



# TEST REPORT



Report No. : KES-EM243328

Page 1 / 31

**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

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 : SOUND DETECTOR

Model/Type No. : SPS-A100M

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

3. Date of Receipt : Sep. 25, 2024

4. Test date : Nov. 02, 2024 ~ Nov. 06, 2024

5. Date of Issue : Nov. 15, 2024

6. Test Results : In Compliance

*Tested by*

*Reviewed by*

---

Eun Gu, Jeon  
EMC Test Engineer

---

Dong Hun, Jang  
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](http://www.kes.co.kr))



## REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Nov. 15, 2024	KES-EM243328	Issued

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



## TABLE OF CONTENTS

1.0	General Product Description.....	4
1.1	Test Voltage & Frequency .....	6
1.2	Variant Model Differences .....	6
1.3	Device Modifications .....	6
1.4	Equipment Under Test .....	6
1.5	Support Equipments .....	6
1.6	External I/O Cabling.....	7
1.7	EUT Operating Mode(s).....	7
1.8	Configuration.....	8
1.9	Remarks when standards applied .....	9
1.10	Calibration Details of Equipment Used for Measurement.....	9
1.11	Test Facility .....	9
1.12	Laboratory Accreditations and Listings .....	9
2.0	Test Regulations .....	10
2.1	Conducted Emissions Mains Power Ports.....	11
2.2	Conducted Emissions at Telecommunication Ports.....	12
2.3	Radiated Electric Field Emissions(Below 1 GHz).....	13
2.4	Radiated Electric Field Emissions(Above 1 GHz) .....	14
APPENDIX A – TEST DATA .....		15
Conducted Emissions at Mains Power Ports .....		15
Conducted Emissions at Telecommunication Ports .....		17
Radiated Electric Field Emissions(Below 1 GHz) .....		18
Radiated Electric Field Emissions(Above 1 GHz).....		19
Test Setup Photos and Configuration.....		20
Conducted Emissions at Mains Power Ports .....		20
Conducted Emissions at Telecommunication Ports .....		21
Radiated Electric Field Emissions(Below 1 GHz) .....		22
Radiated Electric Field Emissions(Above 1 GHz).....		23
EUT External Photographs.....		24
EUT Internal Photographs.....		25



## 1.0 General Product Description

### Main Specifications of EUT are:

Highest Maximum Frequency	1.56 GHz
<b>Video</b>	
Imaging Device	None
Resolution	1920x1080, 1280x1024, 1280x960, 1280x720, 1024x768, 800x600, 800x448, 720x576, 720x480, 640x480, 640x360
Max. Framerate	Fake video for easy registration. H.265/H.264: Max. 10fps MJPEG: Max. 5fps
Video Out	USB: Micro USB Type C, 1280x720 for installation
<b>Operational</b>	
Analytics	Sound classification - Classified sound type: GunShot, Crashing glass, Screaming, Vehicle horn, Tire screech - Event metadata: sound type, sound direction, confidence, timestamp, audio clip, dB (Max:130dB , ±5dB 오차) Sound direction - Ceiling: ±15 degree , Wall: ±30 degree (No Noise / No Echo / No Obstacles condition)
Business Intelligence	None
Serial Interface	None
Alarm I/O	2 configurable I/O ports
Alarm Triggers	Analytics, Network disconnect, Alarm input, App event(Sound classification), Time schedule, MQTT subscription, Case open
Alarm Events	When alarm trigger occurred - File upload(image): e-mail/FTP - Notification: e-mail - Alarm output - Handover: PTZ preset, send message by HTTP/HTTPS/TCP - Audio clip playback(6MB, WAV/WAV in mono/stereo from 64 kbps to 320 kbps. Sampling rate from 16 kHz up to 48 kHz) - MQTT: publication - LED - Speaker
Audio Streaming	Two-way/one-way selectable, Full duplex, Echo cancellation and noise reduction
Audio In	Five built-in digital MICs
Audio Out	Max. Sound Pressure Level (PoE+) 90dB Frequency Range: 144Hz~20kHz
Light Type	LED
<b>Network</b>	
Ethernet	RJ-45(10/100 BASE-T)
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
Streaming	Unicast(6 users) / Multicast Multiple streaming(Up to 6 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, SRTP (TCP, UDP Unicast), MQTT
Application Programming Interface	ONVIF Profile S SUNAPI(HTTP API) Wisenet open platform - Sound classification AI pack included



<b>Security</b>	
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)
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 Techwin Root CA)
Secure Storage	TPM, 64-bit partition encrypt
Security Certificate	TPM with FIPS 140-3 level 3
<b>General</b>	
Webpage Language	English, Korean, Simplified Chinese, Traditional Chinese, French, Italian, Spanish, German, Japanese, Russian, Portuguese, Czech, Polish, Turkish, Dutch, Hungarian, Greek.
Web Viewer	None
Edge Storage	None
Memory	4096MB RAM, 512MB Flash
<b>Environmental &amp; Electrical</b>	
Operating Temperature / Humidity	-20°C ~ +55°C (-4°F ~ +122°F) / Less than 90% RH
Storage Temperature / Humidity	-50°C ~ +60°C (-58°F ~ +140°F) / Less than 90% RH
Certification	None
Input Voltage	PoE+(IEEE802.3at, Class4)
Power Consumption	PoE+: Max 18.5W, typical 8.2W
<b>Mechanical</b>	
Color / Material	White / Plastic, Aluminum
RAL Code	RAL9003
Product Dimensions / Weight	215.1(W)x135.1(D)x52.8(H)mm(8.47"x5.32"x2.08") / 973g
Compatible Conduit hole / Gang	None / single, double, 4" octagon, 4" square Sold separately conduit hole accessory: SBP-060BA
Hanging Mount (Dome)	SBP-215HMB
Conduit Adaptor	SBP-060BA



## 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 100 V, 50 Hz

## 1.2 Variant Model Differences

Not applicable

## 1.3 Device Modifications

Not applicable

## 1.4 Equipment Under Test

Description	Model Number	Serial Number	Manufacturer	Remarks
SOUND DETECTOR	SPS-A100M	-	HANWHA VISION VIETNAM COMPANY LIMITED.	EUT

## 1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
PoE Injector	-	-	PROCET	-
Laptop	15U590	-	LG Electronics Co., Ltd.	-
Laptop Adapter	A13-040N3A	-	CHICONY POWER TECHNOLOGY (SUZHOU) CO., LTD	-
Smartphone	SHV-E330S	-	Samsung Electronics Co., Ltd.	-
Alarm	-	-	-	-
Button Alarm	-	-	-	-



## 1.6 External I/O Cabling

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
SOUND DETECTOR (EUT)	RJ-45	PoE Injector	RJ-45	3.5	U
	ALARM (3 Pin)	Alarm	Line	3.1	U
		Button Alarm	Line	3.1	U
Laptop	DC Jack	Laptop Adapter	Line	1.4	U
	3.5 mm	Smartphone	3.5 mm	0.8	U
	RJ-45	PoE Injector	RJ-45	1.0	U

\* Unshielded=U, Shielded=S

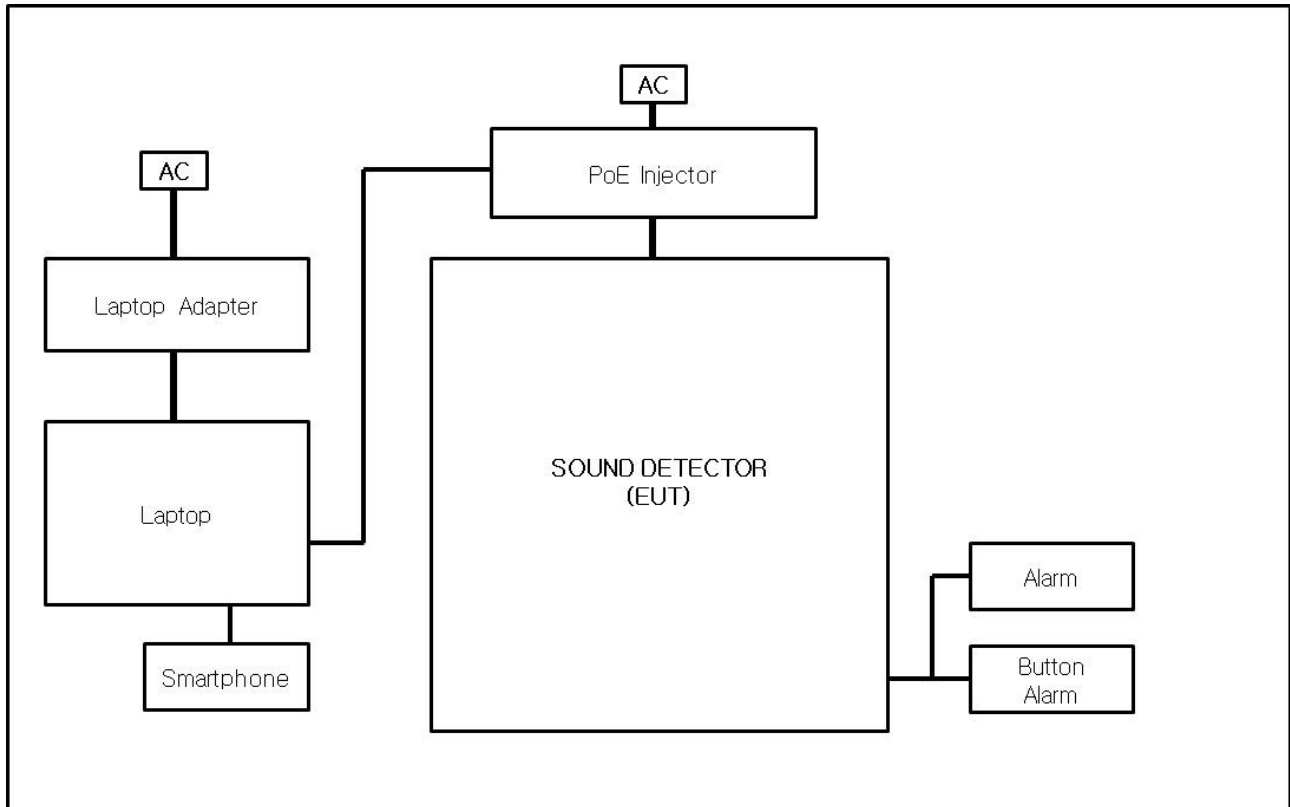
## 1.7 EUT Operating Mode(s)

- Web Viewer, use ping test to check EUT's behavior
- Play the 1 kHz tone of the smartphone and check the output through the EUT
- When the Button Alarm is pressed, make sure the Alarm is working

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



## 1.8 Configuration





### 1.9 Remarks when standards applied

- The USB C Type port was excluded from the test as a port for administrators.
- It receives PoE power, and the PoE port is considered a wired network port.
- Test items related to the power port are not applicable.






### 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 0008



## 2.0 Test Regulations

The emissions tests were performed according to following regulations:

☒ **VCCI-CISPR 32:2016**

☒ Class A

☐ Class B





## 2.1 Conducted Emissions Mains Power Ports

**Test Date**

N/A

**Test Location**

Electro wave Shieldroom #6

**Test Equipment**

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input type="checkbox"/>	EMI Test S/W	EMC32	R & S	9.12.00	-
<input type="checkbox"/>	EMI TEST RECEIVER	ESR3	R & S	101783	11, 08, 2024
<input type="checkbox"/>	LISN	ENV216	R & S	101786	11, 10, 2025
<input type="checkbox"/>	LISN	ESH2-Z5	R & S	100450	11, 08, 2024
<input type="checkbox"/>	PULSE LIMITER	ESH3-Z2	R & S	101915	11, 08, 2024

**Test Conditions**

Temperature:

°C

Relative Humidity:

% 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**N/A



## 2.2 Conducted Emissions at Telecommunication Ports

**Test Date**

Nov. 06, 2024

**Test Location**

Electro wave Shieldroom #6

**Test Equipment**

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test S/W	EMC32	R & S	9.12.00	-
<input checked="" type="checkbox"/>	EMI TEST RECEIVER	ESR3	R & S	101783	11, 08, 2024
<input checked="" type="checkbox"/>	LISN	ENV216	R & S	101786	11, 10, 2025
<input checked="" type="checkbox"/>	LISN	ESH2-Z5	R & S	100450	11, 08, 2024
<input checked="" type="checkbox"/>	PULSE LIMITER	ESH3-Z2	R & S	101915	11, 08, 2024
<input checked="" type="checkbox"/>	8-WIRE ISN CAT3,5	ENY81	R & S	100174	11, 09, 2024
<input type="checkbox"/>	8-WIRE ISN CAT6	ENY81-CAT6	R & S	101666	03, 06, 2025

**Test Conditions**

Temperature: (22,9 ± 0,1) °C

Relative Humidity: (46,2 ± 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.



## 2.3 Radiated Electric Field Emissions(Below 1 GHz)

**Test Date**

Nov. 02,, 2024

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

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.0	-
<input checked="" type="checkbox"/>	EMI TEST RECEIVER	ESU26	R & S	100551	02, 13, 2025
<input checked="" type="checkbox"/>	AMPLIFIER	SCU 01	R & S	100603	11, 06, 2025
<input checked="" type="checkbox"/>	BILOG ANTENNA	VULB 9168	SCHWARZBECK	9168-461	05, 09, 2026
<input checked="" type="checkbox"/>	ATTENUATOR	6806.17.A	HUBER+SUHNER	-	02, 13, 2025

**Test Conditions**

Temperature: (23,0 ± 0,1) °C

Relative Humidity: (45,1 ± 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.



## 2.4 Radiated Electric Field Emissions(Above 1 GHz)

**Test Date**

Nov. 06, 2024

**Test Location**

SEMI ANECHOIC CHAMBER #3

**Test Equipment**

Used	Description	Model Number	Manufacturer	Serial Number	Cal. Due
<input checked="" type="checkbox"/>	EMI Test S/W	EP5/RE	TOYO Corporation	6.0.0	-
<input checked="" type="checkbox"/>	EMI TEST RECEIVER	ESR7	R & S	101190	07, 29, 2025
<input checked="" type="checkbox"/>	PREAMPLIFIER	8449B	AGILENT	3008A01967	03, 05, 2025
<input checked="" type="checkbox"/>	ATTENUATOR	8491A	HP	35496	02, 13, 2025
<input checked="" type="checkbox"/>	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	03, 05, 2025

**Test Conditions**

Temperature: (22,3 ± 0,1) °C

Relative Humidity: (45,8 ± 0,1) % 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

**Remarks**See Appendix A for test data.



## APPENDIX A – TEST DATA

### Conducted Emissions at Mains Power Ports

HOT LINE

N/A



NEUTRAL LINE

N/A

◆ Calculation

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

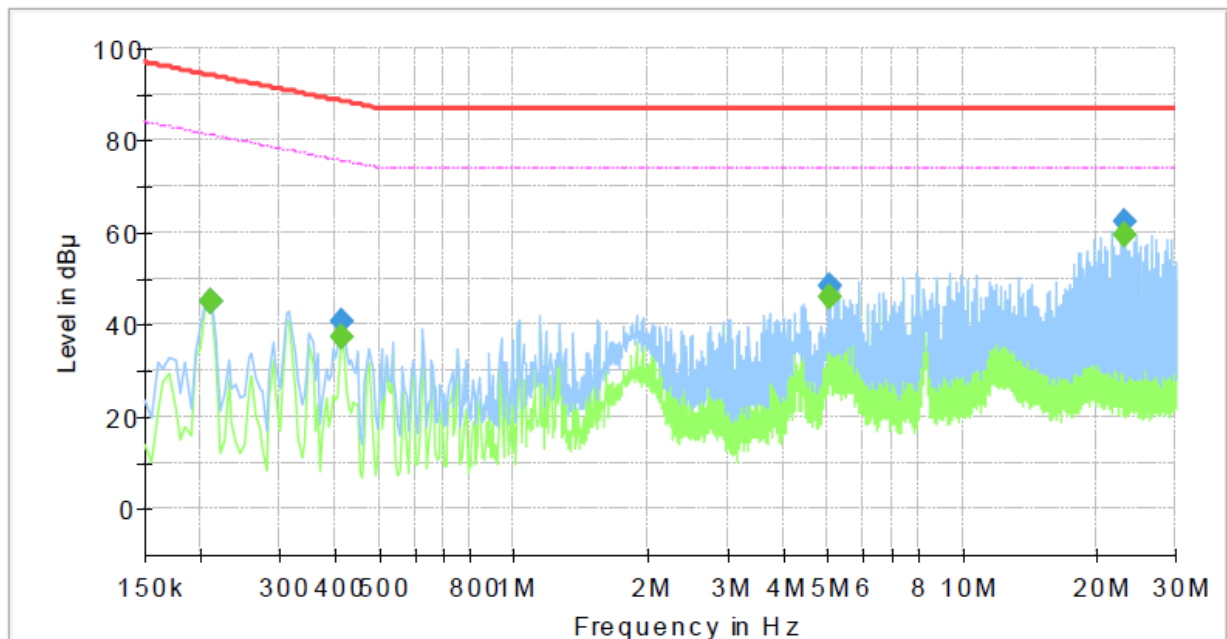
QuasiPeak / CAverage : The Final Value

Reading Value : Not shown in the table.

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

**Conducted Emissions at Telecommunication Ports****[100 Mbps]****Common Information**

Test Description: Telecommunication Emission  
Job No.: KES-EM243328  
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)
0.210000	---	44.94	81.21	36.27	1000.0	9.000	Single Line	19.8
0.210000	45.19	---	94.21	49.02	1000.0	9.000	Single Line	19.8
0.415000	---	37.20	75.55	38.35	1000.0	9.000	Single Line	19.6
0.415000	40.72	---	88.55	47.83	1000.0	9.000	Single Line	19.6
5.060000	---	46.20	74.00	27.80	1000.0	9.000	Single Line	19.7
5.060000	48.47	---	87.00	38.53	1000.0	9.000	Single Line	19.7
23.130000	---	59.64	74.00	14.36	1000.0	9.000	Single Line	20.3
23.130000	62.38	---	87.00	24.62	1000.0	9.000	Single Line	20.3

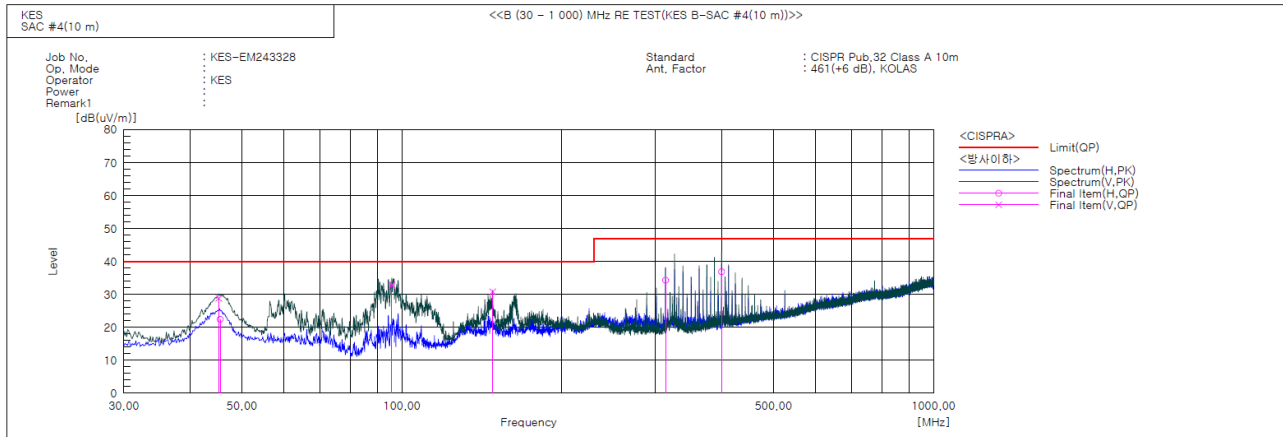
**◆ Calculation**

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)****Final Result**

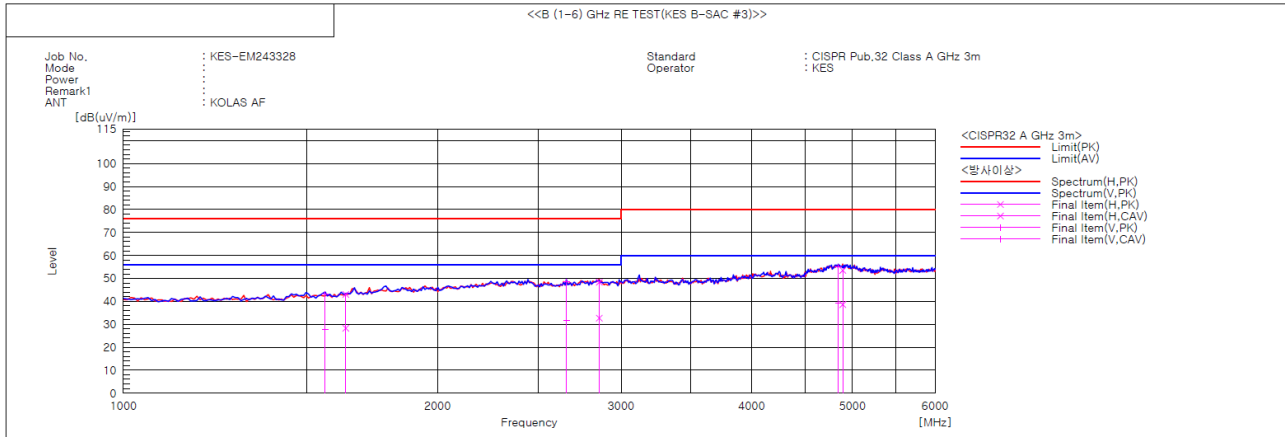
No.	Frequency [MHz]	(P)	Reading QP [dB(uV)]	c.f [dB(1/m)]	Result QP [dB(uV/m)]	Limit QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Remark
1	45.235	V	50.2	-21.4	28.8	40.0	11.2	141.0	95.0	
2	45.517	H	43.8	-21.4	22.4	40.0	17.6	366.0	6.0	
3	95.718	V	58.5	-25.7	32.8	40.0	7.2	156.0	155.0	
4	148.098	V	50.3	-19.5	30.8	40.0	9.2	106.0	130.0	
5	313.361	H	51.0	-16.7	34.3	47.0	12.7	317.0	121.0	
6	399.328	H	50.7	-13.8	36.9	47.0	10.1	396.0	275.0	

**◆ Calculation**

Corrected Amplitude [dBuV] = Amplitude[dBuV] + Correction Factor [dB]

Corrected Amplitude : The Final Value, Amplitude : Reading Value,

Correction Factor : ANT FACTOR + Cable loss

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

No.	Frequency [MHz]	(P)	Reading PK [dB(μV)]	Reading CAV [dB(μV)]	c.f [dB(1/m)]	Result PK [dB(μV/m)]	Result CAV [dB(μV/m)]	Limit PK [dB(μV/m)]	Limit AV [dB(μV/m)]	Margin PK [dB]	Margin CAV [dB]	Height [cm]	Angle [deg]	Remark
1	1560.897	V	43.4	28.3	-0.4	43.0	27.9	76.0	56.0	33.0	28.1	100.0	356.9	
2	1633.013	H	42.6	27.9	0.4	43.0	28.3	76.0	56.0	33.0	27.7	100.0	192.7	
3	2658.654	V	41.9	25.2	6.6	48.5	31.8	76.0	56.0	27.5	24.2	100.0	186.4	
4	2858.974	H	40.6	24.9	7.8	48.4	32.7	76.0	56.0	27.6	23.3	100.0	99.7	
5	4846.154	V	38.9	23.2	16.0	54.9	39.2	80.0	60.0	25.1	20.8	100.0	353.2	
6	4894.231	H	37.4	22.5	16.1	53.5	38.6	80.0	60.0	26.5	21.4	100.0	351.8	

**◆ 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**

N/A

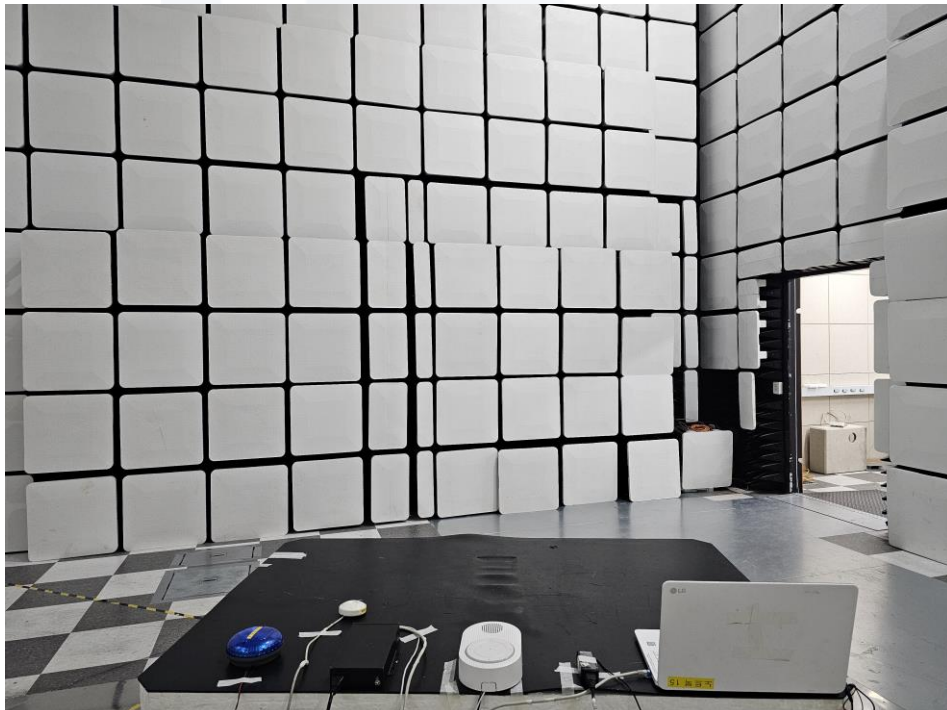


## Conducted Emissions at Telecommunication Ports





## Radiated Electric Field Emissions(Below 1 GHz)





## Radiated Electric Field Emissions(Above 1 GHz)





## EUT External Photographs

(Top)



(Bottom)





## EUT Internal Photographs

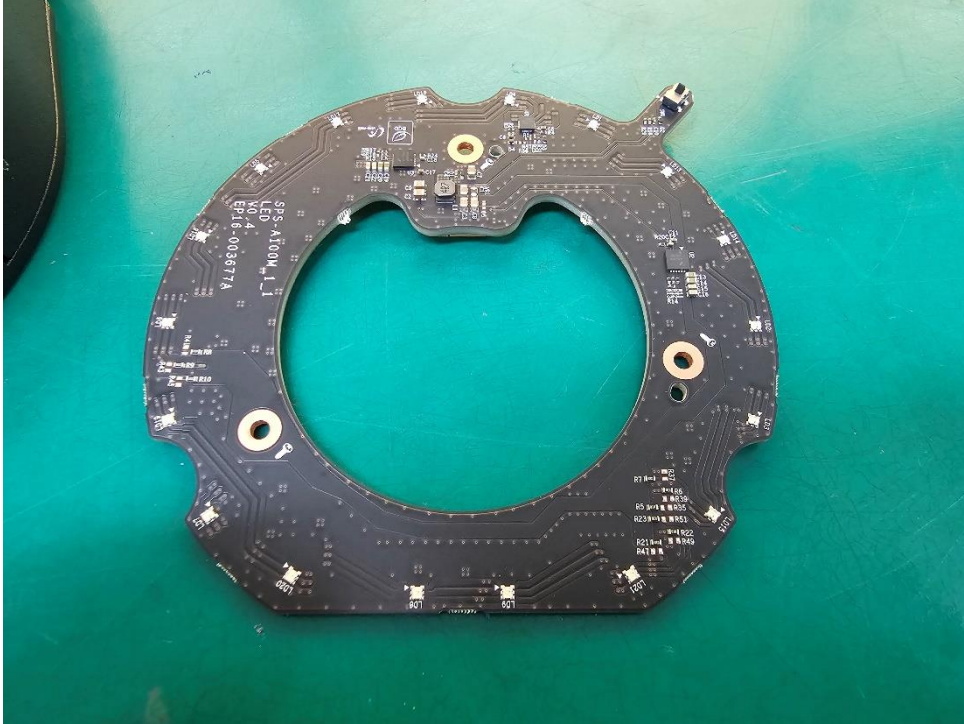
(Internal View)





## EUT Internal View – Board 1

(Top)



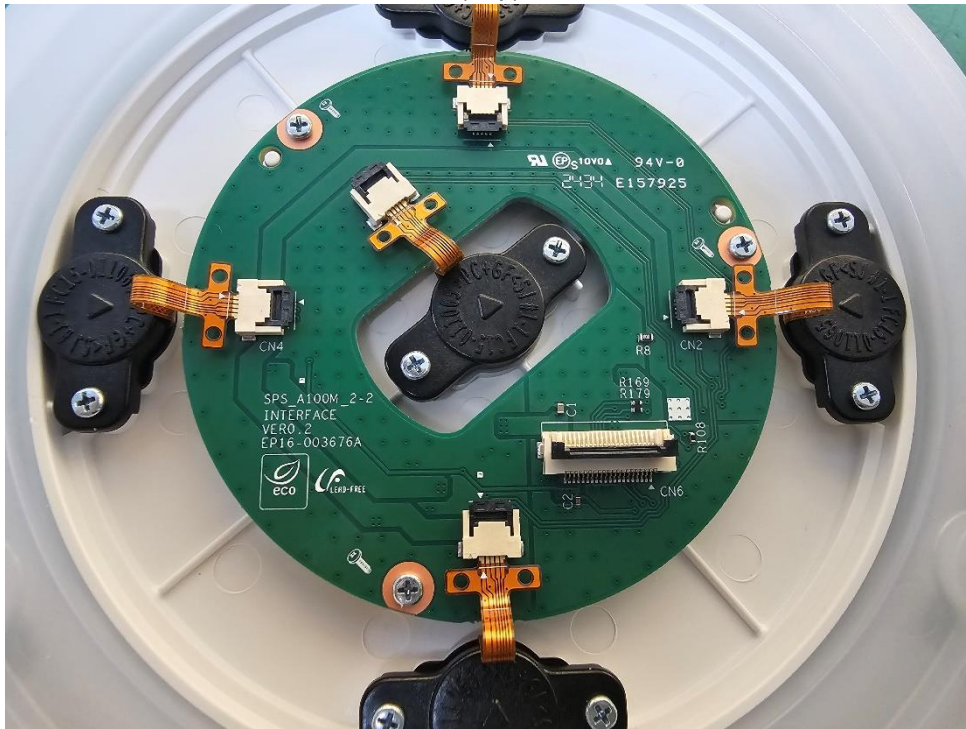
(Bottom)



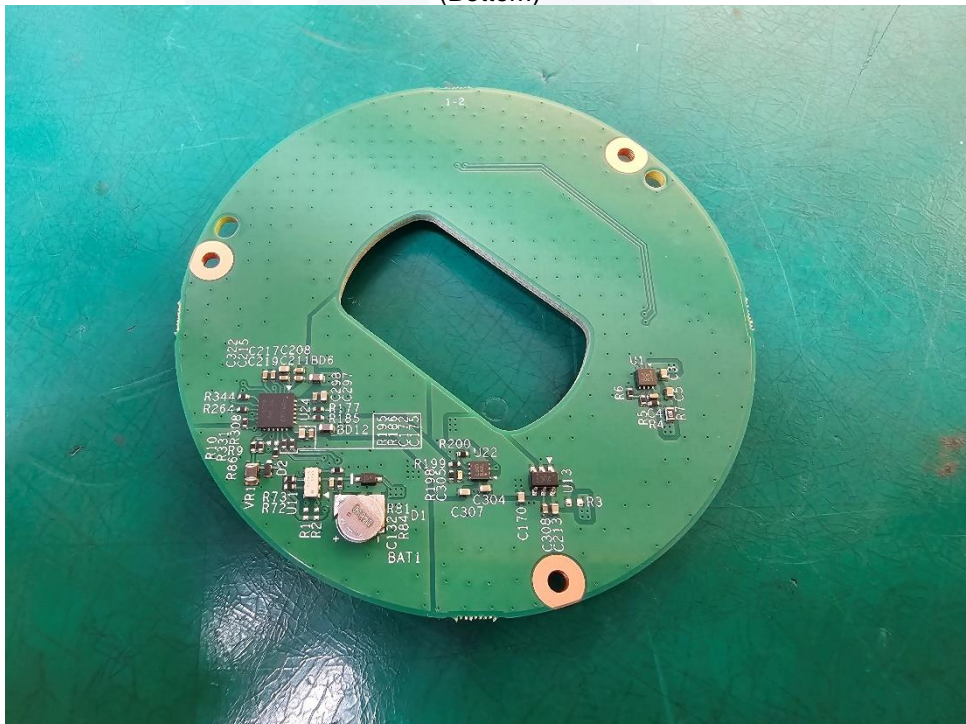


## EUT Internal View – Board 2

(Top)



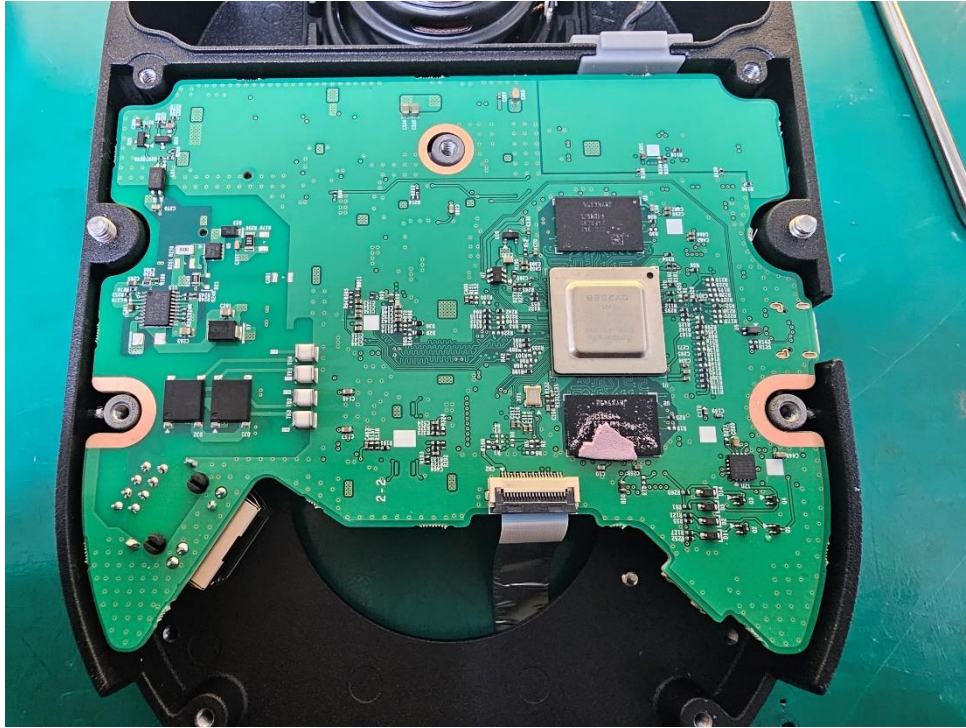
(Bottom)



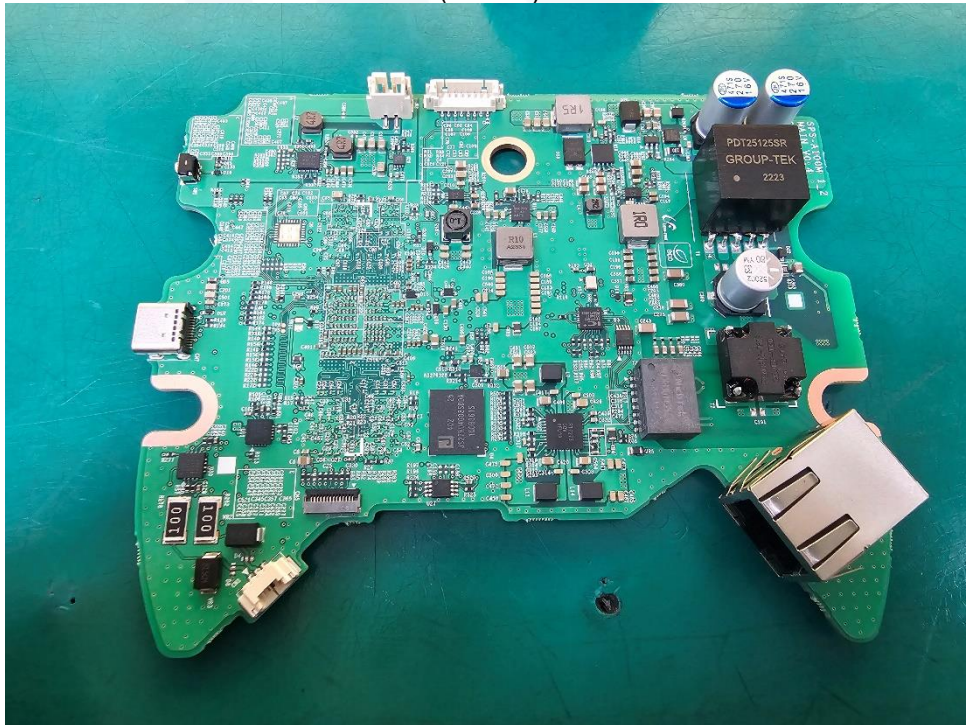


### EUT Internal View – Board 3

(Top)



(Bottom)





### EUT Internal View – Speaker

(Top)



(Bottom)





### EUT Internal View – Cable

(Top)

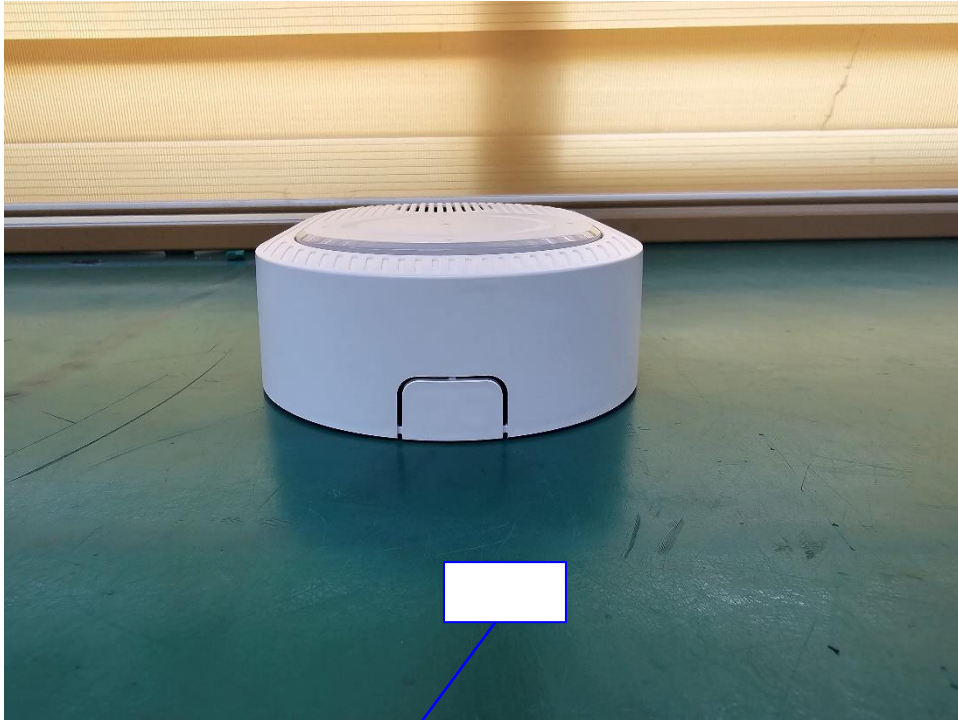


(Bottom)





### Label Photographs



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.