# EMC TEST REPORT

| | | |
|---|---|---|
| Test Report No. | : | KES-EM-23T0020-R2 |
| Date of Issue | : | Feb. 24, 2023 |
| Product name | : | CEILING SPEAKER |
| Model/Type No. | : | SPA-C100W |
| Variant Model | : | SPA-C100B |
| 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 | : | 7-18, Gwonyul-ro 1253beon-gil, Baekseok-eup, Yangju-si, Gyeonggi-do |
| Equipment authorization | : | **Supplier's Declaration of Conformity** |
| Date of Receipt | : | Dec. 26, 2022 |
| Test date | : | Jan. 02, 2023 ~ Jan. 03, 2023 |
| 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 |
|---|---|---|
| Jan. 05, 2023 | KES-EM-23T0020 | Issued |
| Jan. 27, 2023 | KES-EM-23T0020-R1 | Change Manufacturer |
| Feb. 24, 2023 | KES-EM-23T0020-R2 | Change the Applicant at the request of the customer |
| | | |
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# 1.0 General Product Description

## Main Specifications of EUT are:

| | | |
|---|---|---|
| **Product** | Type | Network Ceiling Speaker |
| **MIC Input** | Input Sensitivity | -48dBV ±3dB |
| | Frequency Response | 20Hz ~ 20kHz ±3dB |
| **Line Output** | Output Level | 0 dBV ± 3dB |
| | Frequency Response | 20Hz ~ 20kHz ±3dB |
| | THD + N Ratio | less than 0.01% |
| | S/N Ratio (20Hz HPF, 20kHz LPF) | greater than 85dB |
| **Power Amp** | Output Power (8Ω, 1kHz Sine wave) | 7W(PoE), 15W (PoE+) |
| | Frequency Response (1W, 8Ω) | 20Hz ~ 20kHz ±3dB |
| | S/N Ratio (20Hz HPF, 20kHz LPF) | greater than 85dB |
| **Network** | Ethernet | 10/100 Base-T |
| **Memory** | Internal Memory | 1 GBytes |
| | External Memory (Micro SD) | SDHC upto 32GB (SANDISK) |
| **Contact** | Contact Input | One channel |
| | Contact Output<br>(Rating : 1A DC 30V, 0.3A AC 125V) | One channel |
| **General** | Operating Temperature | -20 ~ 50℃ (-4°F ~ 122°F) |
| | Operating Humidity | 10~100% RH Non-condencing |
| | IP code | - |
| | Weight | 1.95Kg |
| | Size | Φ269*142.5(H) |
| | Color | Black |
| | Certificate | EMC – FCC part 15 Class A , ICES-003 Class A<br>Safety – UL-60950 ,<br>Environment – IEC and NEMA based on the Product specs |
| **Power** | PoE<br>PoE+ | PoE (IEEE 802.3 af type 1 Class 3)<br>PoE+(IEEE 802.3 at type 2 Class 4) |
| **Audio** | Built-in microphone | 50~16000 Hz |
| | Audio Compression | G.711 PCM 8 kHz<br>G.726 ADPCM 8 kHz<br>WAV, MP3 in mono/stereo from 64 kbps to 320 kbps.<br>Sampling rate from 8 kHz up to 48 kHz<br>PCMU, PCMA, opus, L16/16000, L16/8000, speex/8000, speex/16000, G.726-32 |
| **Speaker** | Speaker Component | 8" Coaxial Cone type |
| | Max. Sound Pressure Level (PoE : 7 Watt) | 100dB |
| | Max. Sound Pressure Level (PoE+ : 15 Watt) | 103dB |
| | Max. Power (Peak) | 120W |
| | Frequency Response | 99Hz~20kHz |
| | Sensitivity (1Watt) | 92dB |
| | Coverage Pattern | 120° |
| **Network** | Security | Password protection : admin,setup,user,guest<br>(sha-2, Digest authentication, User access log)<br>Digest authentication, User access log |
| | Supported Protocols | IPv4, HTTP, SIP, Bonjour, DNS, NTP, TCP, UDP, DHCP, ARP, SSH, ICMP |
| **System Integration** | API (Application Programming Interface) | Including SUNAPI<br>Integration with HTW WAVE (VMS) |
| | Multi-source Dynamic PA control | <Controler Mode><br>Multi-source up to 48 (Multicast) (Audio 24CH + Mic 24CH)<br>Up to 50 Zone Control (Multicast)<br>Up to 255 Groups<br><br><Speaker Mode><br>Up to 20 Zone Streaming (Unicast)<br>Up to 50 Zone Streaming (Multicast)<br><br><Streaming Mode><br>Up to 256 Zone Streaming (Multicast) |
| | Voice Announcement | Up to 40 pre-recorded voice announcements. |
| | VoIP | Tested with PBX suppliers such as Cisco and Asterisk.<br>Supported SIP features: DTMF (RFC2976 and RFC2833)<br>Supported codecs: PCMU, PCMA, speex/8000, speex/16000 |
| | TTS | Domestic Version : Korean |
| | | Export Version : English(US, UK), German, French, Spanish, Russian |
| | Intelligent Audio | Speaker Test (by built in test tool, bandwidth check also) |
| | Event Triggers | Virtual Inputs<br>Call : DTMF, State changes |
| | Functional Monitoring | Connection verification, Built-in system logging |
| | 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 120 V, 60 Hz

## 1.2 Variant Model Differences

Color Differences

## 1.3 Device Modifications

Not applicable

## 1.4 Equipment Under Test

| Description | Model Number | Serial Number | Manufacturer | Remarks |
|---|---|---|---|---|
| CEILING SPEAKER | SPA-C100W | - | Inter-M Corporation | EUT |
| AUDIO MODULE | SPA-D1000 | - | Inter-M Corporation | - |

## 1.5 Support Equipments

| Description | Model Number | Serial Number | Manufacturer | Remarks |
|---|---|---|---|---|
| Notebook | P95G001 | 8KM8HT2 | DELL INC. | - |
| Notebook adapter | LA65NS2-01 | - | LITE-ON TECHNOLOGY(CHANGZHOU)CO.,LTD.. | - |
| Speaker | E5 | - | PreSonus® | - |
| PoE INJECTOR | PT-PSE109GBRO-AH-S | - | Dongguan PROCET Network Technology Co.,Ltd | - |
| Button Alram | - | - | - | - |
| LED Alram | PRO-SL | - | SENSOR PRO | - |
| Micro SD card | - | - | SanDisk | 4 GB |

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## 1.6 External I/O Cabling

| Start | | END | | Cable Spec. | |
|---|---|---|---|---|---|
| **Description** | **I/O Port** | **Description** | **I/O Port** | **Length** | **Shield** |
| CEILING SPEAKER (EUT) | RJ-45 | PoE INJECTOR | RJ-45 | 3.0 | U |
| | Micro SD card Slot | Micro SD card | Micro SD card Slot | - | - |
| | LINE OUT | Speaker | XLR | 2.0 | U |
| | Alarm IN | Button Alram | Line | 3.0 | U |
| | Alarm OUT | LED Alram | Line | 3.0 | U |
| | Ground Port | Ground | Ground Port | 2.0 | U |

* Unshielded = U, Shielded = S

## 1.7 EUT Operating Mode(s)

| Test mode | operating |
|---|---|
| Operation | 1. Ping Test Mode.<br>2. After accessing the web browser, the operation status was checked by playing the 1KHz Tone.<br>3. Test by uploading the sound source stored on the Micro SD Card through the web viewer |

| EUT Test operating S/W | | |
|---|---|---|
| **Name** | **Version** | **Manufacture Company** |
| Web Viewer | - | - |

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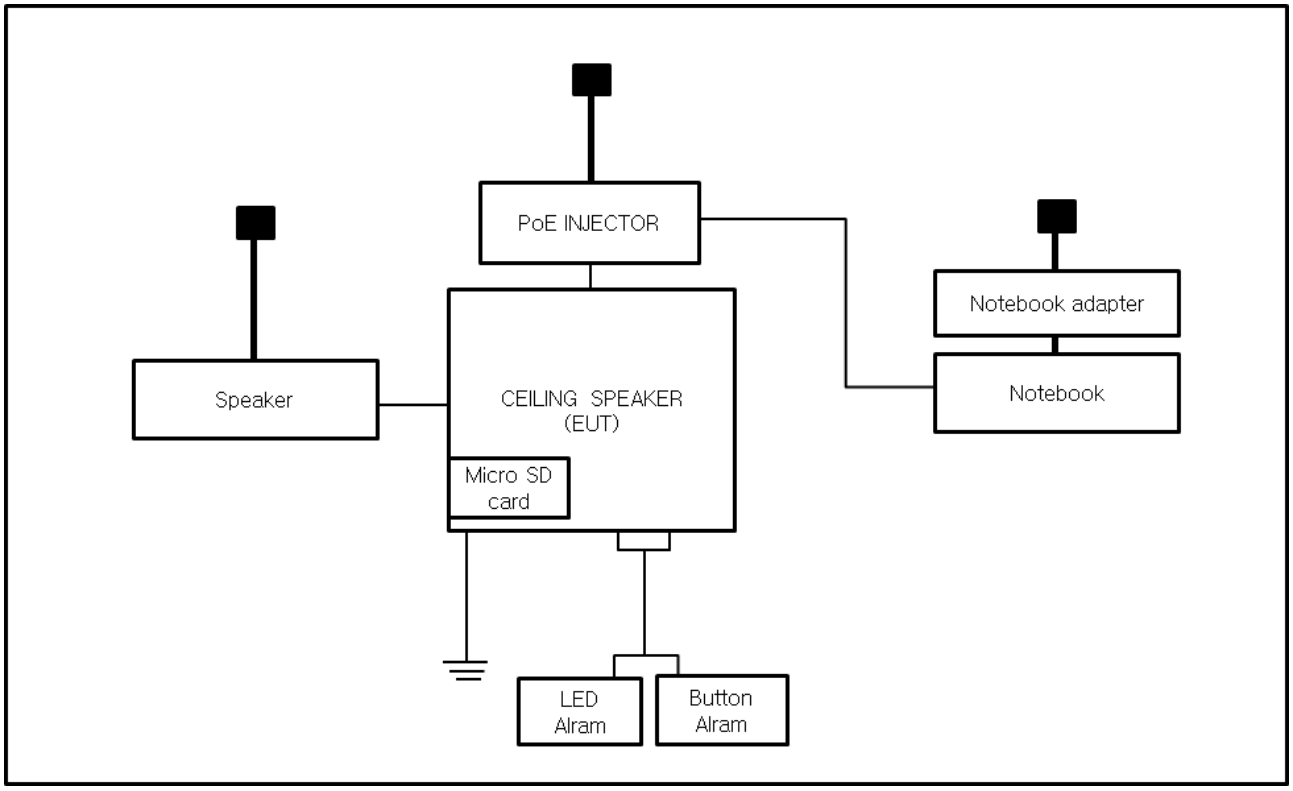
## 1.8 Configuration

■ AC Main
□ DC Main

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## 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, Yeoju-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:

☒ **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 |

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# 2.1 Conducted Emissions at Mains Power Ports

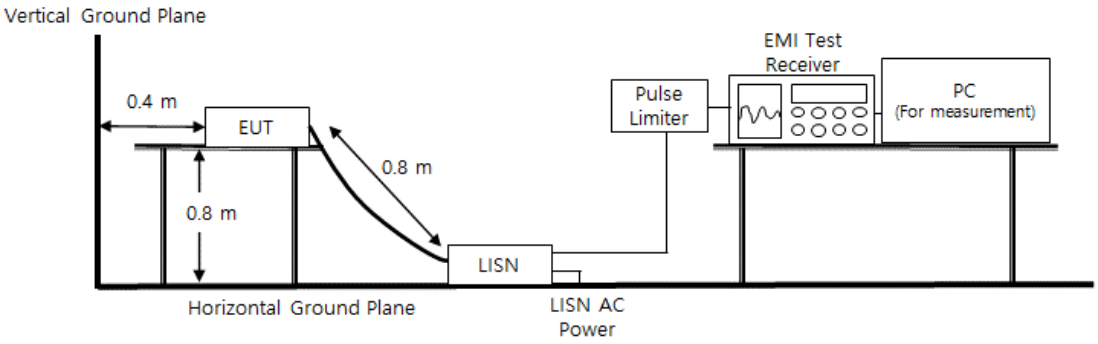
**Test Date**
Jan. 03, 2023

**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**

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## Test Conditions

Temperature: (22,6 ± 0,1) ℃
Relative Humidity: (46,1 ± 0,1) % R.H.

## Frequency Range of Measurement

150 ㎑ to 30 ㎒

## Instrument Settings

IF Band Width: 9 ㎑

## 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 ㎓)

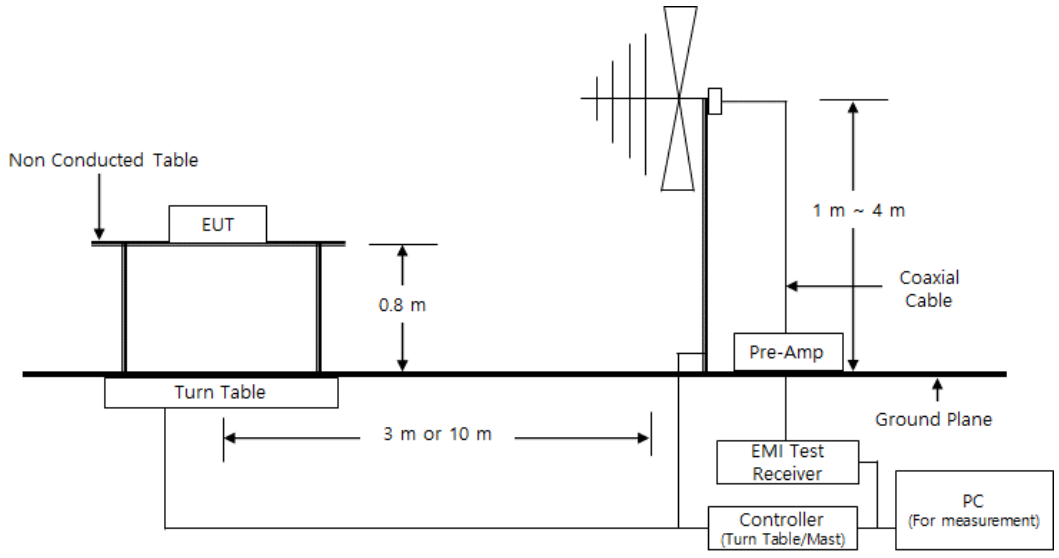
**Test Date**
Jan. 03, 2023

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

**Test Equipment**

| Used | Description | Model Number | Manufacturer | Serial Number | Cal. Due |
|---|---|---|---|---|---|
| ☒ | EMI Test S/W | EP5/RE | TOYO Corporation | 6.0.0 | - |
| ☒ | EMI TEST RECEIVER | ESU26 | R & S | 100551 | 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, 08, 2023 |

**Diagram of test setup**

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## Test Conditions

Temperature: (22,3 ± 0,1) ℃
Relative Humidity: (44,6 ± 0,1) % R.H.

## Frequency Range of Measurement

30 ㎒ to 1 ㎓

## Instrument Settings

IF Band Width: 120 ㎑

## 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 ㎓)

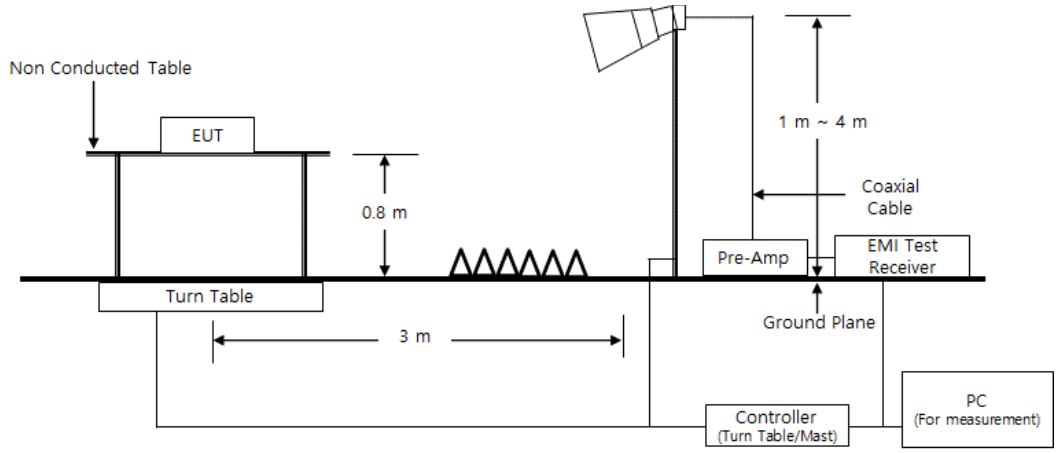
**Test Date**
Jan. 03, 2023

**Test Location**
SEMI ANECHOIC CHAMBER #5

**Test Equipment**

| Used | Description | Model Number | Manufacturer | Serial Number | Cal. Due |
|---|---|---|---|---|---|
| ☒ | EMI Test S/W | ES10/RE | TOYO Corporation | 2022.01.000 | - |
| ☒ | EMI TEST RECEIVER | ESU26 | Rohde & Schwarz | 100552 | 03, 31, 2023 |
| ☒ | HORN ANTENNA | BBHA 9120D | SCHWARZBECK | 9120D-1802 | 11, 28, 2023 |
| ☒ | PREAMPLIFIER | 8449B | HP | 3008A00538 | 06, 02, 2023 |
| ☒ | ATTENUATOR | 8491B | HP | 23094 | 04, 21, 2023 |

**Diagram of test setup**

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## Test Conditions

Temperature: (23,5 ± 0,1) ℃
Relative Humidity: (44,2 ± 0,1) % R.H.

## Frequency Range of Measurement

1 ㎓ to 5 ㎓

## Instrument Settings

IF Band Width: 1 ㎒

## Test Results

The requirements are:
☒ PASS
☐ NOT PASS
☐ NOT APPLICABLE

## Remarks

- See Appendix A for test data.
- The Average of the test data is the cispr average result.

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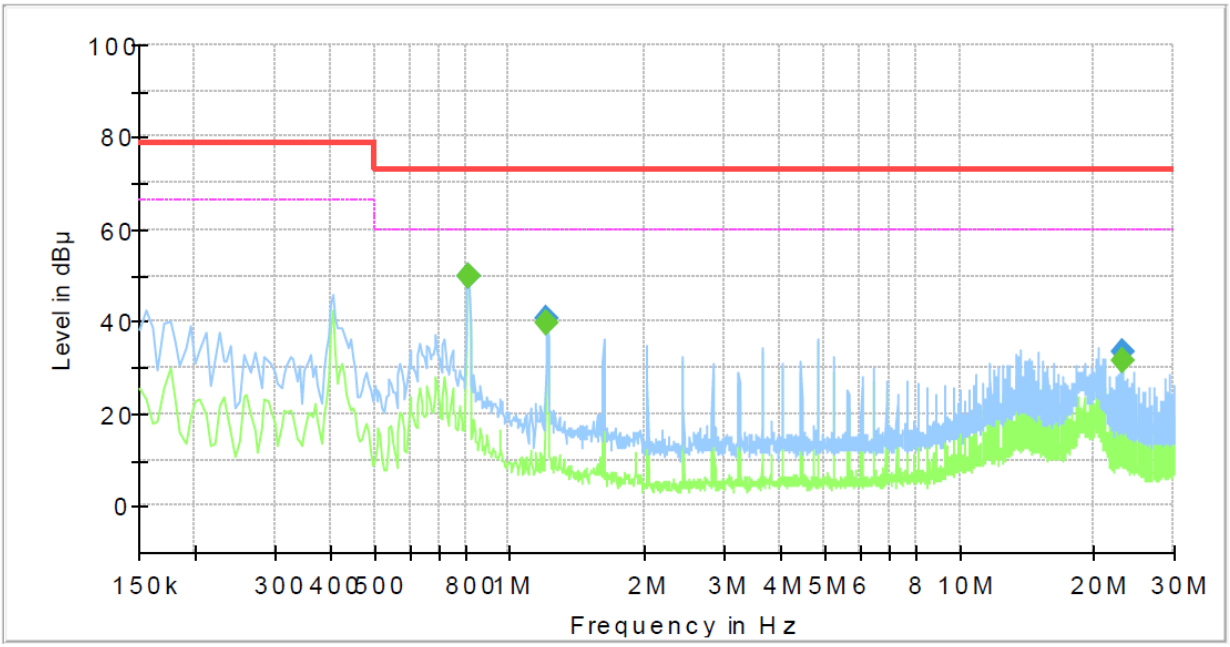
# APPENDIX A – TEST DATA

## Conducted Emissions at Mains Power Ports

HOT LINE

## Common Information

| | |
|---|---|
| Test Description: | Conducted Emission |
| Model No.: | SPA-C100W |
| Phase: | L1 |
| Mode: | |
| Operator Name: | KES |




## Final_Result

| Frequency (MHz) | QuasiPeak (dBµV) | CAverage (dBµV) | Limit (dBµV) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Line | Corr. (dB) |
|---|---|---|---|---|---|---|---|---|
| 0.810000 | --- | 49.60 | 60.00 | 10.40 | 1000.0 | 9.000 | L1 | 20.0 |
| 0.810000 | 49.73 | --- | 73.00 | 23.27 | 1000.0 | 9.000 | L1 | 20.0 |
| 1.210000 | --- | 39.65 | 60.00 | 20.35 | 1000.0 | 9.000 | L1 | 20.1 |
| 1.210000 | 40.51 | --- | 73.00 | 32.49 | 1000.0 | 9.000 | L1 | 20.1 |
| 23.130000 | --- | 31.32 | 60.00 | 28.68 | 1000.0 | 9.000 | L1 | 20.2 |
| 23.130000 | 33.39 | --- | 73.00 | 39.61 | 1000.0 | 9.000 | L1 | 20.2 |

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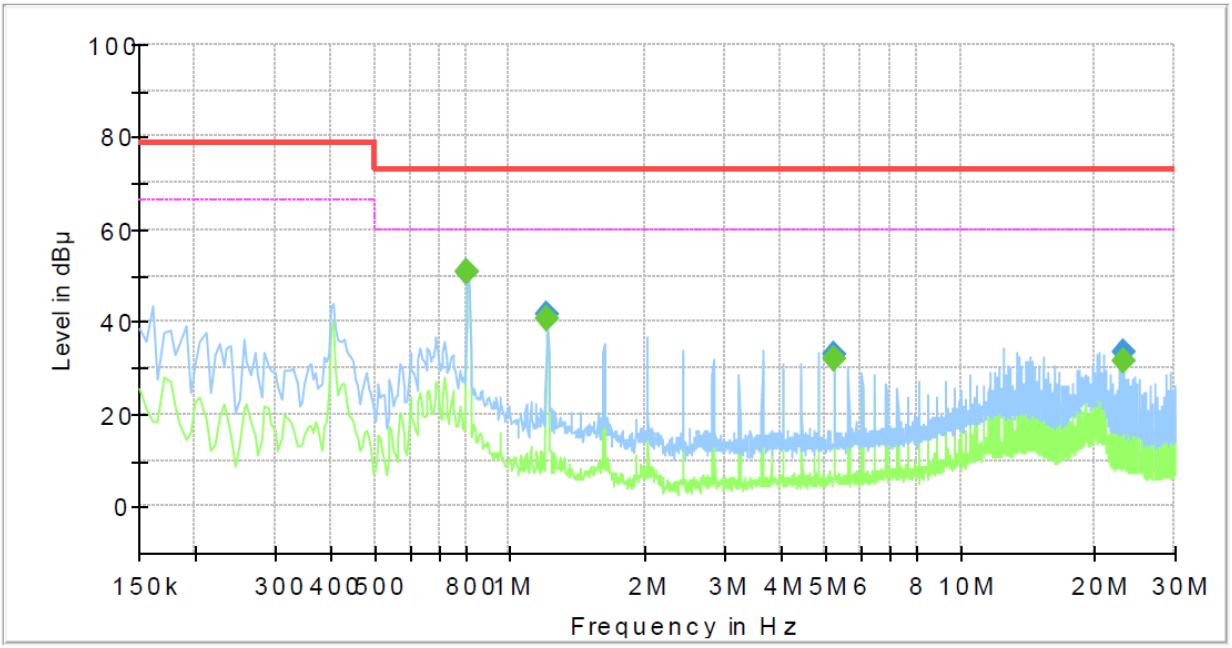
NEUTRAL LINE

# Common Information

| | |
|---|---|
| Test Description: | Conducted Emission |
| Model No.: | SPA-C100W |
| Phase: | N |
| Mode: | |
| Operator Name: | KES |




# Final_Result

| Frequency (MHz) | QuasiPeak (dBµV) | CAverage (dBµV) | Limit (dBµV) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Line | Corr. (dB) |
|---|---|---|---|---|---|---|---|---|
| 0.805000 | --- | 50.70 | 60.00 | 9.30 | 1000.0 | 9.000 | N | 20.0 |
| 0.805000 | 50.78 | --- | 73.00 | 22.22 | 1000.0 | 9.000 | N | 20.0 |
| 1.210000 | --- | 40.82 | 60.00 | 19.18 | 1000.0 | 9.000 | N | 20.1 |
| 1.210000 | 41.41 | --- | 73.00 | 31.59 | 1000.0 | 9.000 | N | 20.1 |
| 5.240000 | --- | 31.92 | 60.00 | 28.08 | 1000.0 | 9.000 | N | 19.7 |
| 5.240000 | 32.81 | --- | 73.00 | 40.19 | 1000.0 | 9.000 | N | 19.7 |
| 23.130000 | --- | 31.46 | 60.00 | 28.54 | 1000.0 | 9.000 | N | 20.2 |
| 23.130000 | 33.54 | --- | 73.00 | 39.46 | 1000.0 | 9.000 | N | 20.2 |

◆ Calculation
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))

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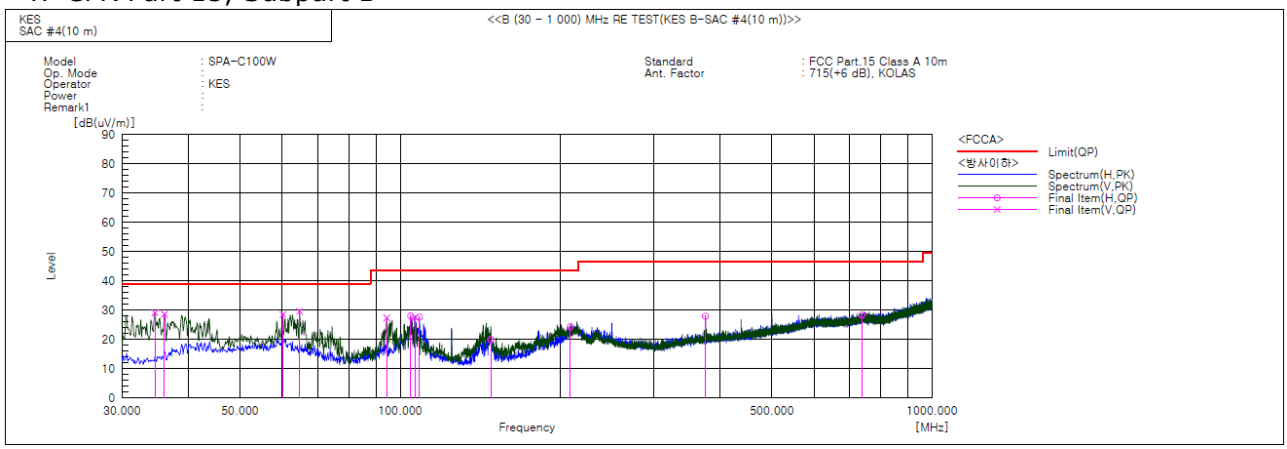
# Radiated Electric Field Emissions(Below 1 ㎓)

- 47 CFR Part 15, Subpart B




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 | 34.608 | V | 53.4 | -24.3 | 29.1 | 39.0 | 9.9 | 100.0 | 277.0 | |
| 2 | 36.063 | V | 52.5 | -23.9 | 28.6 | 39.0 | 10.4 | 100.0 | 236.0 | |
| 3 | 60.191 | V | 50.1 | -21.6 | 28.5 | 39.0 | 10.5 | 109.0 | 45.0 | |
| 4 | 64.678 | V | 52.3 | -22.7 | 29.6 | 39.0 | 9.4 | 100.0 | 165.0 | |
| 5 | 94.384 | V | 49.9 | -22.5 | 27.4 | 43.5 | 16.1 | 176.0 | 71.0 | |
| 6 | 104.690 | H | 50.1 | -22.1 | 28.0 | 43.5 | 15.5 | 400.0 | 317.0 | |
| 7 | 106.630 | V | 49.7 | -22.3 | 27.4 | 43.5 | 16.1 | 100.0 | 56.0 | |
| 8 | 108.813 | H | 50.1 | -22.5 | 27.6 | 43.5 | 15.9 | 391.0 | 328.0 | |
| 9 | 148.098 | H | 44.9 | -24.9 | 20.0 | 43.5 | 23.5 | 399.0 | 38.0 | |
| 10 | 208.844 | H | 44.6 | -20.3 | 24.3 | 43.5 | 19.2 | 400.0 | 183.0 | |
| 11 | 374.956 | H | 41.9 | -14.0 | 27.9 | 46.5 | 18.6 | 400.0 | 12.0 | |
| 12 | 738.706 | H | 34.4 | -6.1 | 28.3 | 46.5 | 18.2 | 400.0 | 143.0 | |

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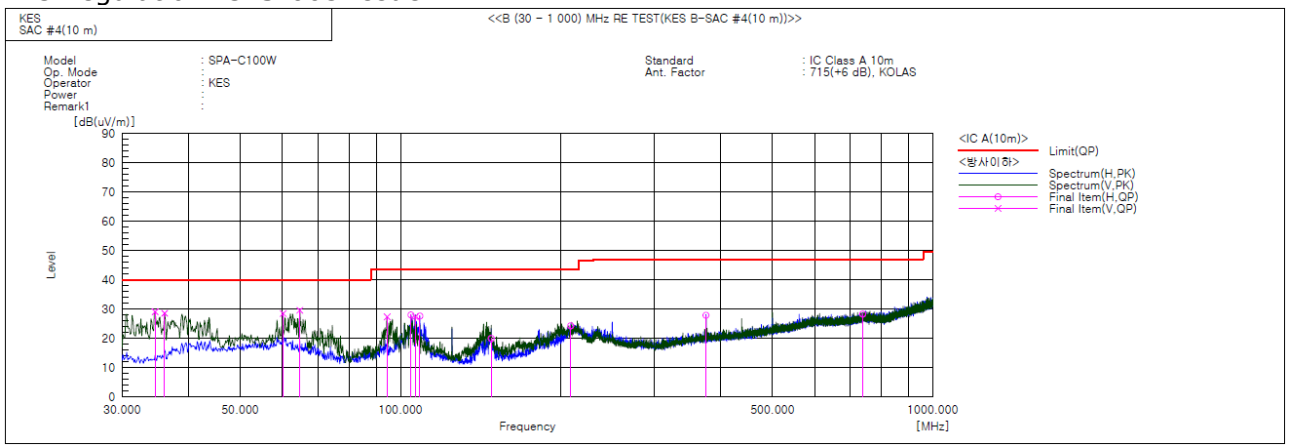
- IC Regulation ICES-003 Issue 7




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 | 34.608 | V | 53.4 | -24.3 | 29.1 | 40.0 | 10.9 | 100.0 | 277.0 | |
| 2 | 36.063 | V | 52.5 | -23.9 | 28.6 | 40.0 | 11.4 | 100.0 | 236.0 | |
| 3 | 60.191 | V | 50.1 | -21.6 | 28.5 | 40.0 | 11.5 | 109.0 | 45.0 | |
| 4 | 64.678 | V | 52.3 | -22.7 | 29.6 | 40.0 | 10.4 | 100.0 | 165.0 | |
| 5 | 94.384 | V | 49.9 | -22.5 | 27.4 | 43.5 | 16.1 | 176.0 | 71.0 | |
| 6 | 104.690 | H | 50.1 | -22.1 | 28.0 | 43.5 | 15.5 | 400.0 | 317.0 | |
| 7 | 106.630 | V | 49.7 | -22.3 | 27.4 | 43.5 | 16.1 | 100.0 | 56.0 | |
| 8 | 108.813 | H | 50.1 | -22.5 | 27.6 | 43.5 | 15.9 | 391.0 | 328.0 | |
| 9 | 148.098 | H | 44.9 | -24.9 | 20.0 | 43.5 | 23.5 | 399.0 | 38.0 | |
| 10 | 208.844 | H | 44.6 | -20.3 | 24.3 | 43.5 | 19.2 | 400.0 | 183.0 | |
| 11 | 374.956 | H | 41.9 | -14.0 | 27.9 | 47.0 | 19.1 | 400.0 | 12.0 | |
| 12 | 738.706 | H | 34.4 | -6.1 | 28.3 | 47.0 | 18.7 | 400.0 | 143.0 | |

♦ Calculation – SAC #4(10 m)
Result(QP) [dB(㎶/m)] = (Reading(QP)[dB(㎶)] + c.f[dB(1/m)]
Margin(QP)[dB] = Limit[dB(㎶/m)] - Result(QP) [dB(㎶/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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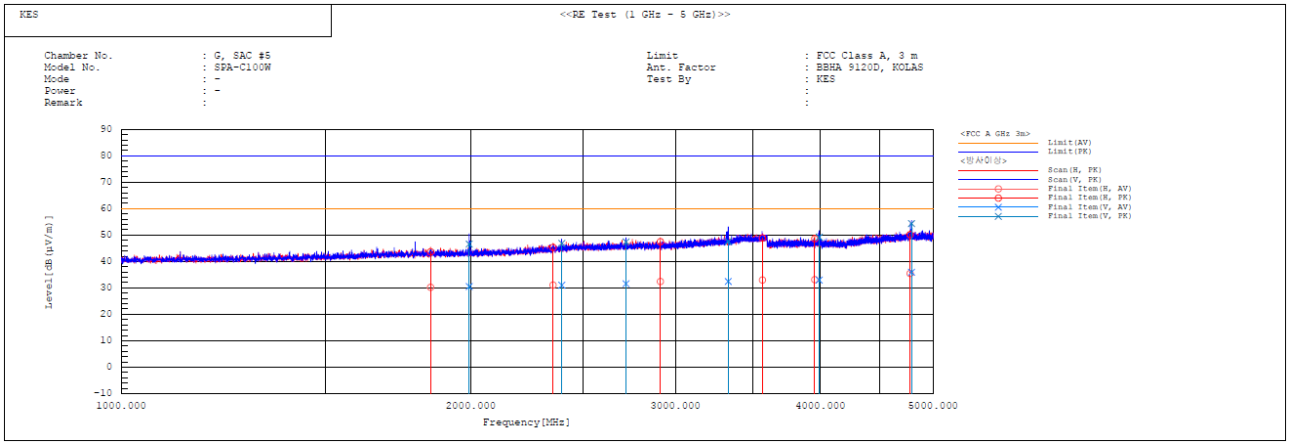
## Radiated Electric Field Emissions(Above 1 ㎓)




Final Result

| No. | Frequency | Pol | Reading AV | Reading PK | c.f | Result AV | Result PK | Limit AV | Limit PK | Margin AV | Margin PK | Height | Angle | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | [MHz] | | [dB(μV)] | [dB(μV)] | [dB(1/m)] | [dB(μV/m)] | [dB(μV/m)] | [dB(μV/m)] | [dB(μV/m)] | [dB] | [dB] | [cm] | [deg] | |
| 1 | 1847.245 | H | 28.8 | 42.3 | 1.4 | 30.2 | 43.7 | 60.0 | 80.0 | 29.8 | 36.3 | 207.0 | 147.5 | |
| 2 | 1994.487 | V | 28.6 | 44.7 | 1.9 | 30.5 | 46.6 | 60.0 | 80.0 | 29.5 | 33.4 | 108.0 | 172.8 | |
| 3 | 2354.855 | H | 28.0 | 42.2 | 3.1 | 31.1 | 45.3 | 60.0 | 80.0 | 28.9 | 34.7 | 396.0 | 350.2 | |
| 4 | 2395.469 | V | 27.7 | 43.6 | 3.3 | 31.0 | 46.9 | 60.0 | 80.0 | 29.0 | 33.1 | 105.0 | 44.4 | |
| 5 | 2720.996 | V | 27.4 | 43.2 | 4.2 | 31.6 | 47.4 | 60.0 | 80.0 | 28.4 | 32.6 | 102.0 | 347.4 | |
| 6 | 2912.666 | H | 27.6 | 42.7 | 4.8 | 32.4 | 47.5 | 60.0 | 80.0 | 27.6 | 32.5 | 396.0 | 203.2 | |
| 7 | 3333.200 | V | 27.0 | 42.2 | 5.4 | 32.4 | 47.6 | 60.0 | 80.0 | 27.6 | 32.4 | 117.0 | 188.9 | |
| 8 | 3566.447 | H | 27.1 | 43.0 | 5.9 | 33.0 | 48.9 | 60.0 | 80.0 | 27.0 | 31.1 | 299.0 | 271.6 | |
| 9 | 3955.009 | H | 26.4 | 41.9 | 6.7 | 33.1 | 48.6 | 60.0 | 80.0 | 26.9 | 31.4 | 400.0 | 217.7 | |
| 10 | 3990.274 | V | 26.3 | 42.5 | 6.7 | 33.0 | 49.2 | 60.0 | 80.0 | 27.0 | 30.8 | 100.0 | 61.1 | |
| 11 | 4778.883 | H | 25.6 | 40.3 | 9.9 | 35.5 | 50.2 | 60.0 | 80.0 | 24.5 | 29.8 | 391.0 | 214.3 | |
| 12 | 4792.280 | V | 25.9 | 44.4 | 10.0 | 35.9 | 54.4 | 60.0 | 80.0 | 24.1 | 25.6 | 108.0 | 44.4 | |

♦ 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

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# Test Setup Photos and Configuration

## Conducted Emissions at Mains Power Ports

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## Radiated Electric Field Emissions(Below 1 ㎓)

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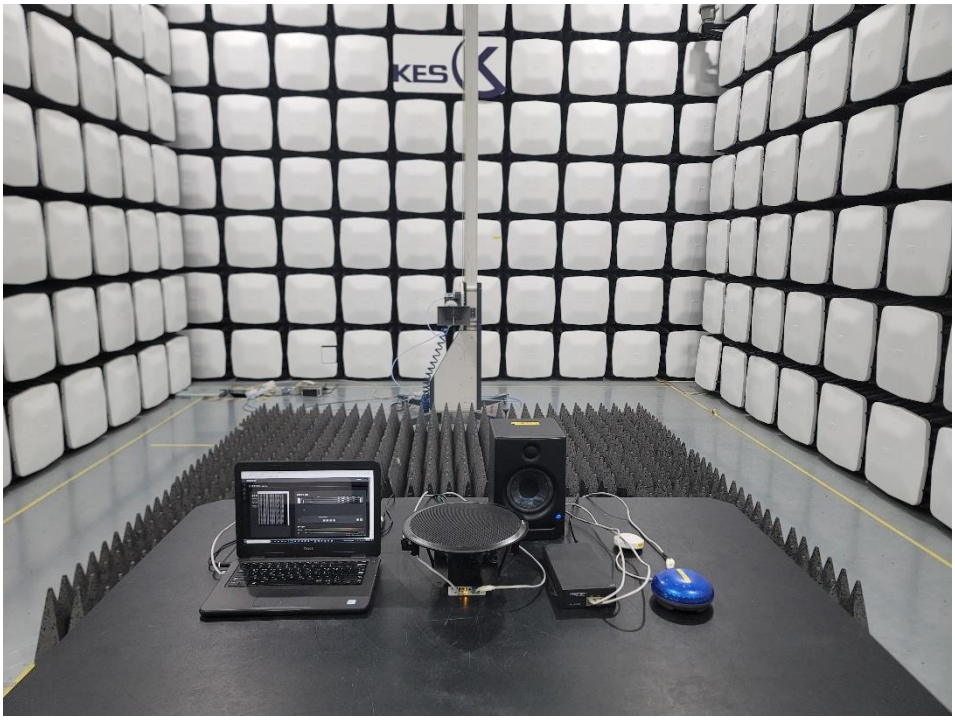
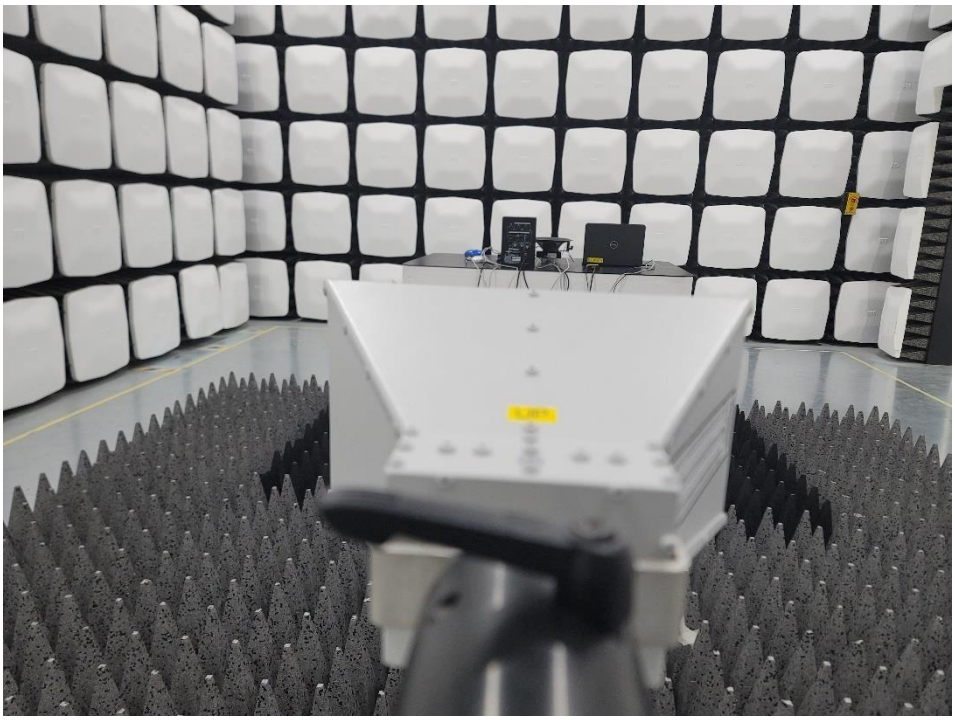
## Radiated Electric Field Emissions(Above 1 ㎓)





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# EUT External Photographs

(Top)

(Bottom)

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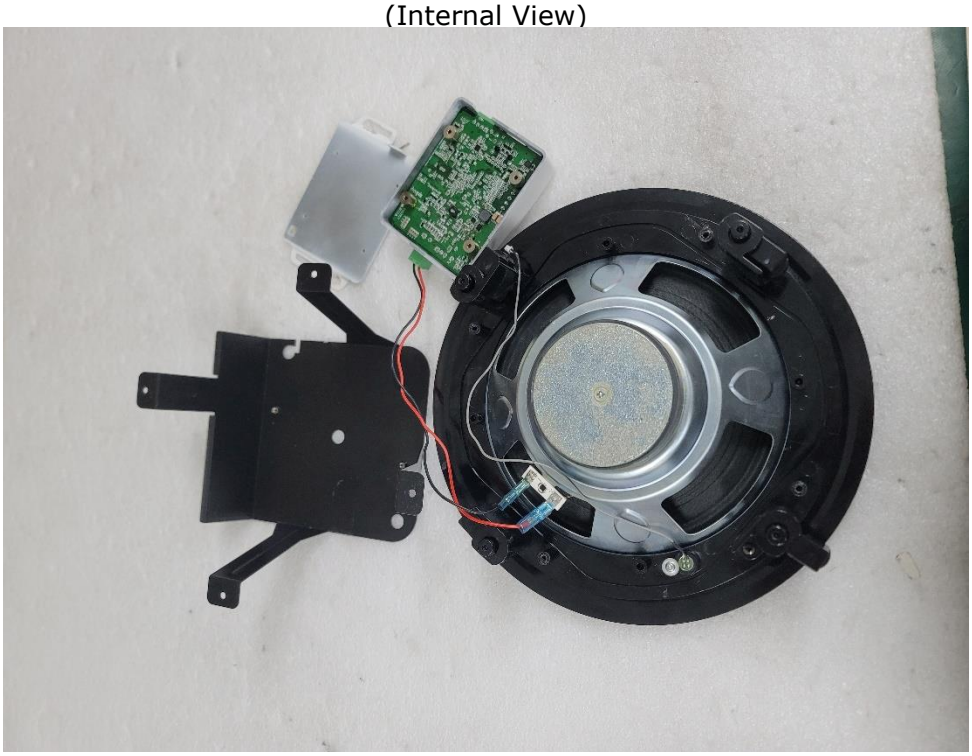
# EUT Internal Photographs

(Internal View)



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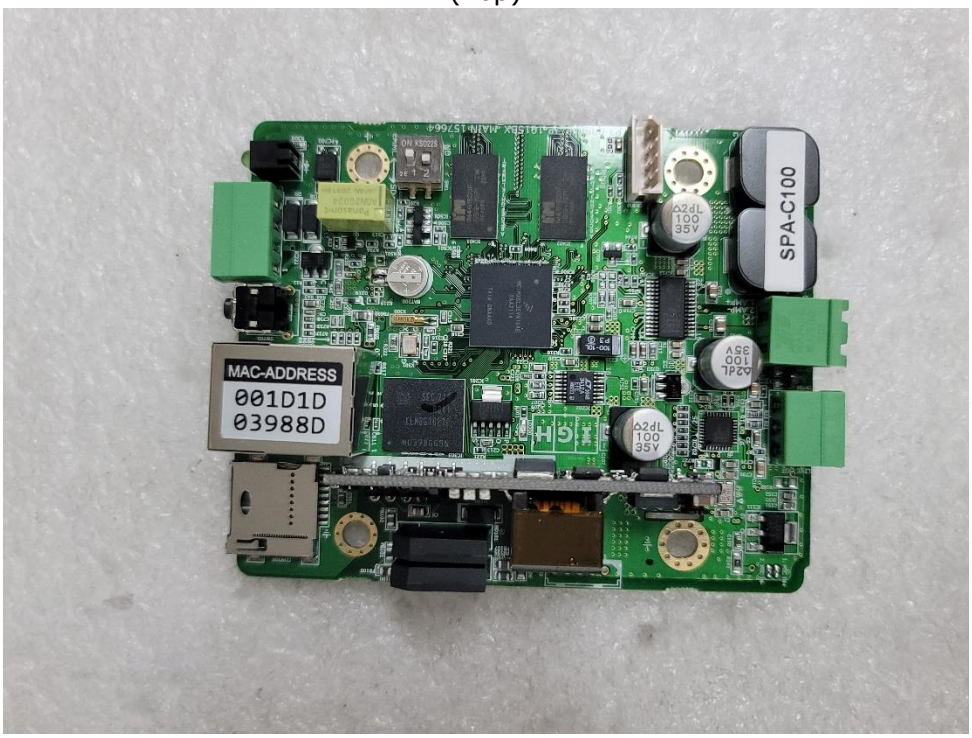
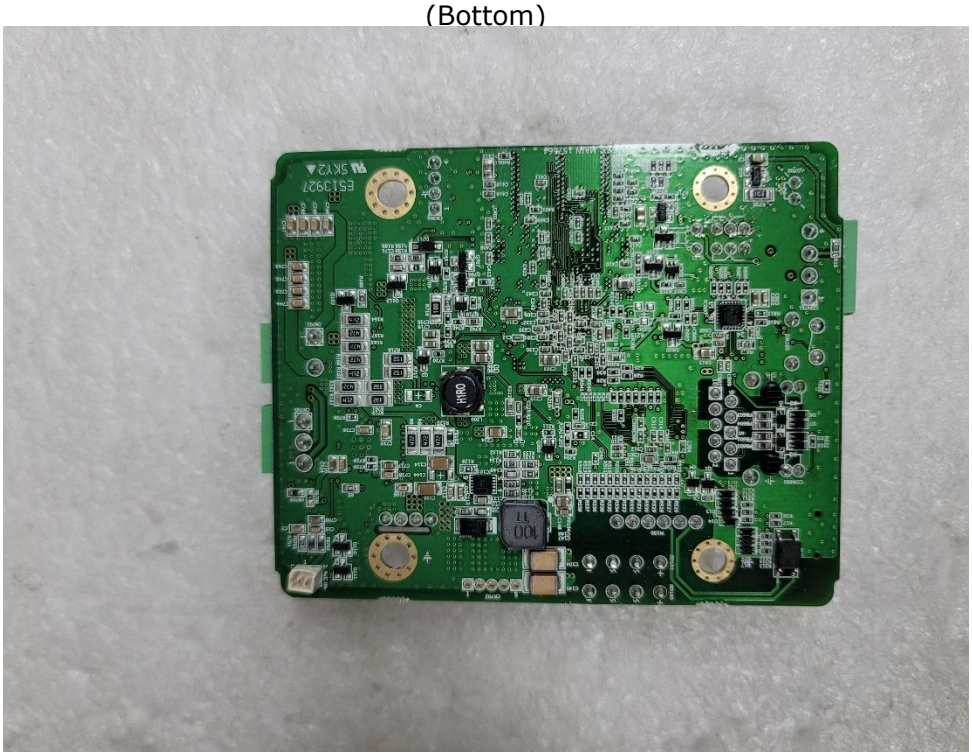
# EUT Internal View – Module Board

(Top)




(Bottom)



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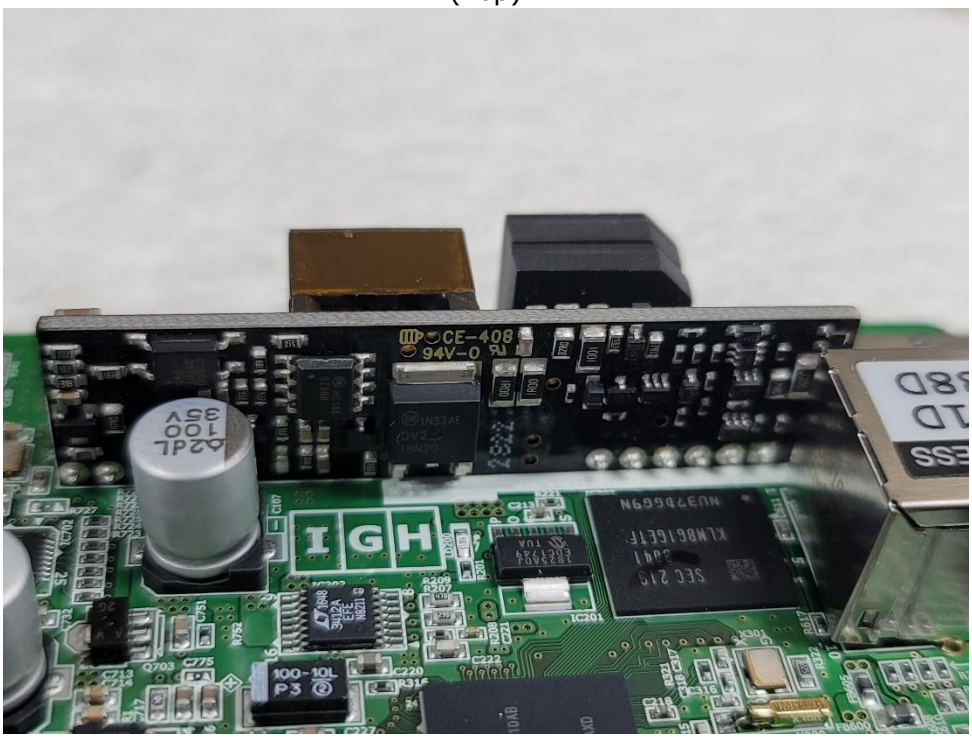
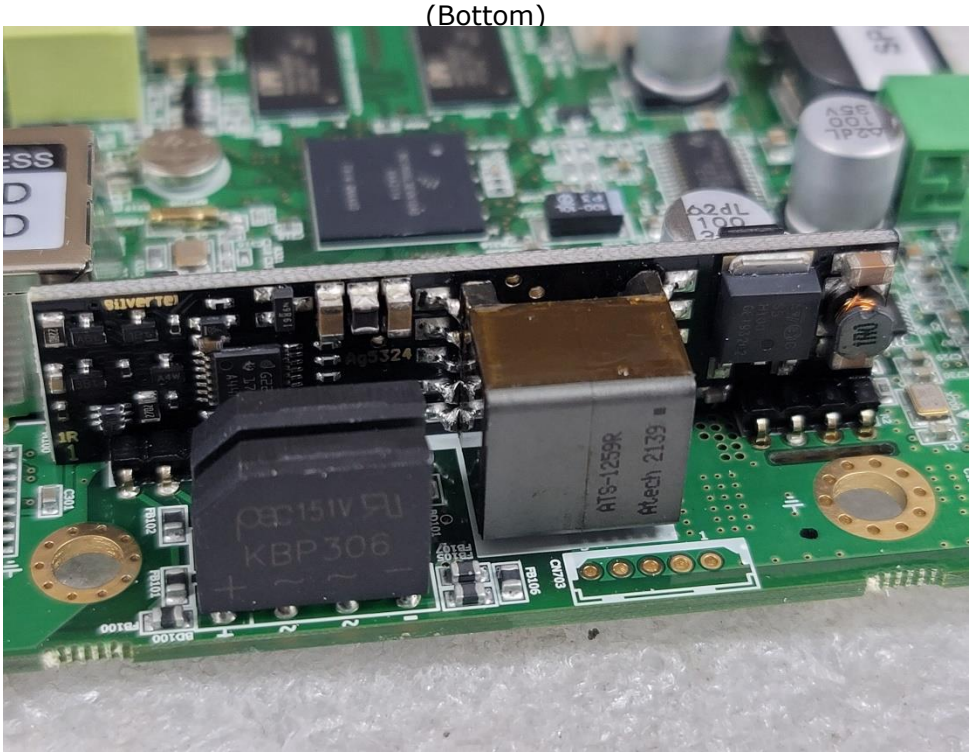
# EUT Internal View – Module Sub Board

(Top)




(Bottom)

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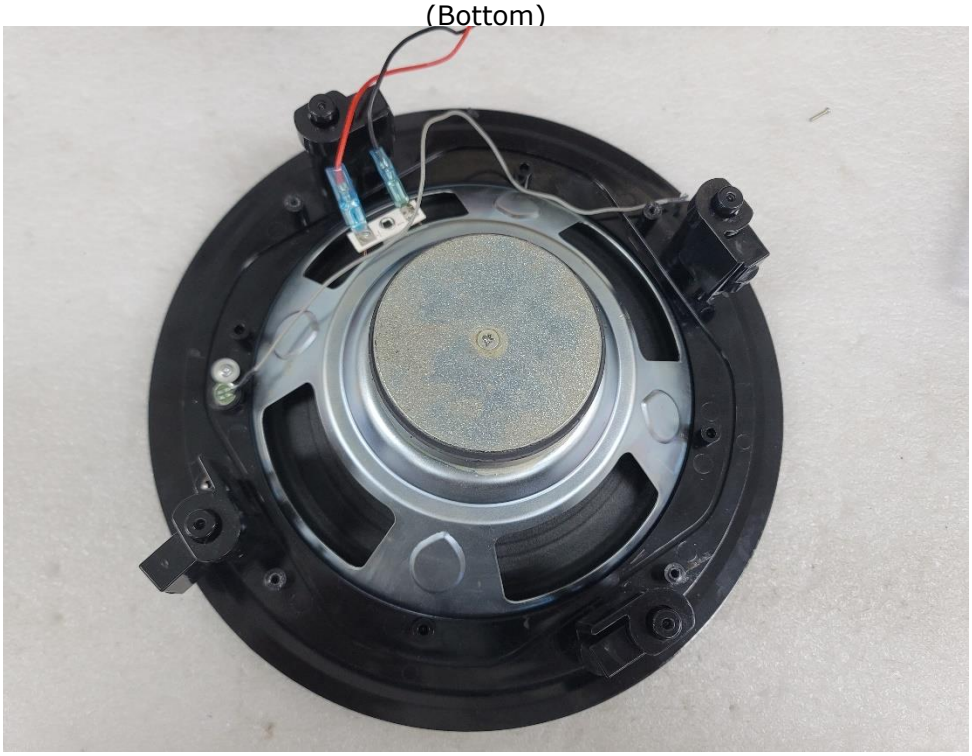
# EUT Internal View – Speaker

(Top)

(Bottom)



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# Label Photographs

## FCC Label

Hanwha Vision Co., Ltd

SPA-C100W

## 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.

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