.00	35.36	1000.0	9.000	L1	19.8
2.150000	---	19.08	60.00	40.92	1000.0	9.000	L1	20.3
2.150000	24.22	---	73.00	48.78	1000.0	9.000	L1	20.3
2.165000	---	19.20	60.00	40.80	1000.0	9.000	L1	20.3
2.165000	24.39	---	73.00	48.61	1000.0	9.000	L1	20.3
26.610000	---	29.04	60.00	30.96	1000.0	9.000	L1	20.4
26.610000	31.24	---	73.00	41.76	1000.0	9.000	L1	20.4
27.160000	---	28.05	60.00	31.95	1000.0	9.000	L1	20.4
27.160000	30.08	---	73.00	42.92	1000.0	9.000	L1	20.4

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NEUTRAL LINE

Common Information

Test Description:	Conducted Emission
Model No.:	TNV-C7013RC
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)
0.155000	---	27.65	66.00	38.35	1000.0	9.000	N	19.4
0.155000	46.44	---	79.00	32.56	1000.0	9.000	N	19.4
0.535000	---	32.04	60.00	27.96	1000.0	9.000	N	19.8
0.535000	38.03	---	73.00	34.97	1000.0	9.000	N	19.8
2.165000	---	19.29	60.00	40.71	1000.0	9.000	N	20.3
2.165000	24.47	---	73.00	48.53	1000.0	9.000	N	20.3
2.660000	---	18.26	60.00	41.74	1000.0	9.000	N	20.2
2.660000	23.93	---	73.00	49.07	1000.0	9.000	N	20.2
26.485000	---	27.52	60.00	32.48	1000.0	9.000	N	20.4
26.485000	30.13	---	73.00	42.87	1000.0	9.000	N	20.4
29.235000	---	29.08	60.00	30.92	1000.0	9.000	N	20.4
29.235000	30.40	---	73.00	42.60	1000.0	9.000	N	20.4

PoE Mode
HOT LINE
Common Information

Test Description:

Model No.:

Phase:

Mode:

Operator Name:

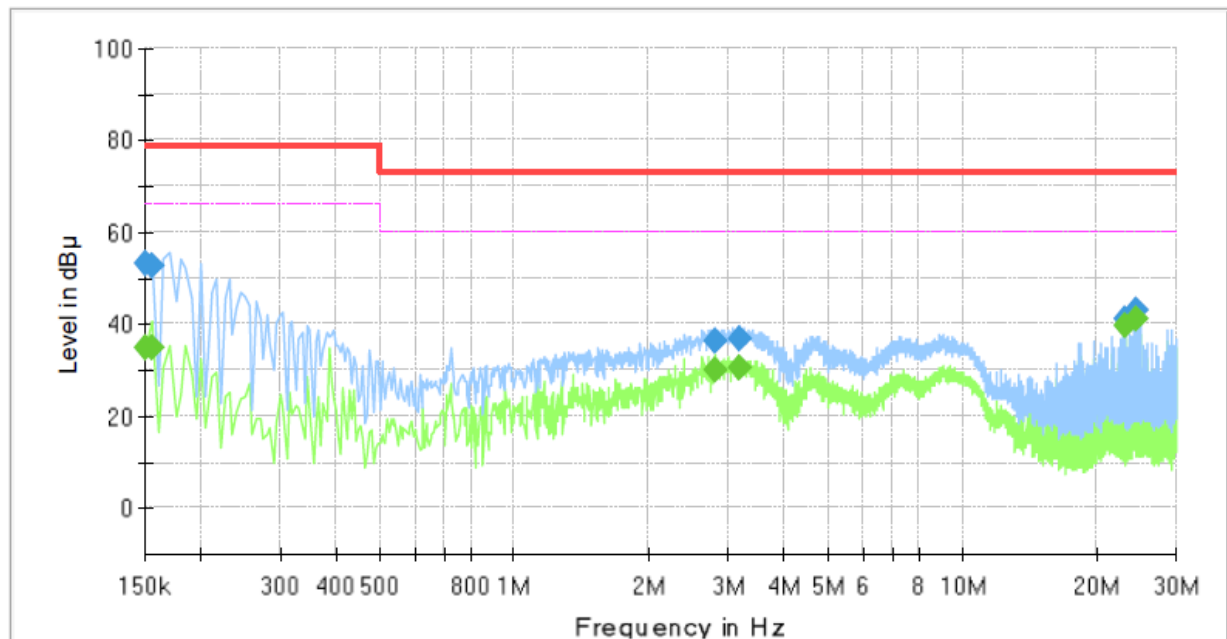
Conducted Emission

TNV-C7013RC

H

PoE

KES


Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.150000	---	34.79	66.00	31.21	1000.0	9.000	L1	19.5
0.150000	53.41	---	79.00	25.59	1000.0	9.000	L1	19.5
0.155000	---	35.07	66.00	30.93	1000.0	9.000	L1	19.5
0.155000	52.92	---	79.00	26.08	1000.0	9.000	L1	19.5
2.800000	---	30.03	60.00	29.97	1000.0	9.000	L1	20.2
2.800000	36.25	---	73.00	36.75	1000.0	9.000	L1	20.2
3.165000	---	30.52	60.00	29.48	1000.0	9.000	L1	20.1
3.165000	36.71	---	73.00	36.29	1000.0	9.000	L1	20.1
23.130000	---	39.78	60.00	20.22	1000.0	9.000	L1	20.2
23.130000	41.34	---	73.00	31.66	1000.0	9.000	L1	20.2
24.350000	---	41.12	60.00	18.88	1000.0	9.000	L1	20.4
24.350000	42.97	---	73.00	30.03	1000.0	9.000	L1	20.4

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NEUTRAL LINE

Common Information

Test Description:

Model No.:

Phase:

Mode:

Operator Name:

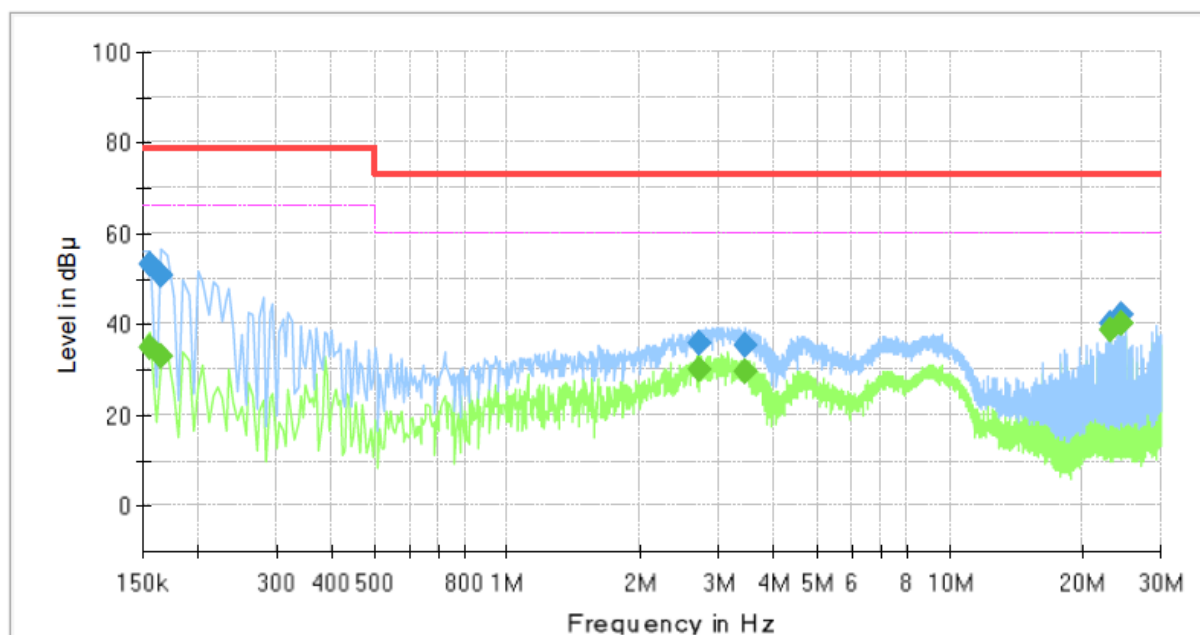
Conducted Emission

TNV-C7013RC

N

PoE

KES



Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.155000	---	35.01	66.00	30.99	1000.0	9.000	N	19.4
0.155000	53.10	---	79.00	25.90	1000.0	9.000	N	19.4
0.165000	---	32.74	66.00	33.26	1000.0	9.000	N	19.5
0.165000	51.03	---	79.00	27.97	1000.0	9.000	N	19.5
2.715000	---	29.93	60.00	30.07	1000.0	9.000	N	20.2
2.715000	36.02	---	73.00	36.98	1000.0	9.000	N	20.2
3.435000	---	29.55	60.00	30.45	1000.0	9.000	N	20.1
3.435000	35.46	---	73.00	37.54	1000.0	9.000	N	20.1
23.130000	---	38.92	60.00	21.08	1000.0	9.000	N	20.2
23.130000	40.39	---	73.00	32.61	1000.0	9.000	N	20.2
24.350000	---	40.37	60.00	19.63	1000.0	9.000	N	20.4
24.350000	42.22	---	73.00	30.78	1000.0	9.000	N	20.4

◆ Calculation

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

QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

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

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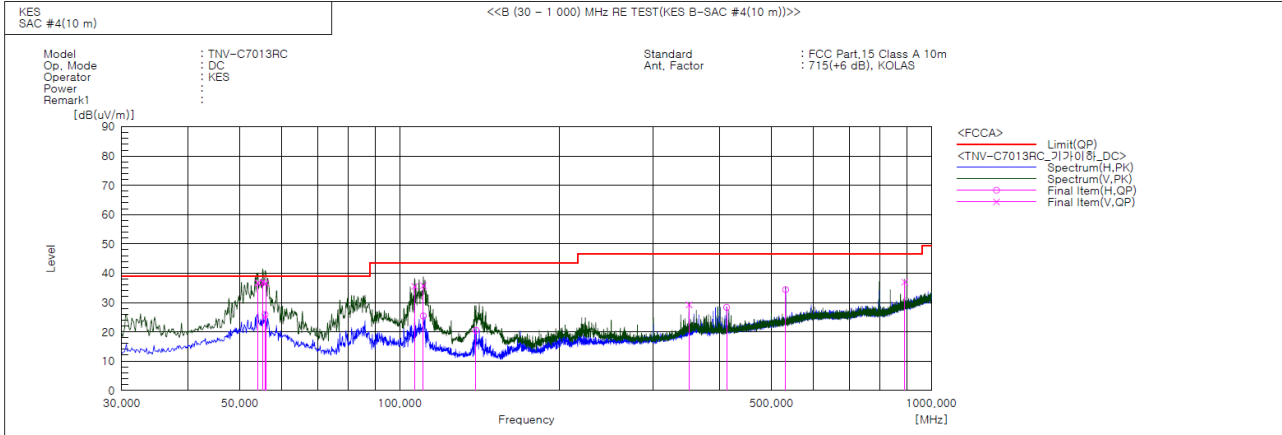
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Radiated Electric Field Emissions(Below 1 GHz)

- 47 CFR Part 15, Subpart B

■ DC Mode

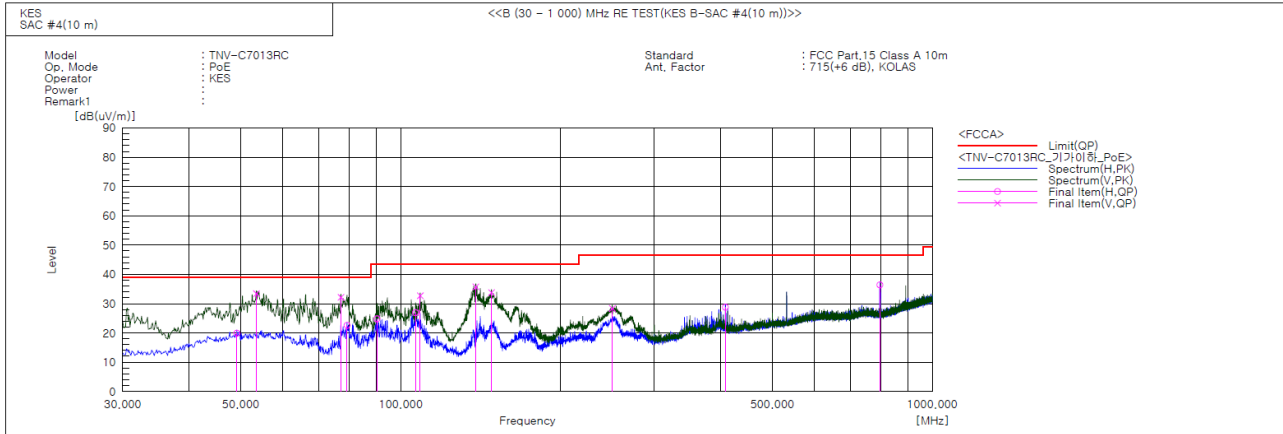


Final Result

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	54.129	V	57.5	-20.8	36.7	39.0	2.3	161.0	87.0	
2	55.220	V	57.9	-21.0	36.9	39.0	2.1	107.0	112.0	
3	55.826	H	46.9	-21.0	25.9	39.0	13.1	382.0	68.0	
4	55.948	V	57.7	-21.1	36.6	39.0	2.4	113.0	135.0	
5	106.630	V	58.1	-22.6	35.5	43.5	8.0	124.0	274.0	
6	110.753	V	58.8	-23.0	35.8	43.5	7.7	115.0	247.0	
7	110.753	H	48.4	-23.0	25.4	43.5	18.1	366.0	233.0	
8	139.125	H	45.9	-25.4	20.5	43.5	23.0	379.0	42.0	
9	349.979	V	44.4	-15.2	29.2	46.5	17.3	101.0	206.0	
10	412.059	H	41.9	-13.6	28.3	46.5	18.2	224.0	242.0	
11	532.096	H	44.7	-10.3	34.4	46.5	12.1	198.0	58.0	
12	891.118	V	41.7	-4.7	37.0	46.5	9.5	173.0	344.0	



■ 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	49.158	H	40.6	-20.7	19.9	39.0	19.1	218.0	42.0	
2	53.523	V	54.2	-20.8	33.4	39.0	5.6	147.0	290.0	
3	77.166	V	59.4	-27.2	32.2	39.0	6.8	167.0	145.0	
4	79.228	H	50.1	-27.5	22.6	39.0	16.4	342.0	16.0	
5	90.261	H	48.9	-24.1	24.8	43.5	18.7	392.0	11.0	
6	106.630	H	49.5	-22.6	26.9	43.5	16.6	349.0	94.0	
7	108.813	V	55.5	-22.8	32.7	43.5	10.8	119.0	248.0	
8	138.398	V	61.2	-25.4	35.8	43.5	7.7	115.0	148.0	
9	148.098	V	59.1	-25.3	33.8	43.5	9.7	123.0	122.0	
10	249.948	V	47.7	-19.3	28.4	46.5	18.1	103.0	2.0	
11	408.179	H	42.5	-13.7	28.8	46.5	17.7	230.0	61.0	
12	796.421	H	43.8	-7.4	36.4	46.5	10.1	376.0	327.0	

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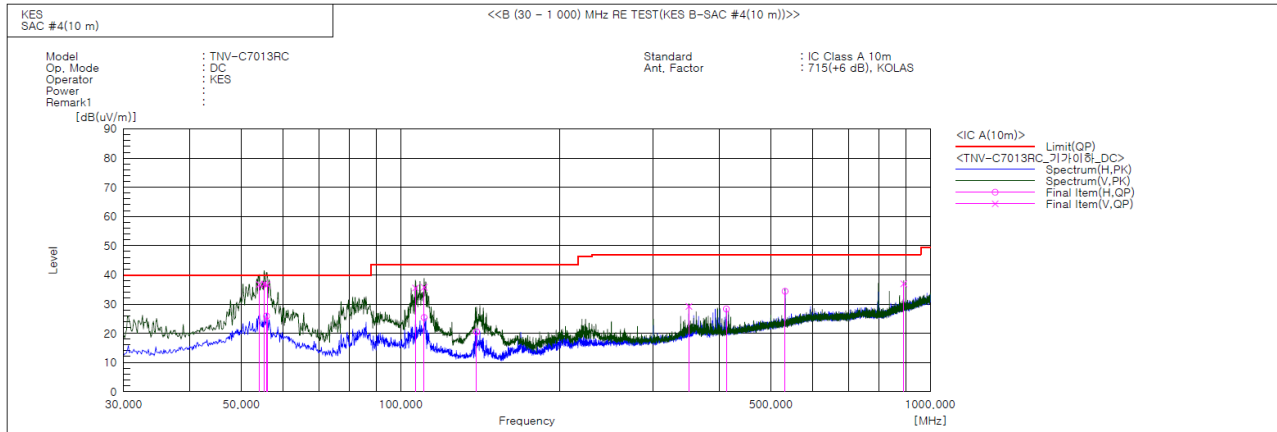
Report No.:

KES-EM-23T0254

Page (22) of (35)

- IC Regulation ICES-003 Issue 7

■ DC Mode



Final Result

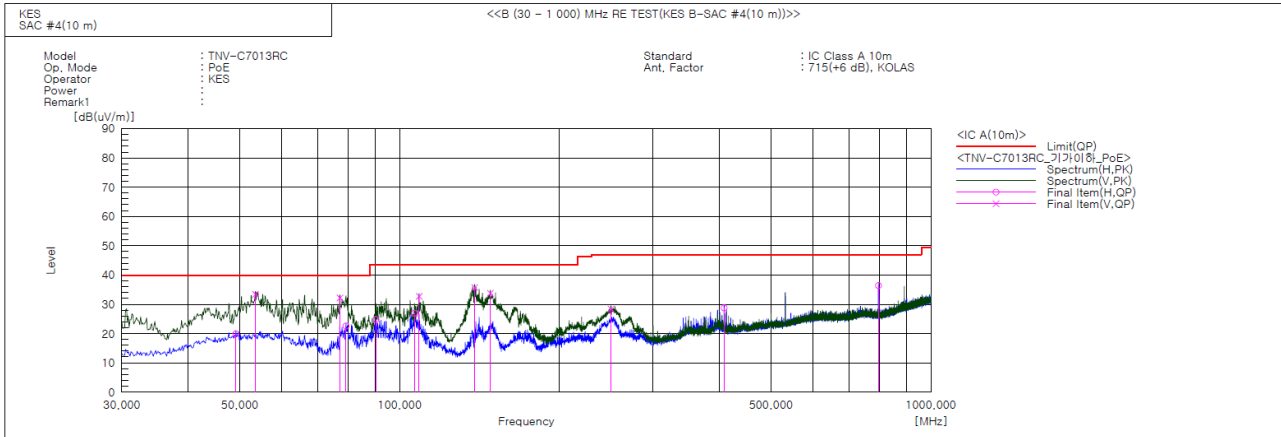
No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Remark
1	54.129	V	57.5	-20.8	36.7	40.0	3.3	161.0	87.0	
2	55.220	V	57.9	-21.0	36.9	40.0	3.1	107.0	112.0	
3	55.826	H	46.9	-21.0	25.9	40.0	14.1	382.0	68.0	
4	55.948	V	57.7	-21.1	36.6	40.0	3.4	113.0	135.0	
5	106.630	V	58.1	-22.6	35.5	43.5	8.0	124.0	274.0	
6	110.753	V	58.8	-23.0	35.8	43.5	7.7	115.0	247.0	
7	110.753	H	48.4	-23.0	25.4	43.5	18.1	366.0	233.0	
8	139.125	H	45.9	-25.4	20.5	43.5	23.0	379.0	42.0	
9	349.979	V	44.4	-15.2	29.2	47.0	17.8	101.0	206.0	
10	412.059	H	41.9	-13.6	28.3	47.0	18.7	224.0	242.0	
11	532.096	H	44.7	-10.3	34.4	47.0	12.6	198.0	58.0	
12	891.118	V	41.7	-4.7	37.0	47.0	10.0	173.0	344.0	

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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	49.158	H	40.6	-20.7	19.9	40.0	20.1	218.0	42.0	
2	53.523	V	54.2	-20.8	33.4	40.0	6.6	147.0	290.0	
3	77.166	V	59.4	-27.2	32.2	40.0	7.8	167.0	145.0	
4	79.228	H	50.1	-27.5	22.6	40.0	17.4	342.0	16.0	
5	90.261	H	48.9	-24.1	24.8	43.5	18.7	392.0	11.0	
6	106.630	H	49.5	-22.6	26.9	43.5	16.6	349.0	94.0	
7	108.813	V	55.5	-22.8	32.7	43.5	10.8	119.0	248.0	
8	138.398	V	61.2	-25.4	35.8	43.5	7.7	115.0	148.0	
9	148.098	V	59.1	-25.3	33.8	43.5	9.7	123.0	122.0	
10	249.948	V	47.7	-19.3	28.4	47.0	18.6	103.0	2.0	
11	408.179	H	42.5	-13.7	28.8	47.0	18.2	230.0	61.0	
12	796.421	H	43.8	-7.4	36.4	47.0	10.6	376.0	327.0	

◆ Calculation – SAC #4(10 m)

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

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

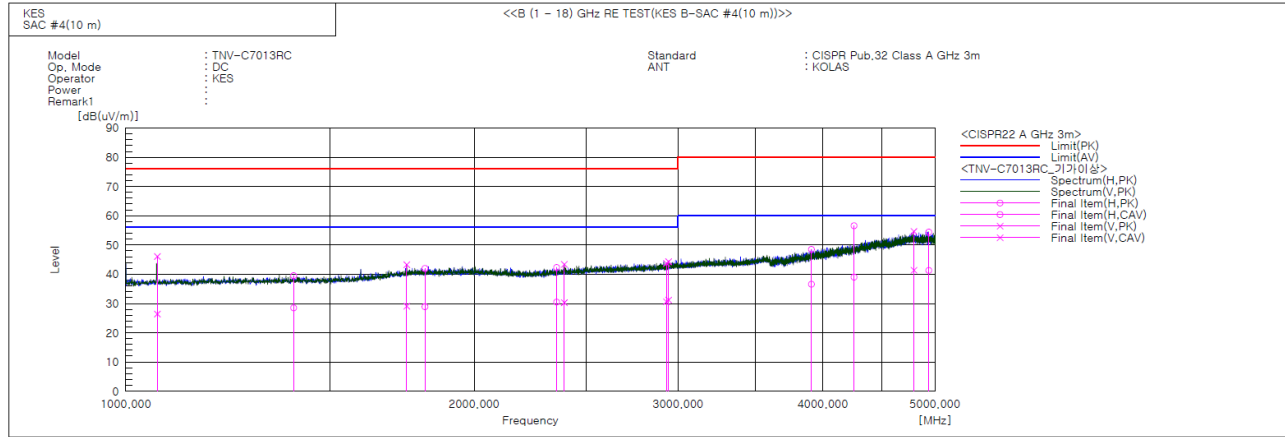
Reading(QP) : Reading value, Result(QP) : Reading value + Factor value

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



Radiated Electric Field Emissions(Above 1 GHz)

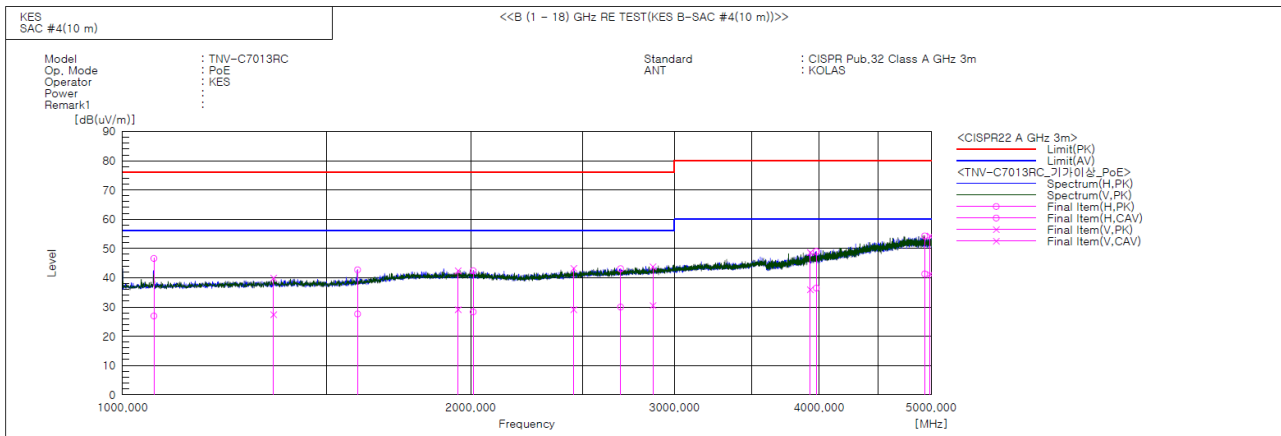
■ DC Mode



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	1064.544	V	50.1	30.4	-4.0	46.1	26.4	76.0	56.0	29.9	29.6	124.0	29.0	
2	1396.258	H	41.8	30.8	-2.3	39.5	28.5	76.0	56.0	36.5	27.5	386.0	242.0	
3	1748.121	V	42.1	27.9	1.2	43.3	29.1	76.0	56.0	32.7	26.9	102.0	289.0	
4	1812.588	H	40.5	27.4	1.5	42.0	28.9	76.0	56.0	34.0	27.1	325.0	199.0	
5	2355.627	H	39.9	28.1	2.4	42.3	30.5	76.0	56.0	33.7	25.5	391.0	282.0	
6	2391.871	V	40.8	27.7	2.6	43.4	30.3	76.0	56.0	32.6	25.7	109.0	88.0	
7	2930.712	V	38.7	25.5	5.1	43.8	30.6	76.0	56.0	32.2	25.4	123.0	70.0	
8	2943.757	V	39.2	26.1	5.1	44.3	31.2	76.0	56.0	31.7	24.8	134.0	59.0	
9	3910.622	H	37.3	25.4	11.2	48.5	36.6	80.0	60.0	31.5	23.4	292.0	41.0	
10	4256.459	H	42.7	25.1	13.9	56.6	39.0	80.0	60.0	23.4	21.0	343.0	3.0	
11	4795.269	V	36.9	23.6	17.8	54.7	41.4	80.0	60.0	25.3	18.6	116.0	25.0	
12	4939.394	H	36.3	23.2	18.1	54.4	41.3	80.0	60.0	25.6	18.7	372.0	358.0	

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	1064.038	H	50.6	30.9	-4.0	46.6	26.9	76.0	56.0	29.4	29.1	341.0	197.0	
2	1350.527	V	42.3	29.8	-2.4	39.9	27.4	76.0	56.0	36.1	28.6	119.0	49.0	
3	1596.258	H	43.8	28.7	-1.1	42.7	27.6	76.0	56.0	33.3	28.4	268.0	319.0	
4	1949.656	V	40.4	27.1	2.0	42.4	29.1	76.0	56.0	33.6	26.9	132.0	302.0	
5	2009.372	H	40.3	26.2	2.1	42.4	28.3	76.0	56.0	33.6	27.7	366.0	216.0	
6	2454.375	V	40.2	26.1	3.0	43.2	29.1	76.0	56.0	32.8	26.9	103.0	325.0	
7	2694.050	H	39.1	26.0	4.0	43.1	30.0	76.0	56.0	32.9	26.0	317.0	137.0	
8	2873.369	V	39.0	25.7	4.8	43.8	30.5	76.0	56.0	32.2	25.5	110.0	116.0	
9	3931.875	V	37.2	24.5	11.4	48.6	35.9	80.0	60.0	31.4	24.1	134.0	135.0	
10	3978.750	H	37.1	24.6	11.9	49.0	36.5	80.0	60.0	31.0	23.5	391.0	322.0	
11	4934.806	H	36.2	23.2	18.1	54.3	41.3	80.0	60.0	25.7	18.7	325.0	15.0	
12	4988.044	V	36.2	23.1	18.1	54.3	41.2	80.0	60.0	25.7	18.8	146.0	343.0	

Calculation

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

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

Reading(PK/CAV) : Reading value, Result(PK/CAV) : Reading value + Factor value

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

Test Setup Photos and Configuration

Conducted Emissions at Mains Power Ports

■ DC Mode



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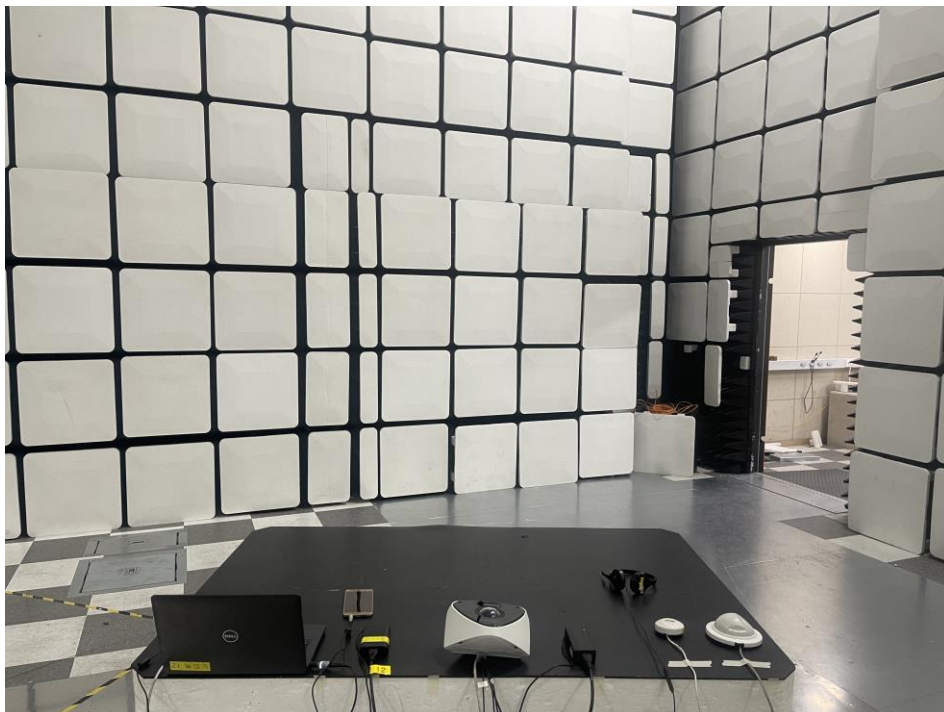
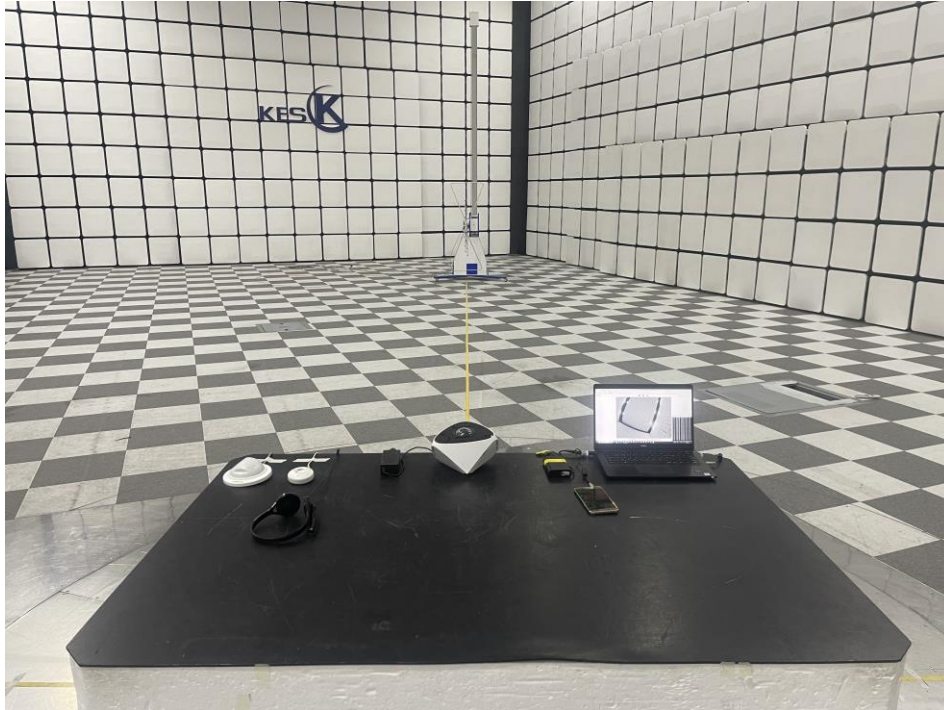
■ PoE Mode



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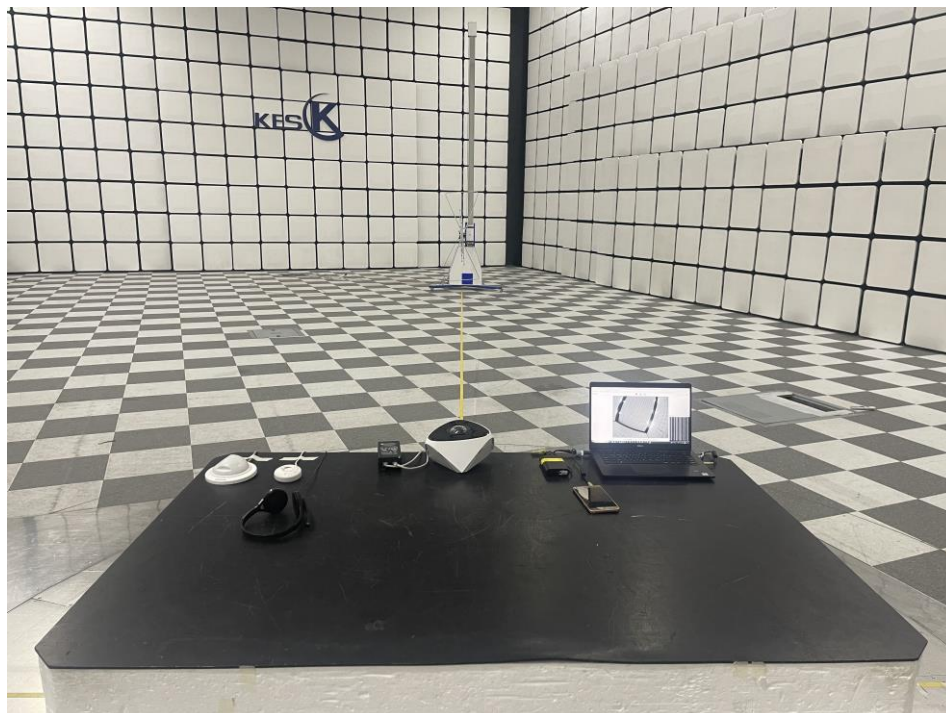
Radiated Electric Field Emissions(Below 1 GHz)

■ DC Mode



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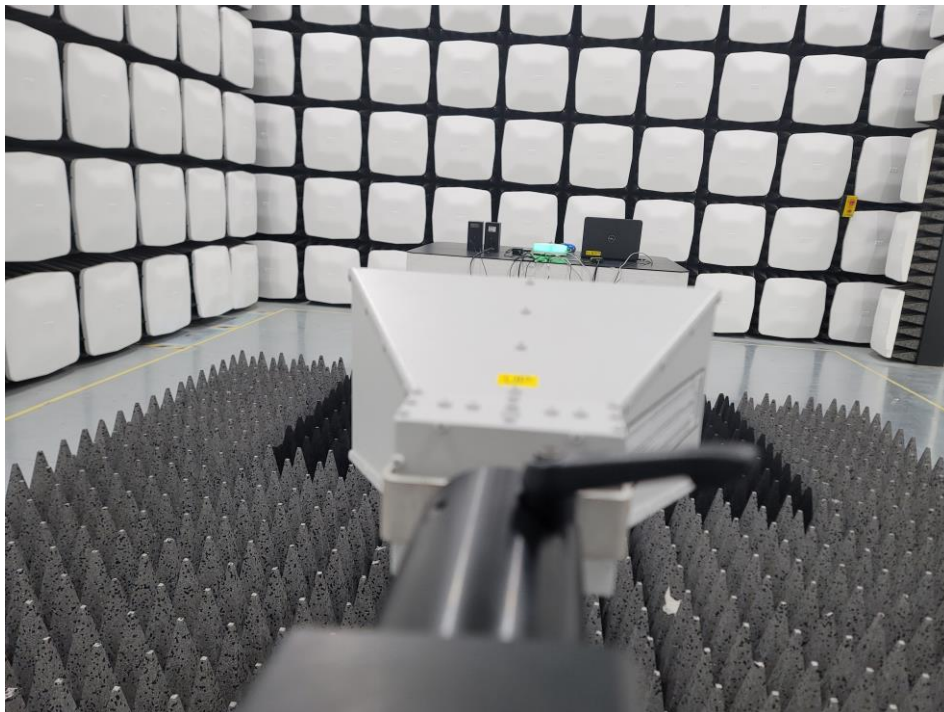
■ PoE Mode



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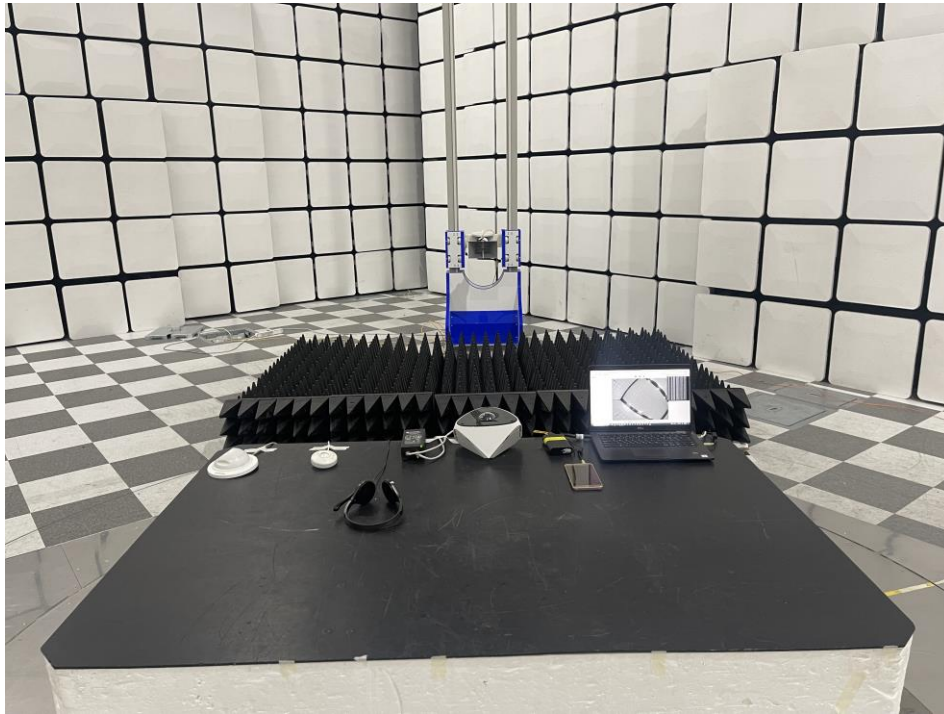
Radiated Electric Field Emissions(Above 1 GHz)

■ DC Mode



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■ PoE Mode



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EUT External Photographs

(Top)



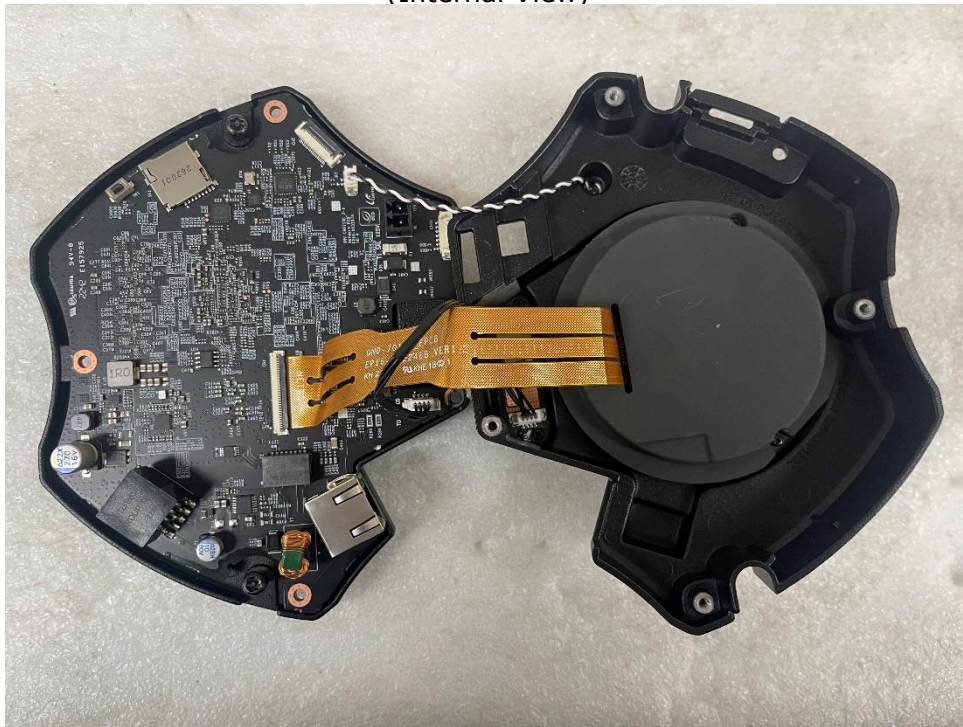
(Bottom)



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EUT Internal Photographs

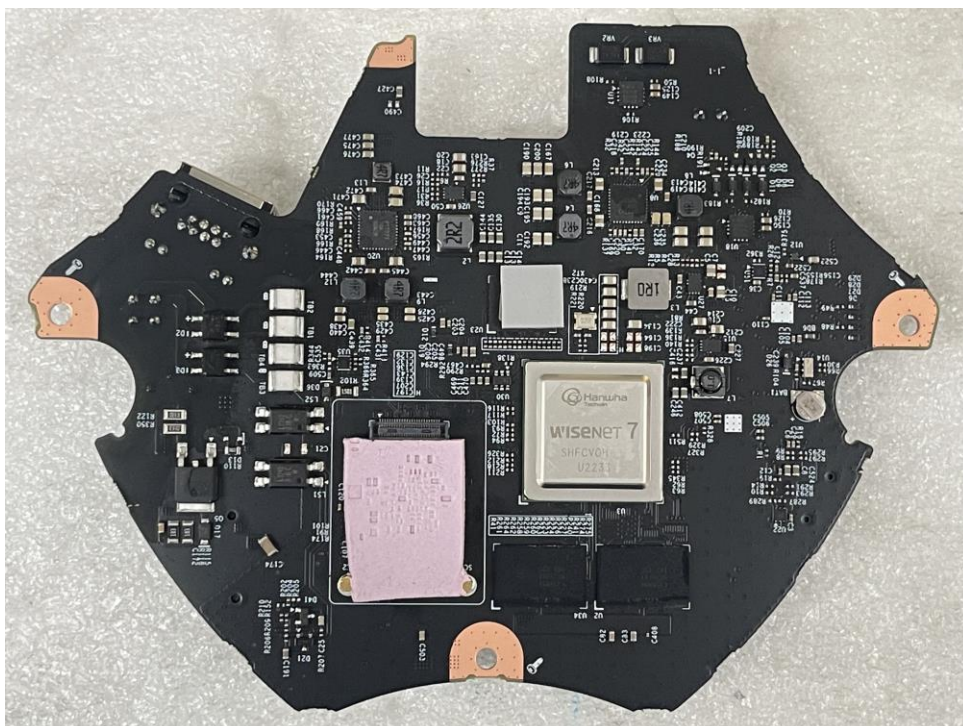
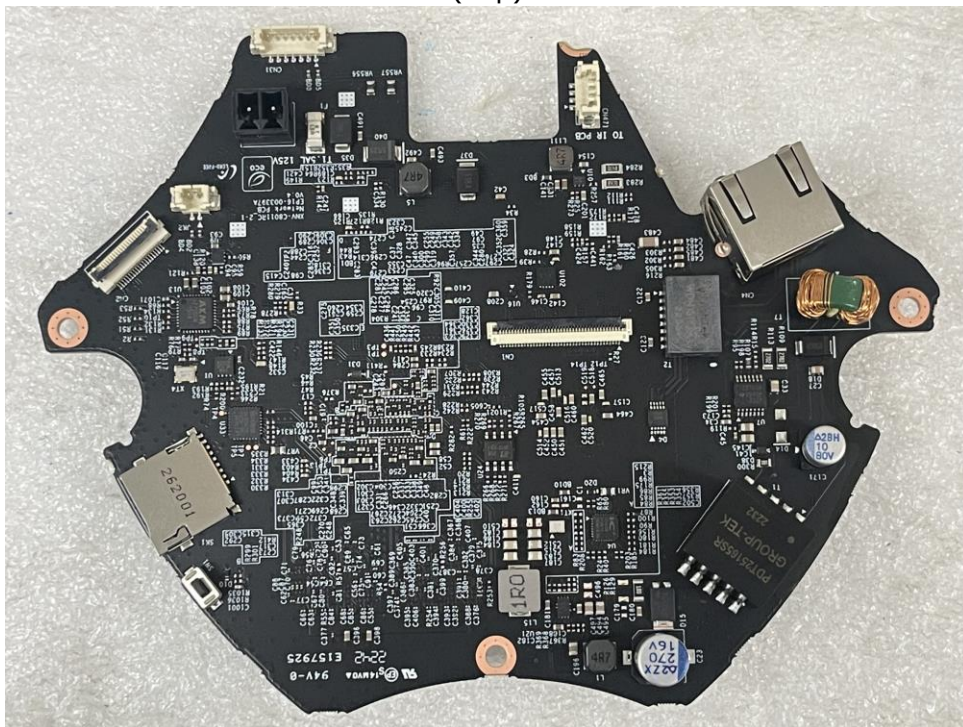
(Internal View)



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EUT Internal View – Board 1

(Top)



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Label Photographs

FCC Label



Network Camera

TNV-C7013RC

IC Label

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

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:
(1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

(1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.