



**KES Co., Ltd.**

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www.kes.co.kr

Report No.:

KES-EM-21T1242-R2

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## EMC TEST REPORT For RCM

Test Report No. : KES-EM-21T1242-R2  
Date of Issue : Feb. 24, 2023  
Product name : NETWORK MICROPHONE  
Model/Type No. : SPA-M1000  
Variant Model : -  
Applicant : Hanwha Vision Co., Ltd  
Applicant Address : 6, Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si,  
Gyeonggi-do, Republic of Korea  
Manufacturer : Inter-M Corporation  
Manufacturer Address : 73, Hwahap-ro 1402beon-gil, Yangju-si, Gyeonggi-do  
Date of Receipt : Dec. 07, 2021  
Test date : Dec. 23, 2021 ~ Dec. 25, 2021  
Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Jun Soo, Jung  
EMC Test Engineer

Reviewed by

Dong-Hun, Jang  
EMC Technical Manager

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

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**REPORT REVISION HISTORY**

Date	Test Report No.	Revision History
Dec. 30, 2021	KES-EM-21T1242	Issued
Jan. 27, 2023	KES-EM-21T1242-R1	Change Manufacturer
Feb. 24, 2023	KES-EM-21T1242-R2	Change the Applicant at the request of the customer

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## 1.0 General Product Description

### Main Specifications of EUT are:

WISNET AMS	Specification	SPA-M1000
Product	Type	SIP Microphone
MIC Input	Input Sensitivity	-50dBV ± 3dB
	Frequency Response	100Hz ~ 18kHz
Line Output	Output Level	0dBV± 3dB
	Frequency Response	100Hz ~ 18kHz
	THD + N Ratio	less than 0.1%
	S/N Ratio (20Hz HPF, 20kHz LPF)	greater than 75dB
Power Amp	Output Power (8Ω, 1kHz Sine wave)	-
	Frequency Response (1W, 8Ω)	-
	S/N Ratio (20Hz HPF, 20kHz LPF)	-
Network	Ethernet	100/1000 Base-T
Memory	External Memory (Micro SD)	-
Contact	Contact Input	-
	Contact Output (Rating : 1A DC 30V, 0.3A AC 125V)	-
General	Operating Temperature	-10 ~ 40°C (14°F ~ 104°F)
	Operating Humidity	10~100% RH Non-condensing
	IP code	-
	Weight	1.29Kg
	Size	200(W) x 73(H) x 206(D)mm
	Color	Black & Gray
	Certificate	EMC : KN 32/ 35, EN 55032/ 55035, FCC Part 15, Subpart B
Power	PoE	Max.10W, DC24V
	PoE+	PoE (IEEE 802.3 af type 1 Class 3)
Audio	Built-in microphone	-
	Audio Streaming	-
	Audio Compression	-
Speaker	Speaker Component	-
	Max. Sound Pressure Level (PoE : 7 Watt)	-
	Max. Sound Pressure Level (PoE+ : 15 Watt)	-
	Max. Power (Peak)	-
	Frequency Response	-
	Sensitivity (1Watt)	-
	Coverage Pattern	-
Amplifier	Amplifier	-
Network	Security	-
	Supported Protocols	IPv4, HTTP, SIP, Bonjour, DNS, NTP, TCP, UDP, DHCP, ARP, SSH, ICMP, Network Bonding
System Integration	API (Application Programming Interface)	-
	Multi-source Dynamic PA control	-
	Voice Announcement	-
	VoIP	-
	TTS	-
	Intelligent Audio	-
	Event Triggers	-
	Functional Monitoring	-
	Supported OS	Windows : Windows 10 MAC : Catalina 10.15.4 ↑ , Big Sur 11.1 ↑
	Supported Web viewer	Chrome Version : 91.0.4472.114 ↑

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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 240 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 MICROPHONE	SPA-M1000	-	Inter-M Corporation	EUT

## 1.5 Support Equipments

Description	Model Number	Serial Number	Manufacturer	Remarks
AC / DC Adapter	KPL-060M-VI	-	Channel Well Technology (Guangzhou) Co.,Ltd.	-
WALL SPEAKER	SPA-W100B	-	Inter-M Corporation	-
AUDIO MODULE	SPA-D1000	-	Inter-M Corporation	-
Notebook	P98F004	21599158359	DELL INC.	-
Notebook Adapter	LA240PM190	-	LITE-ON TECHNOLOGY (CHANGZHOU)CO.,LTD.	-
PoE Switch	GS728TPP	3AR3595700005	NETGEAR®	-
Smartphone 1	SM-N960N	0364287	SAMSUNG	-
Smartphone 2	G8441	-	SONY	-

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## 1.6 External I/O Cabling

### ■ DC 24 V Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK MICROPHONE (EUT)	DC jack	AC / DC Adapter	Line out	1.5	U
	AUX IN	Smartphone 1	3.5 mm	1.2	U
	-	Smartphone 2	-	-	-
PoE Switch	RJ-45	NETWORK MICROPHONE (EUT)	RJ-45	20.0	U
	RJ-45	WALL SPEAKER	RJ-45	4.0	U
	RJ-45	AUDIO MODULE	RJ-45	4.0	U
Notebook	DC Jack	Notebook Adapter	Line out	1.5	U

\* Unshielded=U, Shielded=S

### ■ PoE Mode

Start		END		Cable Spec.	
Description	I/O Port	Description	I/O Port	Length	Shield
NETWORK MICROPHONE (EUT)	AUX IN	Smartphone 1	3.5 mm	1.2	U
	-	Smartphone 2	-	-	-
PoE Switch	RJ-45	NETEWORK MICROPHONE (EUT)	RJ-45	20.0	U
	RJ-45	WALL SPEAKER	RJ-45	4.0	U
	RJ-45	AUDIO MODULE	RJ-45	4.0	U
Notebook	DC Jack	Notebook Adapter	Line out	1.5	U

\* Unshielded=U, Shielded=S

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## 1.7 EUT Operating Mode(s)

Test Mode	operating
DC 24 V, PoE	1. Run a PING test on the laptop to check if the EUT is connected normally, access the web page of the AUDIO MODULE, and check whether the EUT is activated. 2. We checked whether the 1 kHz tone sound played on smartphone 1 connected to EUT and the 1 kHz tone sound played on smartphone 2 are normally output to EUT's speakers and WALL SPEAKER.

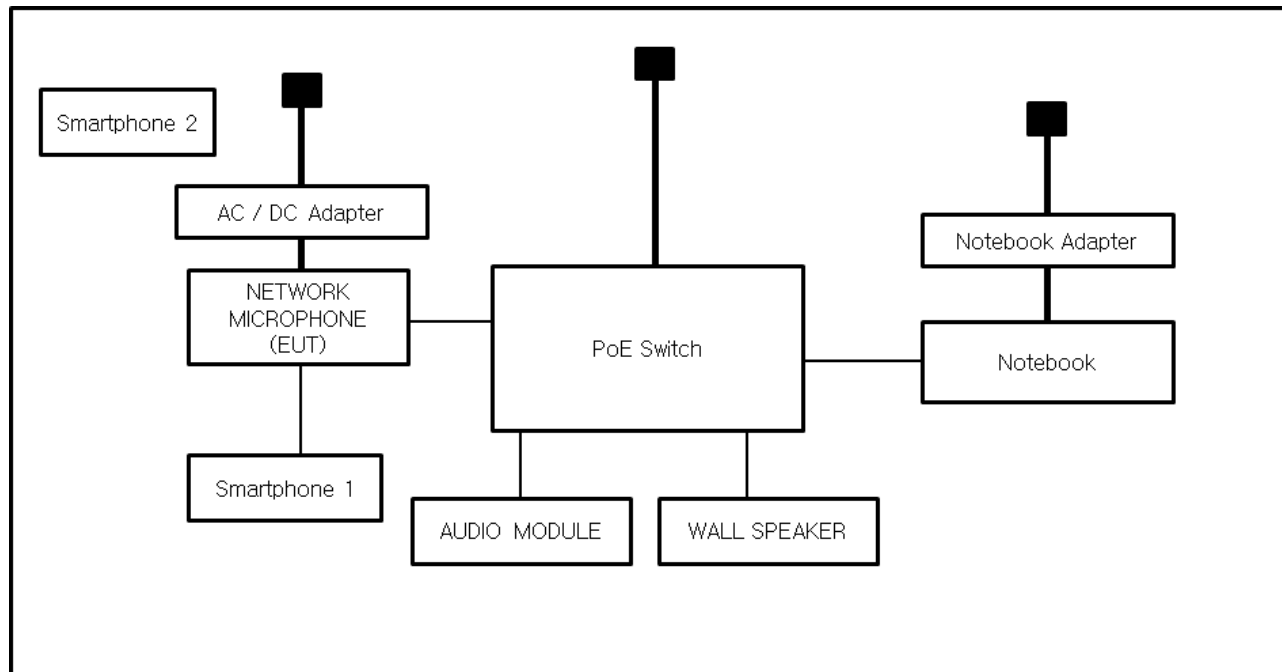
EUT Test operating S/W		
Name	Version	Manufacture Company
Web Viewer	-	Hanwha Vision Co., Ltd

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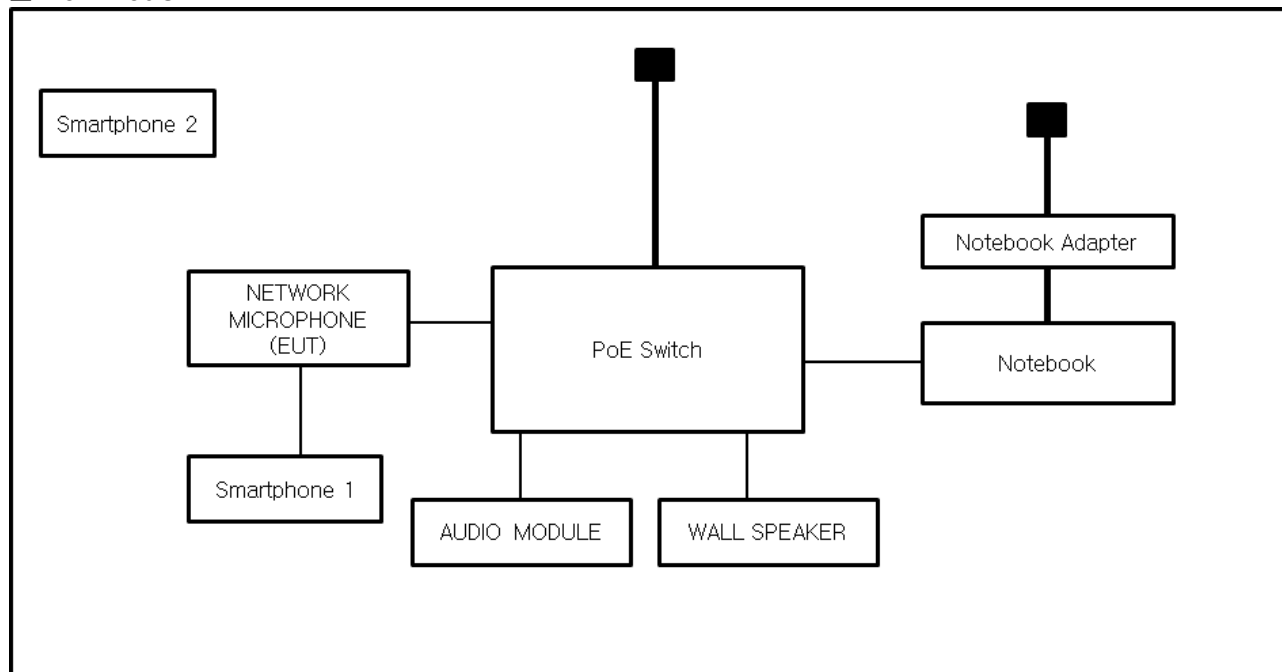
## 1.8 Configuration

■ AC Main  
 □ DC Main

### ■ DC 24 V 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



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## 2.0 Test Regulations

The emissions tests were performed according to following regulations:

☒ **AS/NZS CISPR32:2015**

☒ Class A

☐ Class B

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## 2.1 Conducted Emissions at Mains Power Ports

**Test Date**

Dec. 23, 2021

**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	01, 15, 2022
<input checked="" type="checkbox"/>	LISN	ENV216	R & S	101787	12, 29, 2021
<input checked="" type="checkbox"/>	LISN	ESH2-Z5	R & S	100450	12, 29, 2021
<input checked="" type="checkbox"/>	PULSE LIMITER	ESH3-Z2	R & S	101915	12, 29, 2021

**Test Conditions**

Temperature: (22,7 ± 0,1) °C

Relative Humidity: (43,0 ± 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 Conducted Emissions at Telecommunication Ports

### Test Date

Dec. 23, 2021

### 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	01, 15, 2022
<input checked="" type="checkbox"/>	LISN	ENV216	R & S	101787	12, 29, 2021
<input checked="" type="checkbox"/>	LISN	ESH2-Z5	R & S	100450	12, 29, 2021
<input checked="" type="checkbox"/>	PULSE LIMITER	ESH3-Z2	R & S	101915	12, 29, 2021
<input type="checkbox"/>	8-WIRE ISN CAT3,5	ENY81	R & S	100174	12, 30, 2021
<input checked="" type="checkbox"/>	ISN	ISN S8	SCHWARZBECK	ISN-S8-0019	03, 10, 2022
<input type="checkbox"/>	CDN	CDNS502A	TESEQ	40431	12, 29, 2021

### Test Conditions

Temperature: (22,7 ± 0,1) °C

Relative Humidity: (43,0 ± 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.  
- For Ethernet interfaces, measurements are required at the highest data rate supported by the interface.

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

### Test Date

Dec. 23, 2021

### 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	04, 01, 2022
<input checked="" type="checkbox"/>	AMPLIFIER	SCU 01	R & S	100603	11, 24, 2022
<input checked="" type="checkbox"/>	TRILOG-BROADBAND ANTENNA	VULB9163	Schwarzbeck	715	12, 08, 2022
<input checked="" type="checkbox"/>	ATTENUATOR	8491A	HP	32173	03, 10, 2022

### Test Conditions

Temperature: (22,7 ± 0,1) °C

Relative Humidity: (43,0 ± 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**

Dec. 25, 2021

**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	08, 03, 2022
<input checked="" type="checkbox"/>	PREAMPLIFIER	8449B	AGILENT	3008A01967	04, 07, 2022
<input type="checkbox"/>	ATTENUATOR	8491A	HP	35496	03, 10, 2022
<input checked="" type="checkbox"/>	DOUBLE RIDGED HORN ANTENNA	SAS-571	A.H.SYSTEM,INC	781	03, 11, 2022

**Test Conditions**

Temperature: (22,2 ± 0,1) °C

Relative Humidity: (42,9 ± 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.



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## APPENDIX A – TEST DATA

### Conducted Emissions at Mains Power Ports

■ DC 24 V Mode

HOT LINE

### Common Information

Test Description:

Model No.:

Phase:

Mode:

Operator Name:

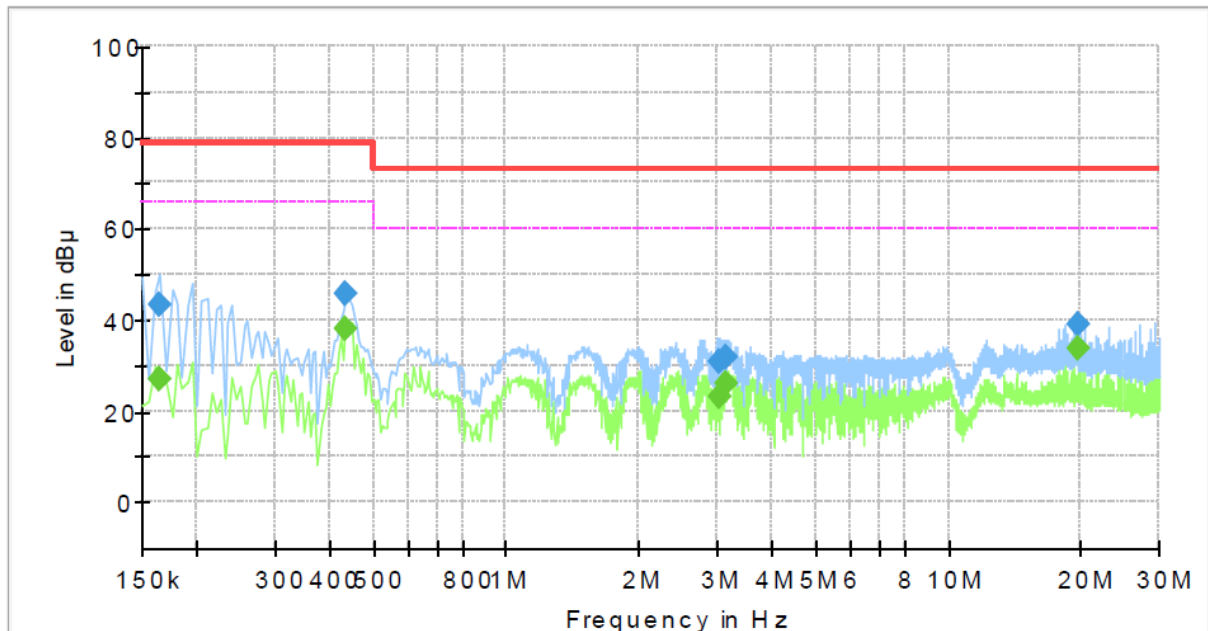
Conducted Emission

SPA-M1000

L1

DC 24 V

KES



### Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.165000	---	26.95	66.00	39.05	1000.0	9.000	L1	19.5
0.165000	43.26	---	79.00	35.74	1000.0	9.000	L1	19.5
0.435000	---	38.19	66.00	27.81	1000.0	9.000	L1	19.7
0.435000	45.80	---	79.00	33.20	1000.0	9.000	L1	19.7
3.045000	---	23.07	60.00	36.93	1000.0	9.000	L1	20.2
3.045000	30.97	---	73.00	42.03	1000.0	9.000	L1	20.2
3.150000	---	26.17	60.00	33.83	1000.0	9.000	L1	20.2
3.150000	31.89	---	73.00	41.11	1000.0	9.000	L1	20.2
19.710000	---	33.94	60.00	26.06	1000.0	9.000	L1	20.2
19.710000	38.95	---	73.00	34.05	1000.0	9.000	L1	20.2

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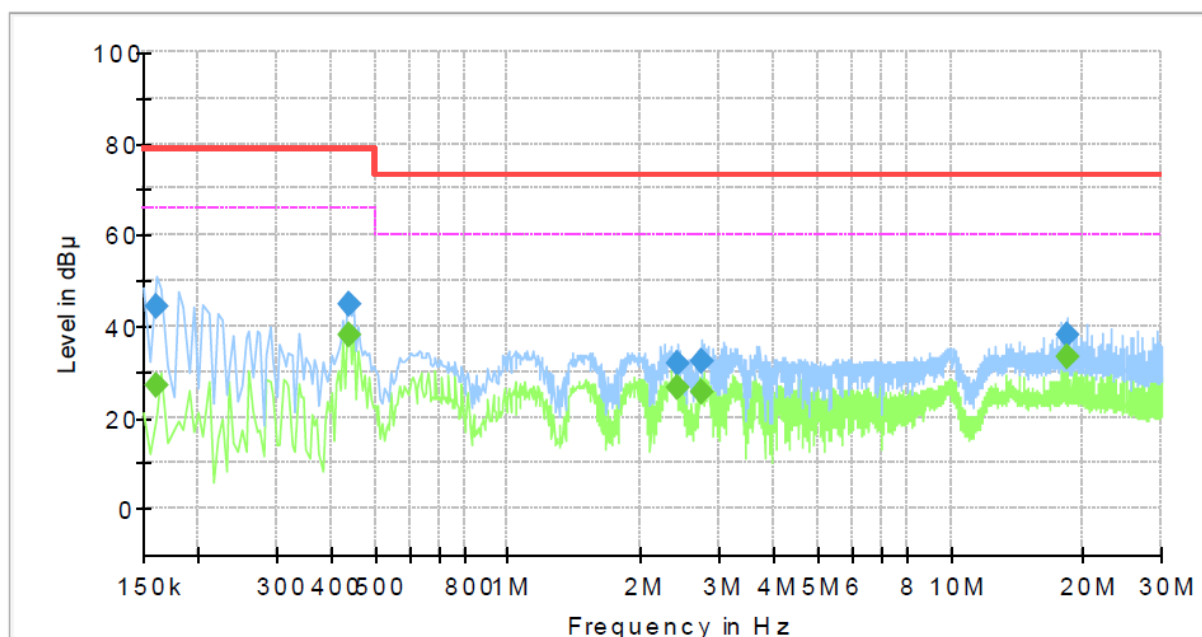
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## NEUTRAL LINE

### Common Information

Test Description:	Conducted Emission
Model No.:	SPA-M1000
Phase:	N
Mode:	DC 24 V
Operator Name:	KES



### Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.160000	---	27.14	66.00	38.86	1000.0	9.000	N	19.4
0.160000	44.07	---	79.00	34.93	1000.0	9.000	N	19.4
0.440000	---	38.16	66.00	27.84	1000.0	9.000	N	19.7
0.440000	44.53	---	79.00	34.47	1000.0	9.000	N	19.7
2.410000	---	26.55	60.00	33.45	1000.0	9.000	N	20.3
2.410000	31.60	---	73.00	41.40	1000.0	9.000	N	20.3
2.745000	---	25.66	60.00	34.34	1000.0	9.000	N	20.2
2.745000	32.10	---	73.00	40.90	1000.0	9.000	N	20.2
18.305000	---	33.17	60.00	26.83	1000.0	9.000	N	20.1
18.305000	38.14	---	73.00	34.86	1000.0	9.000	N	20.1

#### ◆ 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))

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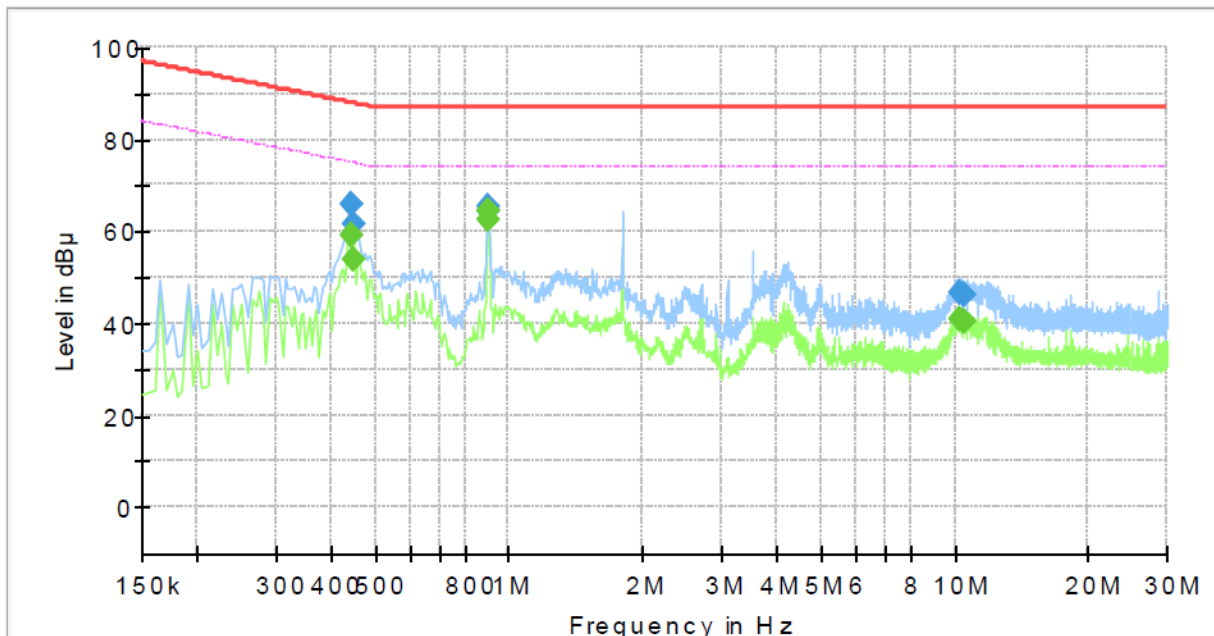
## Conducted Emissions at Telecommunication Ports

■ DC 24 V Mode

[1 000 Mbps]

### Common Information

Test Description:	Telecommunication Emission
Model No.:	SPA-M1000
Mode :	DC 24 V
Speed :	1 000 Mbps
Operator Name:	KES



### Final Result

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.445000	---	59.26	74.97	15.71	1000.0	9.000	Single Line	19.8
0.445000	66.02	---	87.97	21.95	1000.0	9.000	Single Line	19.8
0.450000	---	53.99	74.88	20.89	1000.0	9.000	Single Line	19.8
0.450000	61.37	---	87.88	26.51	1000.0	9.000	Single Line	19.8
0.895000	---	62.60	74.00	11.40	1000.0	9.000	Single Line	20.1
0.895000	64.38	---	87.00	22.62	1000.0	9.000	Single Line	20.1
0.900000	---	64.49	74.00	9.51	1000.0	9.000	Single Line	20.1
0.900000	65.24	---	87.00	21.76	1000.0	9.000	Single Line	20.1
10.310000	---	41.09	74.00	32.91	1000.0	9.000	Single Line	19.7
10.310000	46.57	---	87.00	40.43	1000.0	9.000	Single Line	19.7
10.520000	---	40.64	74.00	33.36	1000.0	9.000	Single Line	19.7
10.520000	46.01	---	87.00	40.99	1000.0	9.000	Single Line	19.7

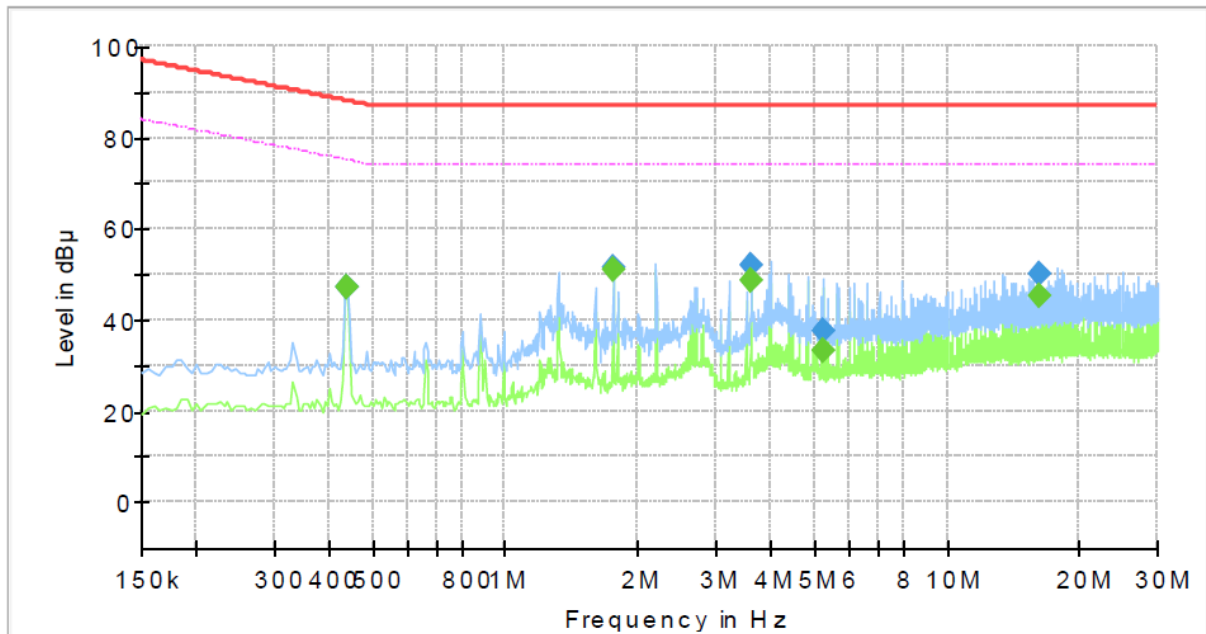
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**PoE Mode**
**[1 000 Mbps]**
**Common Information**

Test Description:	Telecommunication Emission
Model No.:	SPA-M1000
Mode :	PoE
Speed :	1 000 Mbps
Operator Name:	KES


**Final Result**

Frequency (MHz)	QuasiPeak (dBμV)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Corr. (dB)
0.440000	---	47.02	75.06	28.04	1000.0	9.000	Single Line	19.8
0.440000	47.29	---	88.06	40.77	1000.0	9.000	Single Line	19.8
1.755000	---	51.13	74.00	22.87	1000.0	9.000	Single Line	20.2
1.755000	51.41	---	87.00	35.59	1000.0	9.000	Single Line	20.2
3.605000	---	48.54	74.00	25.46	1000.0	9.000	Single Line	19.8
3.605000	51.94	---	87.00	35.06	1000.0	9.000	Single Line	19.8
5.265000	---	33.10	74.00	40.90	1000.0	9.000	Single Line	19.4
5.265000	37.49	---	87.00	49.51	1000.0	9.000	Single Line	19.4
16.230000	---	45.09	74.00	28.91	1000.0	9.000	Single Line	19.7
16.230000	49.93	---	87.00	37.07	1000.0	9.000	Single Line	19.7

**◆ 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 (ISN FACTOR + (Cable Loss + Pulse Limiter FACTOR))

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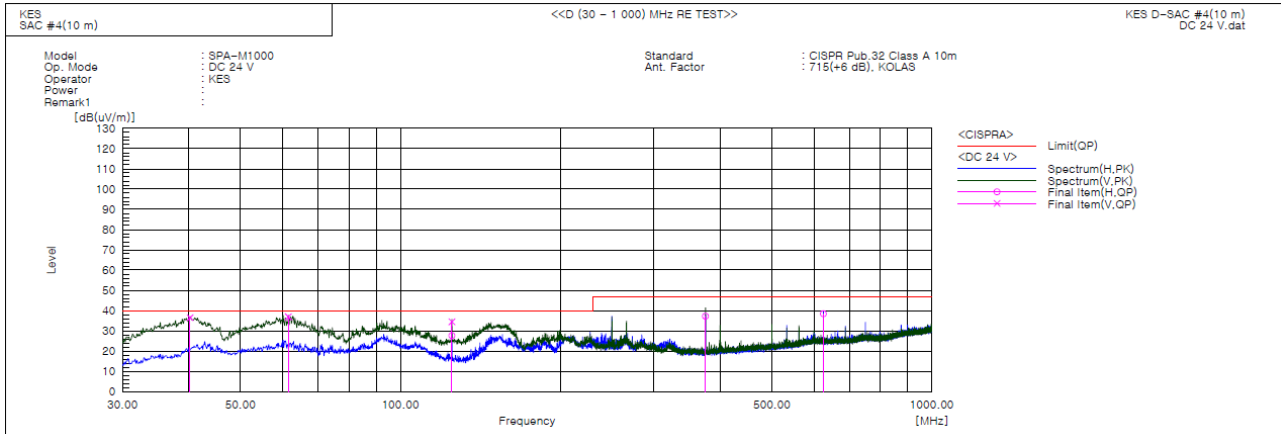
Report No.:

KES-EM-21T1242-R2

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## Radiated Electric Field Emissions(Below 1 GHz)

### ■ DC 24 V 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	40.185	V	58.9	-22.4	36.5	40.0	3.5	109.0	276.0	
2	61.525	V	59.2	-22.2	37.0	40.0	3.0	100.0	163.0	
3	124.939	H	52.5	-24.8	27.7	40.0	12.3	378.0	287.0	
4	124.940	V	59.3	-24.8	34.5	40.0	5.5	105.0	303.0	
5	374.956	H	51.8	-14.6	37.2	47.0	9.8	391.0	351.0	
6	625.095	H	46.6	-8.2	38.4	47.0	8.6	394.0	145.0	

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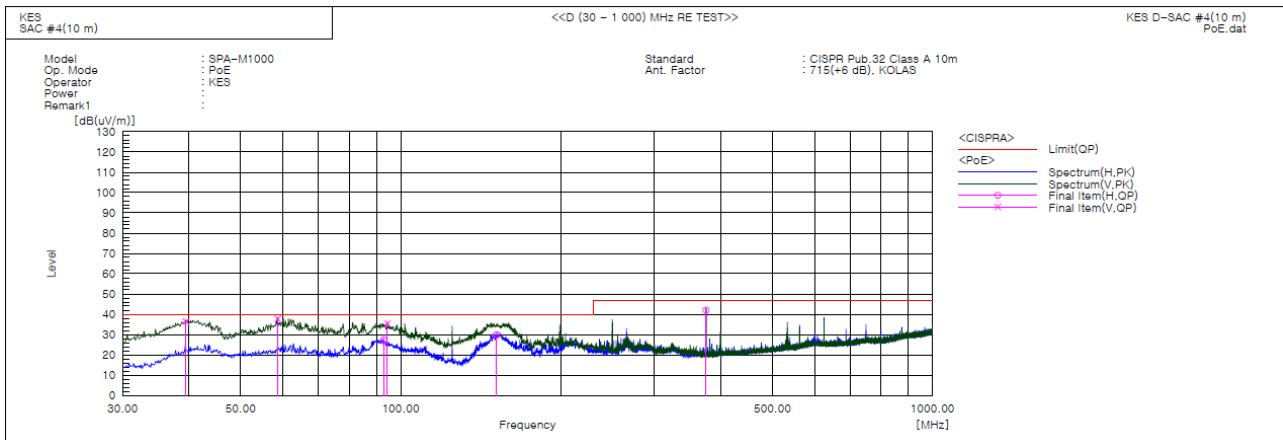
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Report No.:

KES-EM-21T1242-R2

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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	39.458	V	59.1	-22.7	36.4	40.0	3.6	104.0	277.0	
2	58.736	V	59.3	-21.6	37.7	40.0	2.3	109.0	96.0	
3	92.929	H	51.0	-23.6	27.4	40.0	12.6	393.0	45.0	
4	94.384	V	58.9	-23.5	35.4	40.0	4.6	100.0	345.0	
5	151.493	H	55.0	-25.1	29.9	40.0	10.1	392.0	260.0	
6	374.956	H	56.6	-14.6	42.0	47.0	5.0	387.0	289.0	

### ◆ 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

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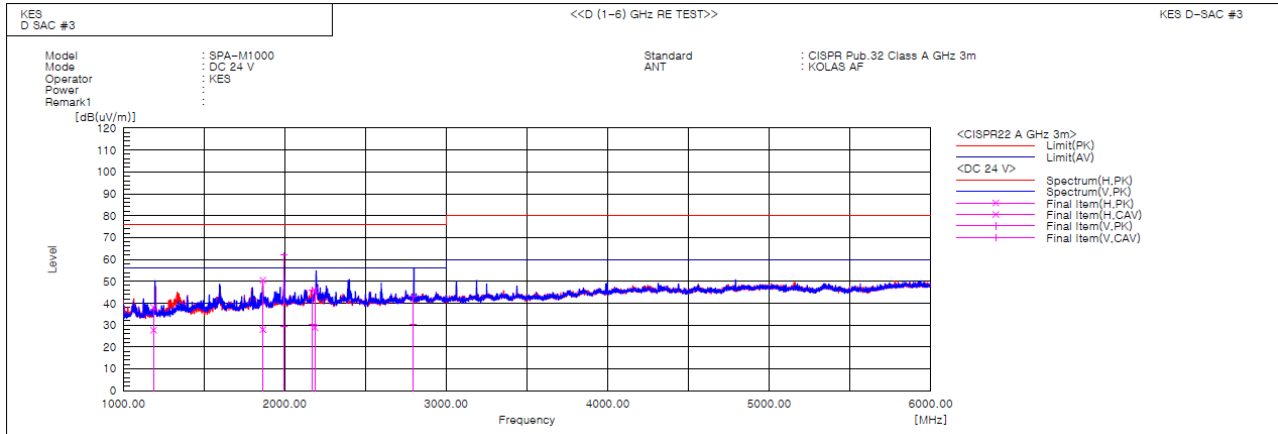
Report No.:

KES-EM-21T1242-R2

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## Radiated Electric Field Emissions(Above 1 GHz)

### ■ DC 24 V 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	1186.783	H	46.7	36.2	-8.6	38.1	27.6	76.0	56.0	37.9	28.4	100.0	109.8	
2	1863.960	H	52.8	30.3	-2.3	50.5	28.0	76.0	56.0	25.5	28.0	100.0	165.4	
3	1994.880	V	62.9	30.4	-1.0	61.9	29.4	76.0	56.0	14.1	26.6	100.0	357.3	
4	2172.584	V	46.7	30.6	-0.5	46.2	30.1	76.0	56.0	29.8	25.9	100.0	174.3	
5	2185.962	H	46.5	29.3	-0.5	46.0	28.8	76.0	56.0	30.0	27.2	100.0	29.5	
6	2796.645	V	41.6	28.4	1.7	43.3	30.1	76.0	56.0	32.7	25.9	100.0	236.8	

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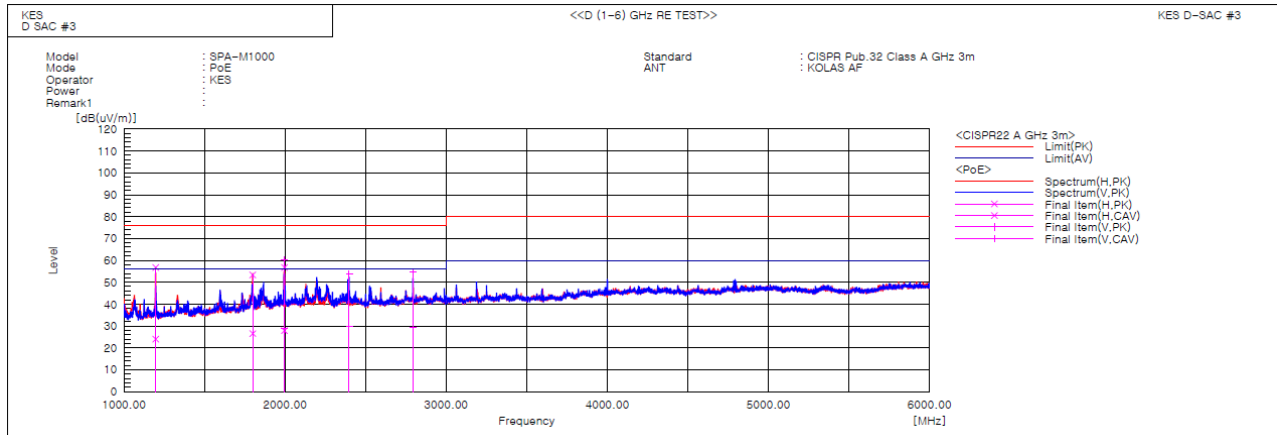
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### PoE Mode



#### 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	1196.732	H	65.3	32.5	-8.5	56.8	24.0	76.0	56.0	19.2	32.0	100.0	126.6	
2	1799.294	H	56.5	29.7	-3.1	53.4	26.6	76.0	56.0	22.6	29.4	100.0	2.1	
3	1994.795	V	61.1	29.7	-1.0	60.1	28.7	76.0	56.0	15.9	27.3	100.0	86.0	
4	1995.248	H	57.8	28.9	-1.0	56.8	27.9	76.0	56.0	19.2	28.1	100.0	118.6	
5	2398.064	V	53.4	29.5	0.2	53.6	29.7	76.0	56.0	22.4	26.3	100.0	183.8	
6	2793.705	V	53.0	27.8	1.7	54.7	29.5	76.0	56.0	21.3	26.5	100.0	240.3	

#### Calculation

Result(PK/CAV) [dB( $\mu$ V/m)] = (Reading(PK/CAV)[dB( $\mu$ V)] + c.f[dB(1/m)])

Margin(PK/CAV)[dB] = Limit[dB( $\mu$ V/m)] - Result(PK/CAV) [dB( $\mu$ V/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

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## Test Setup Photos and Configuration

### Conducted Emissions at Mains Power Ports

#### ■ DC 24 V Mode



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## Conducted Emissions at Telecommunication Ports

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- PoE Mode



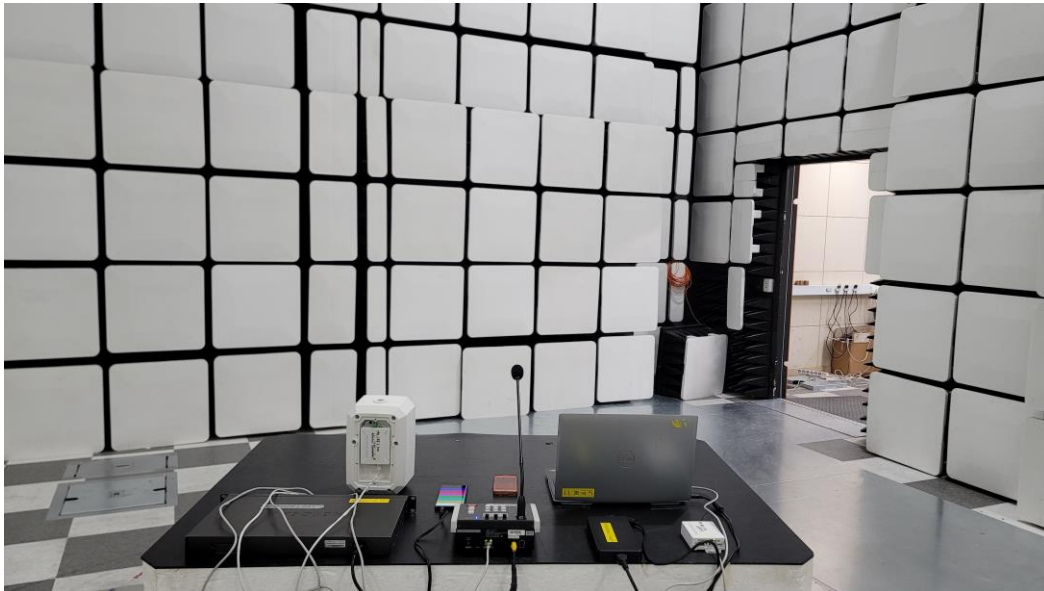
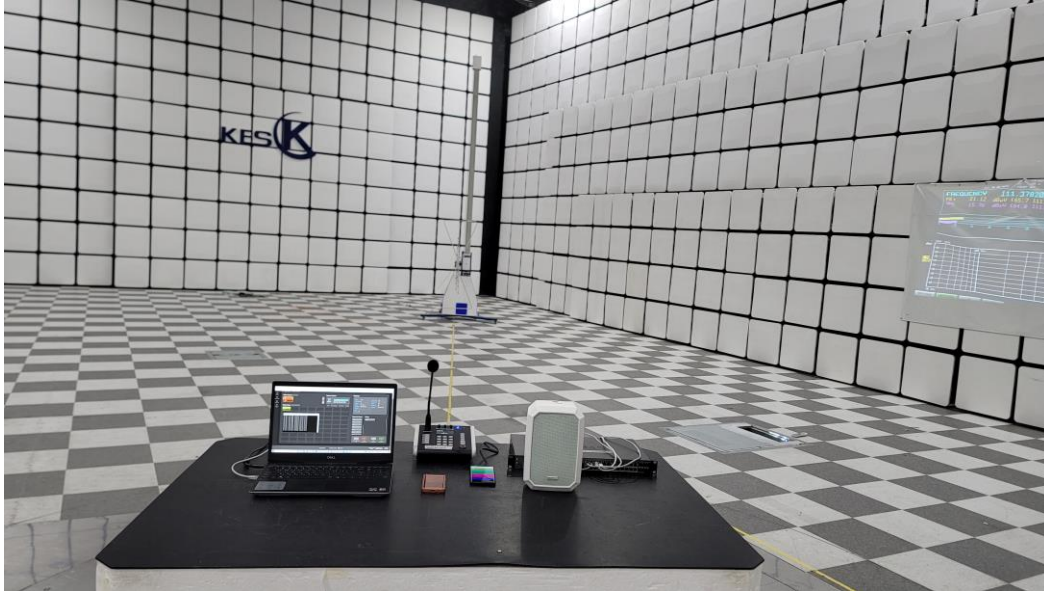
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## Radiated Electric Field Emissions(Below 1 GHz)

### ■ DC 24 V Mode



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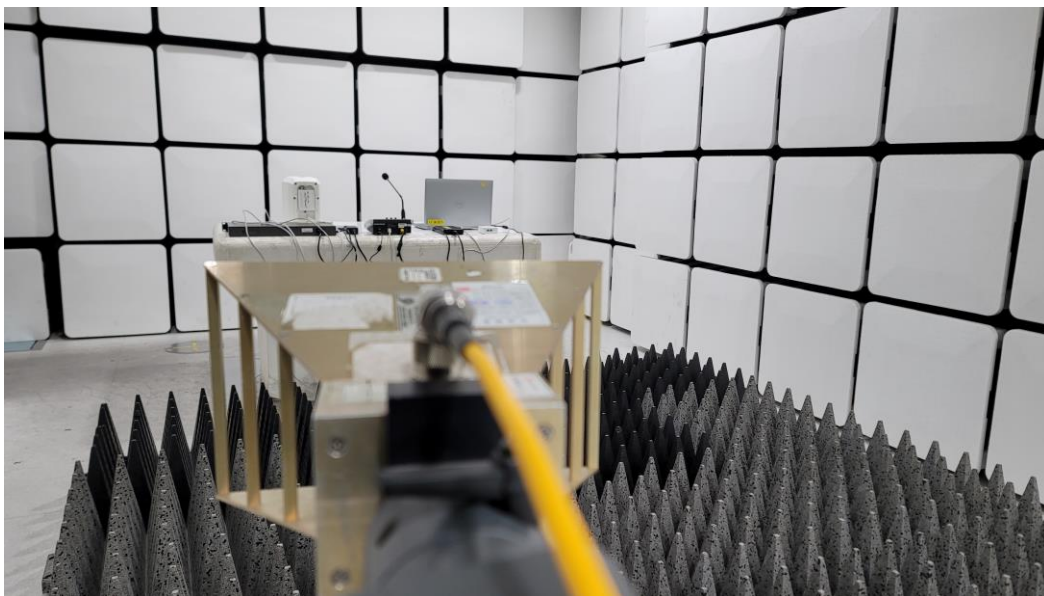
**■ PoE Mode**

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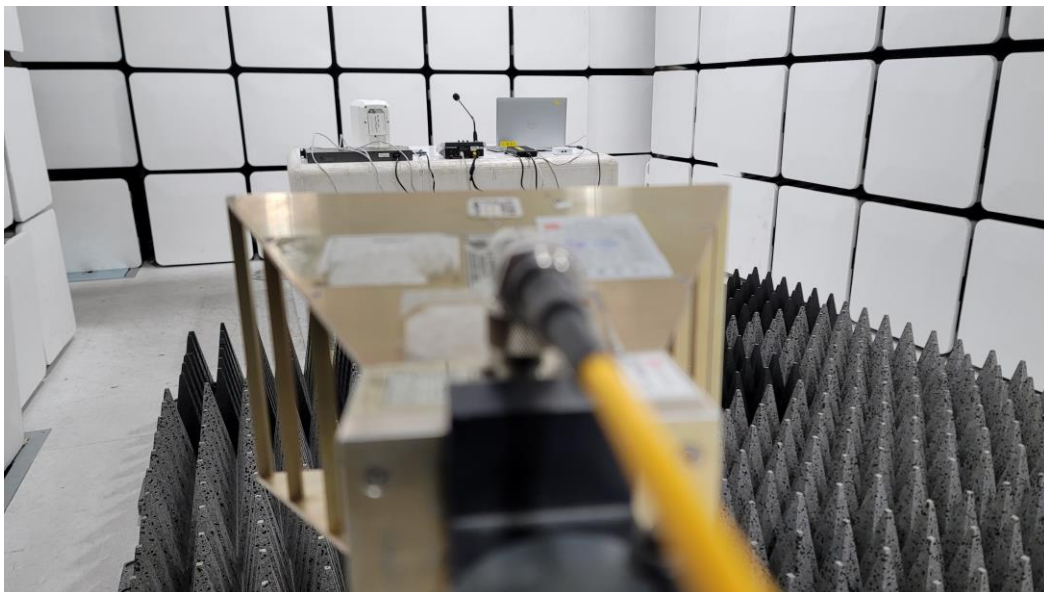


## Radiated Electric Field Emissions(Above 1 GHz)

### ■ DC 24 V Mode



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## EUT External Photographs

(Top)



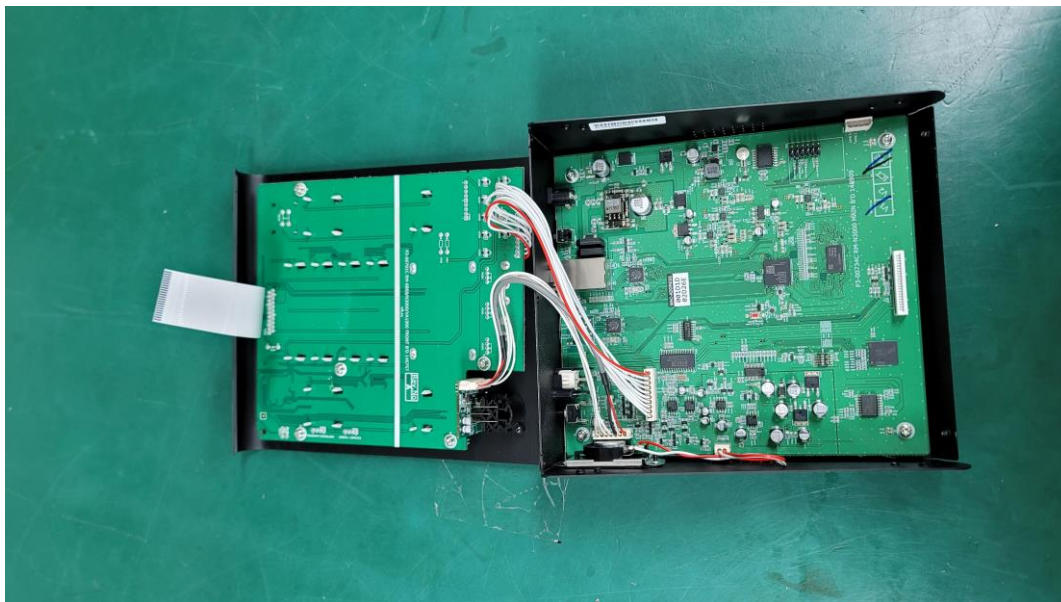
(Bottom)





## EUT Internal Photographs

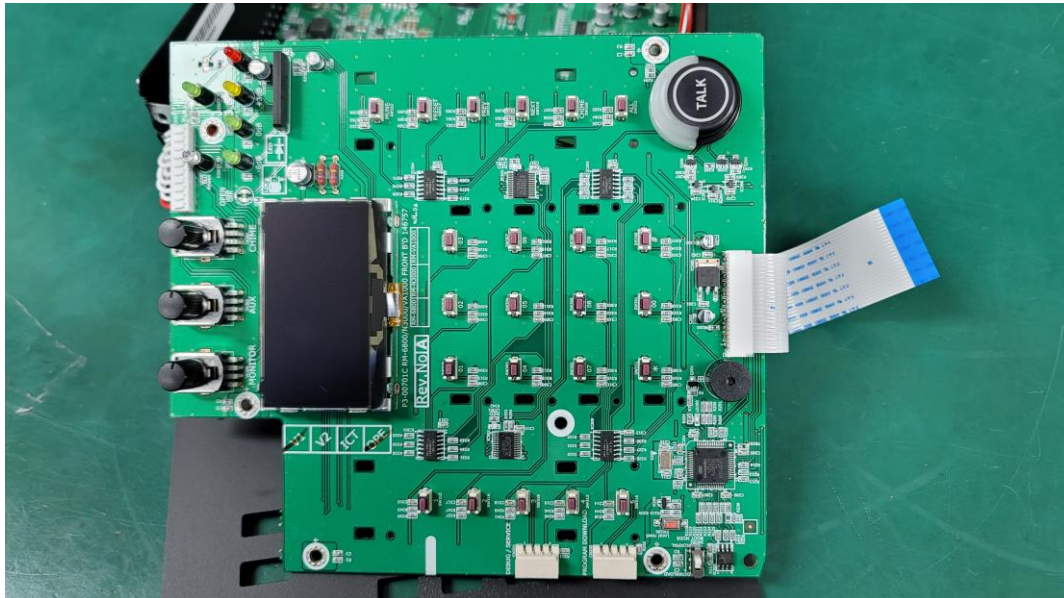
(Internal View)



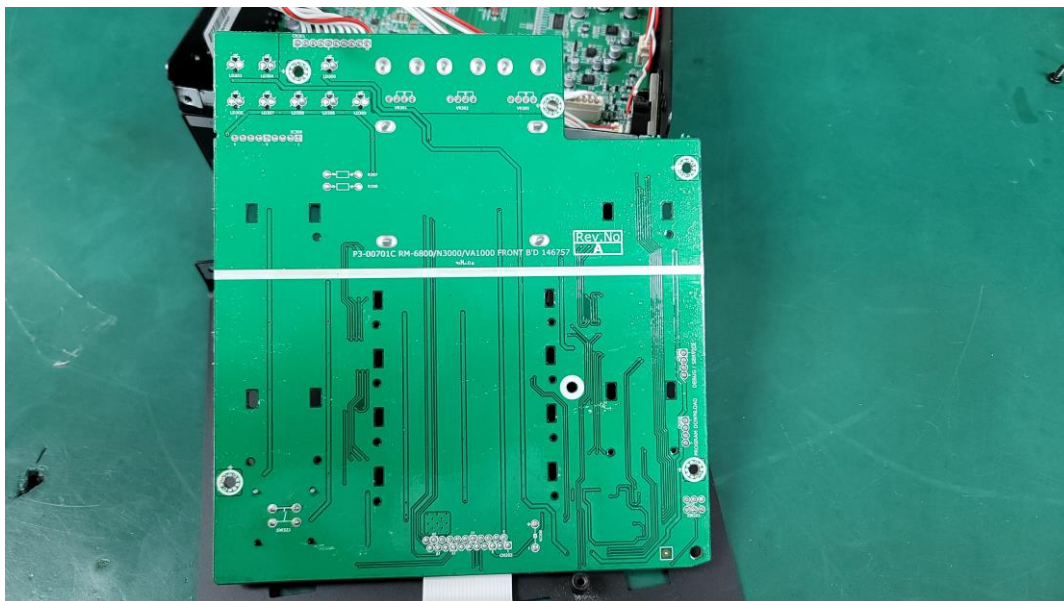
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## EUT Internal View – Board 1

(Top)



(Bottom)

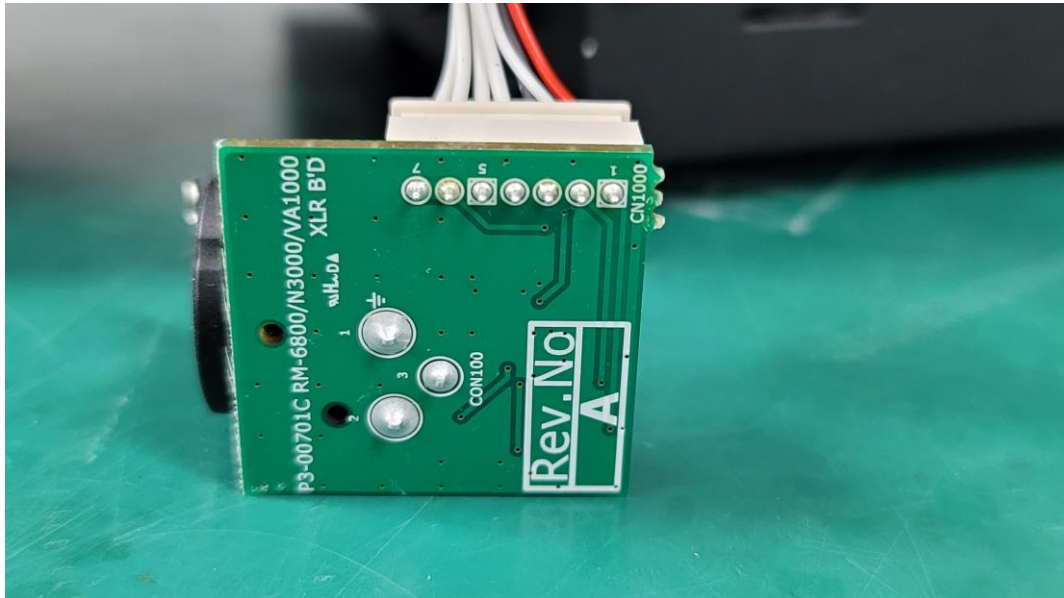


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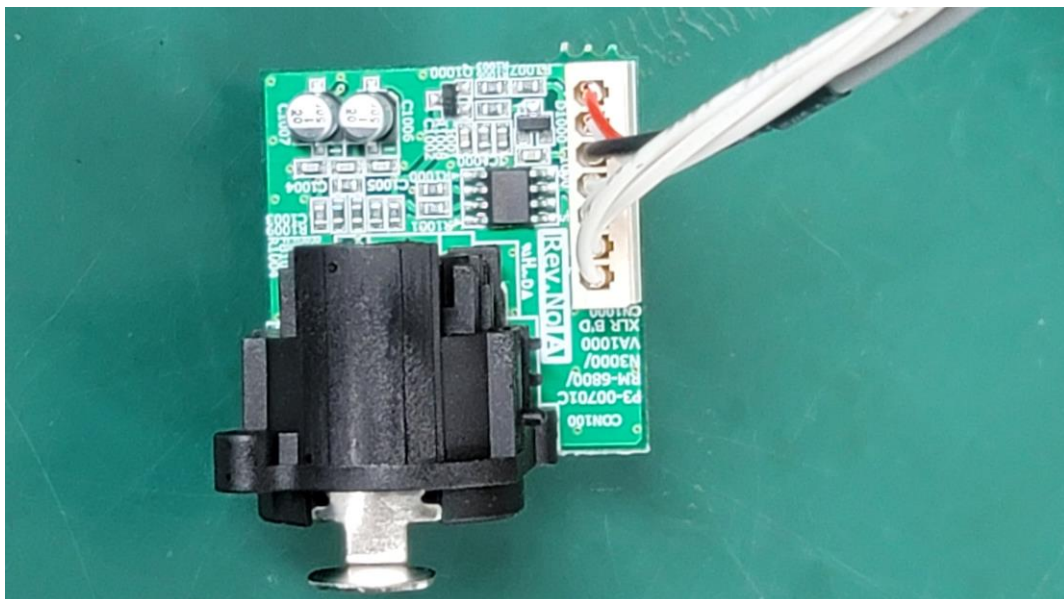


## EUT Internal View – Board 2

(Top)

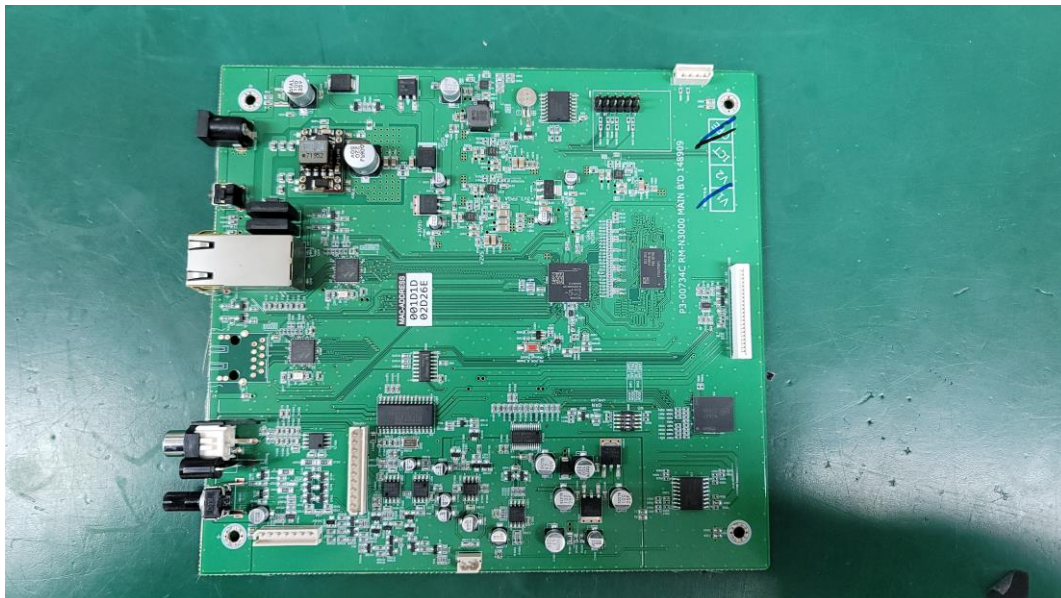


(Bottom)

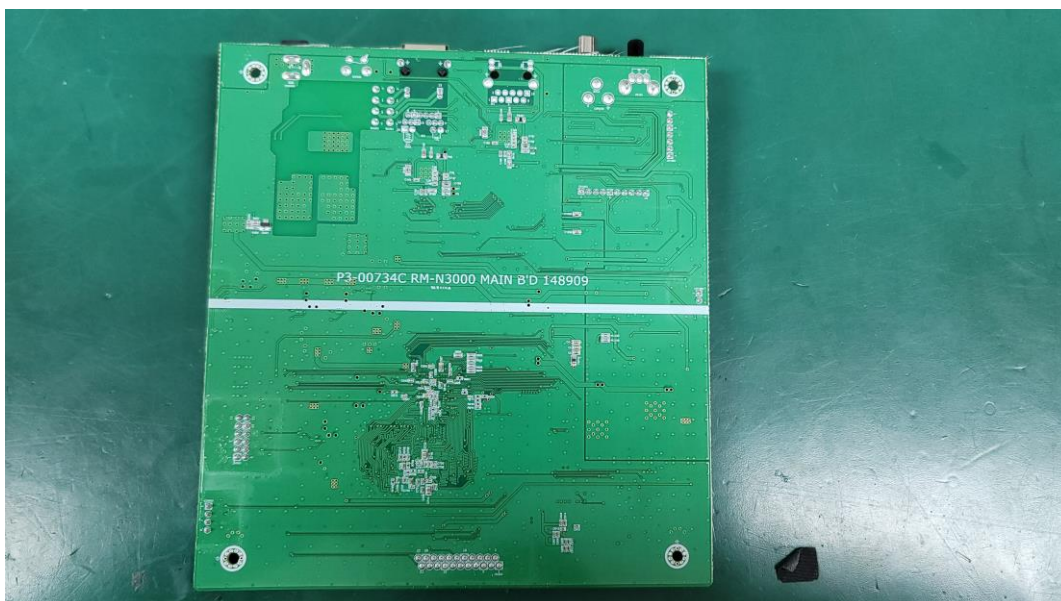


## EUT Internal View – Board 3

(Top)



(Bottom)

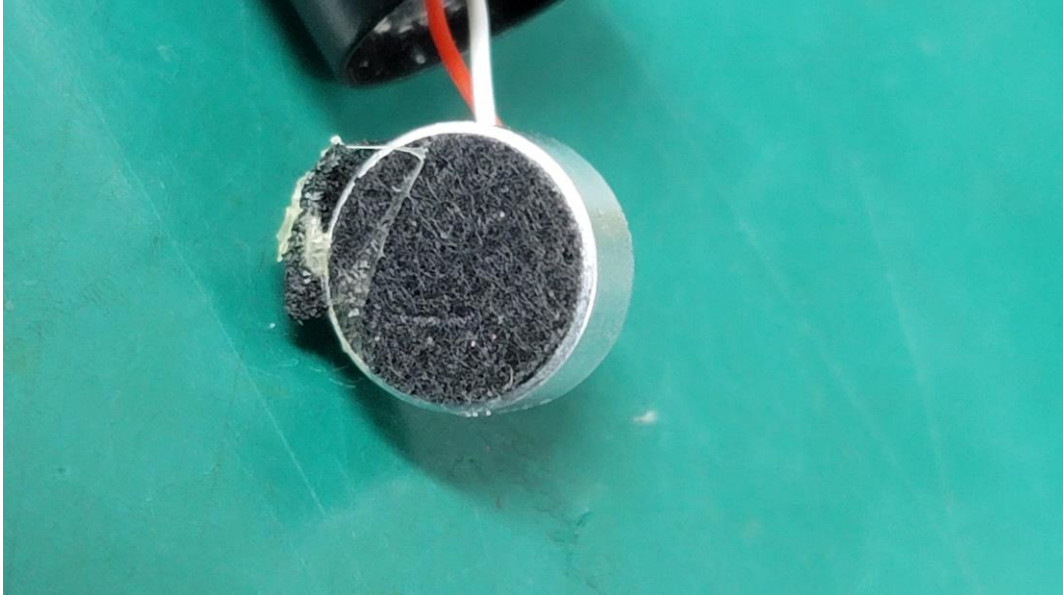


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## EUT Internal View – Board 4

(Top)



(Bottom)

