



## EMC TEST REPORT For VCCI

Test Report No. : KES-EM-20T0367-R1  
Date of Issue : Jun. 24, 2020  
Product name : CAMERA HOUSING  
Model/Type No. : SHB-9000H  
Variant Model : SHB-9000  
Applicant : Hanwha Techwin Co., Ltd.  
Applicant Address : 6, Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si,  
Gyeonggi-do, Republic of Korea  
Manufacturer : 1. HANWHA TECHWIN (TIANJIN) CO.,LTD.  
2. HANWHA TECHWIN SECURITY VIETNAM CO.,LTD.  
3. D-TECH CO.,LTD.  
Manufacturer Address : 1. No.11 Weiliu Rd, Micro-Electronic Industrial Park, TEDA, Tianjin,  
300385, People's Republic of China  
2. Lot O-2, Que Vo Industrial Zone extended area,  
Nam Son commune, Bac Ninh city, Bac Ninh province, Vietnam  
3. 173-25, Saneop-ro, Gwonseon-gu, Suwon-si, Gyeonggi-do,  
Korea (Suwon Industrial Complex)  
Date of Receipt : May. 22, 2020  
Test date : Jun. 09, 2020 ~ Jun. 10, 2020  
Test Results : ☒ **In Compliance** ☐ **Not in Compliance**

Tested by

Min Seong, Kim  
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                               |
|---------------|-------------------|------------------------------------------------|
| Jun. 18, 2020 | KES-EM-20T0367    | Issued                                         |
| Jun. 24, 2020 | KES-EM-20T0367-R1 | Reissue due to the addition of a derived model |
|               |                   |                                                |
|               |                   |                                                |
|               |                   |                                                |
|               |                   |                                                |
|               |                   |                                                |
|               |                   |                                                |
|               |                   |                                                |
|               |                   |                                                |

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## 1.0 General Product Description

### Main Specifications of EUT are:

|                                     | SHB-9000H                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Environmental                       |                                                                                                                                                                                                                                                                                                                                                         |
| Operating Temperature / Humidity    | -50°C ~ +60°C(+°F ~ +°F) / 10-100% RH (condensing)<br>Heating & Cooling Are Independently Thermostat Controlled<br>( FAN 45°C ON/35°C OFF, HEATER 5°C ON/ 15°C OFF )                                                                                                                                                                                    |
| Storage Temperature / Humidity      | -50°C ~ +60°C(-58°F ~ +140°F) / Less than 90% RH                                                                                                                                                                                                                                                                                                        |
| Certification                       | Safety(UL, NOM), IP66, EMC(FCC, CE, RCM, KC)                                                                                                                                                                                                                                                                                                            |
| Electrical                          |                                                                                                                                                                                                                                                                                                                                                         |
| Input Voltage                       | 220 VAC                                                                                                                                                                                                                                                                                                                                                 |
| Power Consumption                   | AC FAN(10W) : 5W * 2EA , AC HEATER(50W) : 3.7W[MAX 25W] * 2EA                                                                                                                                                                                                                                                                                           |
| Mechanical                          |                                                                                                                                                                                                                                                                                                                                                         |
| Color / Material                    | White / Aluminum (Body, Sun Shield) , FRONT&REAR END CAP (ABS)                                                                                                                                                                                                                                                                                          |
| RAL Code                            | None                                                                                                                                                                                                                                                                                                                                                    |
| Product dimensions (HxWxL) / weight | External Dimension : 300(W) X 184(H) X 700(L)mm<br>Weight : 6,2 Kg                                                                                                                                                                                                                                                                                      |
| Accessories                         |                                                                                                                                                                                                                                                                                                                                                         |
| Included                            | <ul style="list-style-type: none"><li>- SCREW 1/4-20 X 1/2 HEX HD SUS (QTY : 3)</li><li>- SCREW 1/4-20 X 3/8 HEX HD SUS (QTY : 1)</li><li>- SCREW 1/4-20 X 5/8 HEX HD SUS (QTY : 1)</li><li>- WASHER SPRING M6 (QTY : 5)</li><li>- WASHER FLAT M6 (QTY : 3)</li><li>- Custom alignment clip &amp; spacer(Aluminum) (QTY : 1)</li><li>- Manual</li></ul> |

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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.

Voltage ☐ 230 Vac ☒ 100 Vac ☐ 24 Vac ☐ 12 Vdc ☐ PoE

Frequency ☐ 50 Hz ☒ 60 Hz ☐ Hz

## 1.2 Variant Model Differences

Add derivative model for vendor management

## 1.3 Device Modifications

Not applicable

## 1.4 Equipment Under Test

| Description             | Model Number  | Serial Number | Manufacturer                              | Remarks |
|-------------------------|---------------|---------------|-------------------------------------------|---------|
| CAMERA HOUSING          | SHB-9000H     | -             | HANWHA TECHWIN (TIANJIN) CO., LTD         | EUT     |
| Switching Power Adapter | FSP060-DIBAN2 | -             | Zhonghan Electronics (Shenzhen) Co., Ltd. | EUT     |

## 1.5 Support Equipments

| Description      | Model Number | Serial Number | Manufacturer                      | Remarks |
|------------------|--------------|---------------|-----------------------------------|---------|
| Camera           | TNB-9000     | -             | HANWHA TECHWIN (TIANJIN) CO., LTD | -       |
| Notebook         | LG15N54      | 410NZGK015231 | LG Electronics Co., Ltd.          | -       |
| Notebook Adapter | ADP-90WH B   | 84ZW19F1663   | DELTA ELECTRONICS (JIANGSU) LTD.  | -       |

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## 1.6 External I/O Cabling

| Start       |          | END         |          | Cable Spec. |        |
|-------------|----------|-------------|----------|-------------|--------|
| Description | I/O Port | Description | I/O Port | Length      | Shield |
| Camera      | LAN      | Notebook    | RJ-45    | 3.0         | U      |

\* Unshielded=U, Shielded=S

## 1.7 EUT Operating Mode(s)

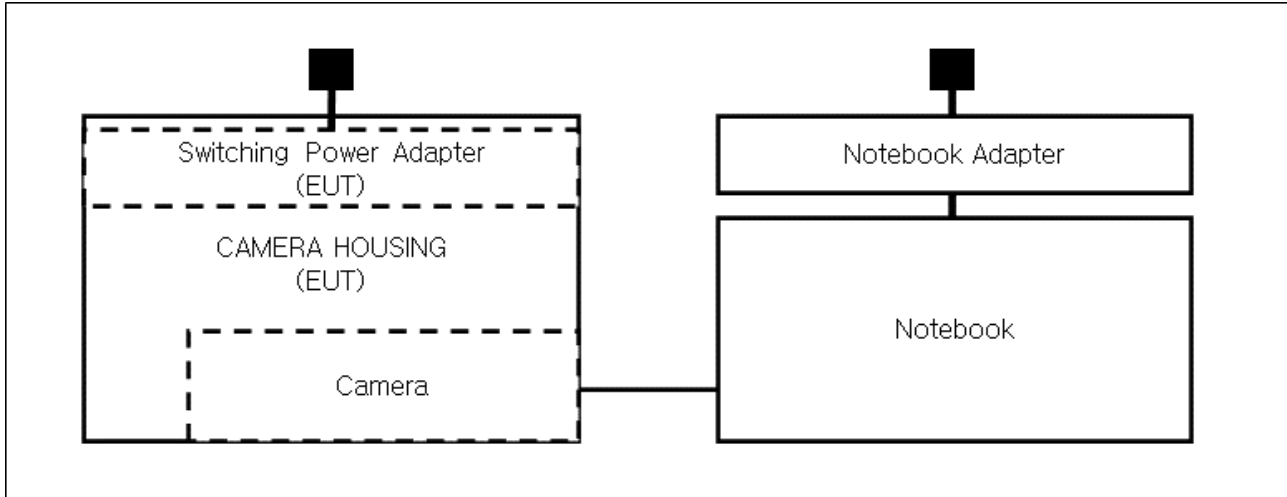
| Test mode      | operating                                                                                                                                                    |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Operation mode | checked that the camera video output was working properly in the web viewer and used the ping test to verify that the network behavior was working properly. |

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

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## 1.8 Configuration

■ AC Main  
 □ DC Main



---

## **1.9 Remarks when standards applied**

Conducted Emissions at Telecommunication Ports test is not applied because the EUT is equipped with an analog or network camera inside.

## **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. The sites are constructed in conformance with the requirements of ANSI C63.4:2014 and CISPR 16-1-4:2012

## 1.12 Laboratory Accreditations and Listings

| Country       | Agency         | Scope of Accreditation                                                                                                                                                                                     | Logo                                                                                                                           |
|---------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| KOREA         | <b>RRA</b>     | EMI (3 m & 10 m Semi-Anechoic Chamber ,<br>10 m Open Area and conducted test site)<br>EMS (ESD, RS, EFT/Burst, Surge, CS,<br>Magnetic, Dips and interruptions)                                             | <br>KR0100                                  |
| International | <b>KOLAS</b>   | EMI (3 m & 10 m Semi-Anechoic Chamber ,<br>and conducted test site)<br>EMS (ESD, RS, EFT/Burst, Surge, CS,<br>Magnetic, Dips and interruptions)                                                            | <br>KT489                                   |
| USA           | <b>FCC</b>     | 3 m & 10 m Semi-Anechoic Chamber, 10 m<br>Open Area and Conducted test site to<br>perform FCC Part 15/18 measurements.                                                                                     | <br>KR0100                                  |
| Canada        | <b>ISED</b>    | 3 m & 10 m Semi-Anechoic Chamber and<br>Conducted test site                                                                                                                                                | <br>23298-1                                |
| JAPAN         | <b>VCCI</b>    | Mains Ports Conducted Interference<br>Measurement, Telecommunication Ports<br>Conducted Disturbance Measurement and<br>Radiation 10 meter site, Facility for<br>measuring radiated disturbance above 1 GHz | <br>R-20056, C-20036,<br>T-20040, G-20057 |
| Europe        | <b>TÜV SÜD</b> | EMI (3 m & 10 m Semi-Anechoic Chamber ,<br>10 m Open Area and conducted test site)<br>EMS (ESD, RS, EFT/Burst, Surge, CS,<br>Magnetic, Dips and interruptions)                                             | <br>CARAT 001633 0003                     |



## 2.0 Test Regulations

The emissions tests were performed according to following regulations:

☐ **EMC – Directive 2014/30/EU**

☐ EN 61000-6-3:2011

☐ EN 61000-6-1:2007

☐ EN 61000-6-4:2007 +A1:2011

☐ EN 61000-6-2:2005

☐ EN 55011:2007 +A1:2010

☐ Group 1  
☐ Class A

☐ Group 2  
☐ Class B

☐ EN 55014-1:2006 +A2:2011

☐ EN 55014-2:1997 +A2:2008

☐ EN 55015:2013

☐ EN 61547 :2009

☐ EN 55032:2015

☐ Class A

☐ Class B

☐ EN 55024:2010 +A1:2015

☐ EN 50130-4:2011 +A1:2014

☐ EN 61000-3-2:2014

☐ EN 61000-3-3:2013

☐ EN 61326-1:2013



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- |                                                               |                                             |                                  |
|---------------------------------------------------------------|---------------------------------------------|----------------------------------|
| <input checked="" type="checkbox"/> <b>VCCI-CISPR 32:2016</b> | <input checked="" type="checkbox"/> Class A | <input type="checkbox"/> Class B |
| <input type="checkbox"/> <b>AS/NZS CISPR32:2015</b>           | <input type="checkbox"/> Class A            | <input type="checkbox"/> Class B |
| <input type="checkbox"/> <b>47 CFR Part 15, Subpart B</b>     |                                             |                                  |
| <input type="checkbox"/> CISPR 22:2009 +A1:2010               | <input type="checkbox"/> Class A            | <input type="checkbox"/> Class B |
| <input type="checkbox"/> ANSI C63.4-2009                      |                                             |                                  |
| <input type="checkbox"/> <b>IC Regulation ICES-003 : 2016</b> |                                             |                                  |
| <input type="checkbox"/> CAN/CSA CISPR 22-10                  | <input type="checkbox"/> Class A            | <input type="checkbox"/> Class B |
| <input type="checkbox"/> ANSI C63.4-2014                      |                                             |                                  |
| <br><input type="checkbox"/> <b>RE- Directive 2014/53/EU</b>  |                                             |                                  |
| <input type="checkbox"/> EN 301 489-1 V1.9.2                  |                                             |                                  |
| <input type="checkbox"/> Equipment for fixed use              |                                             |                                  |
| <input type="checkbox"/> Equipment for vehicular use          |                                             |                                  |
| <input type="checkbox"/> Equipment for portable use           |                                             |                                  |
| <input type="checkbox"/> EN 301 489-3 V1.6.1                  |                                             |                                  |
| <input type="checkbox"/> EN 301 489-17 V2.2.1                 |                                             |                                  |
| <input type="checkbox"/> EN 60945:2002                        |                                             |                                  |

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## 2.1 Conducted Emissions Mains Power Ports

**Test Date**

Jun. 09, 2020

**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, 20, 2021 |
| <input checked="" type="checkbox"/> | LISN              | ENV216       | R & S        | 101787        | 01, 02, 2021 |
| <input checked="" type="checkbox"/> | LISN              | ESH2-Z5      | R & S        | 100450        | 01, 02, 2021 |
| <input checked="" type="checkbox"/> | PULSE LIMITER     | ESH3-Z2      | R & S        | 101915        | 01, 02, 2021 |

**Test Conditions**

Temperature: 25,0 °C  
Relative Humidity: 48,6 % 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

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        | 01, 20, 2021 |
| <input type="checkbox"/> | LISN              | ENV216       | R & S        | 101787        | 01, 02, 2021 |
| <input type="checkbox"/> | LISN              | ESH2-Z5      | R & S        | 100450        | 01, 02, 2021 |
| <input type="checkbox"/> | PULSE LIMITER     | ESH3-Z2      | R & S        | 101915        | 01, 02, 2021 |
| <input type="checkbox"/> | 8-WIRE ISN CAT3,5 | ENY81        | R & S        | 100174        | 01, 07, 2021 |
| <input type="checkbox"/> | 8-WIRE ISN CAT6   | ENY81-CAT6   | R & S        | 101665        | 01, 07, 2021 |
| <input type="checkbox"/> | CDN               | CDNS502A     | TESEQ        | 40431         | 01, 02, 2021 |

### 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

Does not apply because no IP is assigned



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

### Test Date

Jun. 09, 2020

### 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, 2021 |
| <input checked="" type="checkbox"/> | AMPLIFIER                | SCU 01       | R & S            | 100603        | 11, 25, 2020 |
| <input checked="" type="checkbox"/> | TRILOG-BROADBAND ANTENNA | VULB9163     | Schwarzbeck      | 715           | 11, 29, 2020 |
| <input checked="" type="checkbox"/> | ATTENUATOR               | 8491A        | HP               | 32173         | 03, 10, 2021 |

### Test Conditions

Temperature: 25,1 °C  
Relative Humidity: 48,7 % 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

Jun. 10, 2020

### 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, 06, 2020 |
| <input checked="" type="checkbox"/> | PREAMPLIFIER               | 8449B        | AGILENT          | 3008A01967    | 04, 20, 2021 |
| <input type="checkbox"/>            | ATTENUATOR                 | 8491A        | HP               | 35496         | 03, 10, 2021 |
| <input checked="" type="checkbox"/> | DOUBLE RIDGED HORN ANTENNA | SAS-571      | A.H.SYSTEM,INC   | 781           | 03, 11, 2021 |

### Test Conditions

Temperature: 24,5 °C  
Relative Humidity: 48,3 % 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.

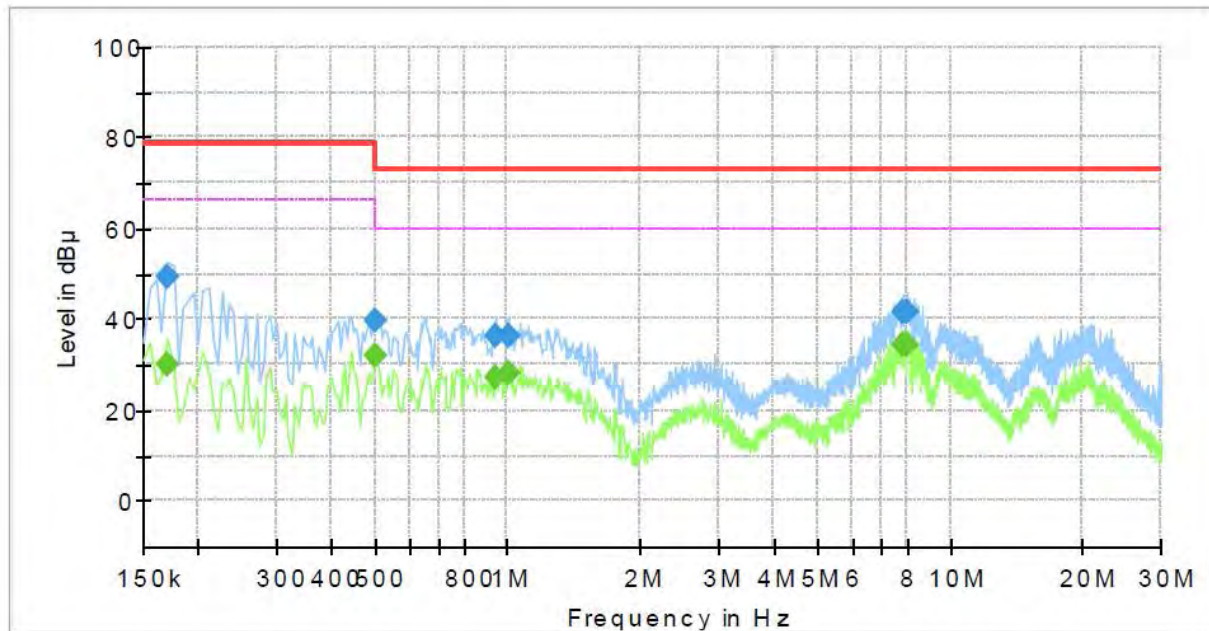
## APPENDIX A – TEST DATA

### Conducted Emissions at Mains Power Ports

HOT LINE

#### Common Information

|                   |                    |
|-------------------|--------------------|
| Test Description: | Conducted Emission |
| Model No.:        | SHB-9000H          |
| Phase:            | -                  |
| Mode:             | H                  |
| Operator Name:    | KES                |



#### Final Result

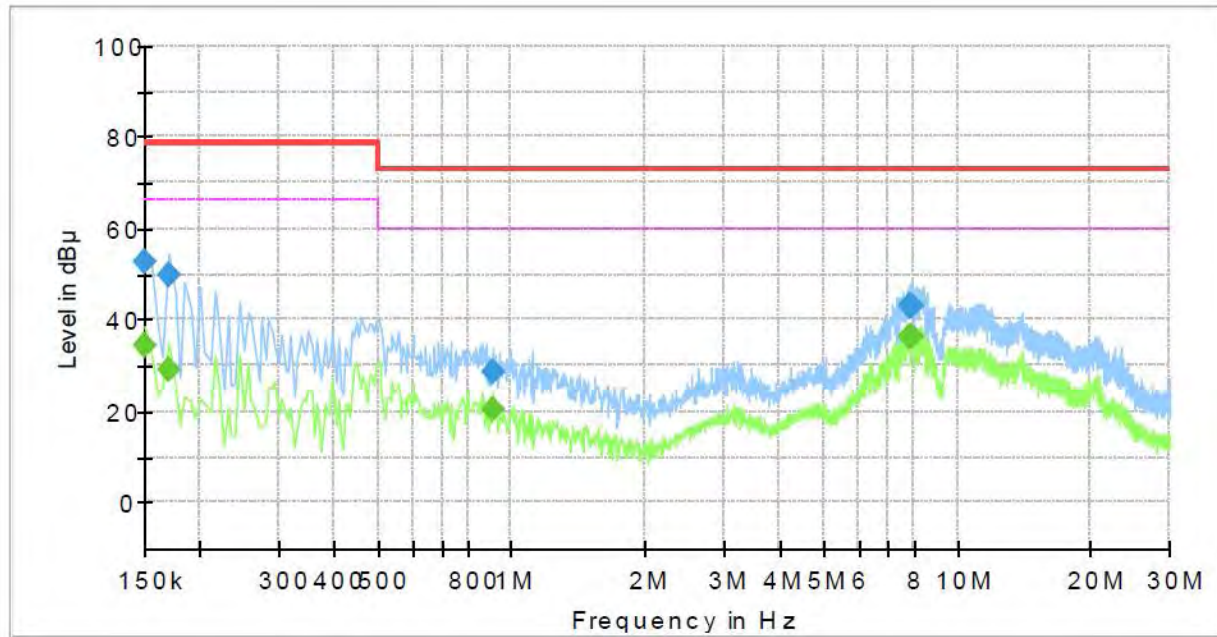
| Frequency (MHz) | QuasiPeak (dBμV) | CAverage (dBμV) | Limit (dBμV) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Line | Corr. (dB) |
|-----------------|------------------|-----------------|--------------|-------------|-----------------|-----------------|------|------------|
| 0.170000        | ---              | 29.98           | 66.00        | 36.02       | 1000.0          | 9.000           | L1   | 19.5       |
| 0.170000        | 49.58            | ---             | 79.00        | 29.42       | 1000.0          | 9.000           | L1   | 19.5       |
| 0.500000        | ---              | 32.10           | 66.00        | 33.90       | 1000.0          | 9.000           | L1   | 19.6       |
| 0.500000        | 39.82            | ---             | 73.00        | 33.18       | 1000.0          | 9.000           | L1   | 19.6       |
| 0.940000        | ---              | 27.18           | 60.00        | 32.82       | 1000.0          | 9.000           | L1   | 19.7       |
| 0.940000        | 36.26            | ---             | 73.00        | 36.74       | 1000.0          | 9.000           | L1   | 19.7       |
| 1.005000        | ---              | 27.93           | 60.00        | 32.07       | 1000.0          | 9.000           | L1   | 19.7       |
| 1.005000        | 36.42            | ---             | 73.00        | 36.58       | 1000.0          | 9.000           | L1   | 19.7       |
| 7.785000        | ---              | 34.48           | 60.00        | 25.52       | 1000.0          | 9.000           | L1   | 19.9       |
| 7.785000        | 41.49            | ---             | 73.00        | 31.51       | 1000.0          | 9.000           | L1   | 19.9       |
| 7.965000        | ---              | 34.28           | 60.00        | 25.72       | 1000.0          | 9.000           | L1   | 19.9       |
| 7.965000        | 41.75            | ---             | 73.00        | 31.25       | 1000.0          | 9.000           | L1   | 19.9       |

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## NEUTRAL LINE

### Common Information

|                   |                    |
|-------------------|--------------------|
| Test Description: | Conducted Emission |
| Model No.:        | SHB-9000H          |
| Phase:            | -                  |
| Mode:             | N                  |
| Operator Name:    | KES                |



### Final Result

| Frequency (MHz) | QuasiPeak (dBμV) | CAverage (dBμV) | Limit (dBμV) | Margin (dB) | Meas. Time (ms) | Bandwidth (kHz) | Line | Corr. (dB) |
|-----------------|------------------|-----------------|--------------|-------------|-----------------|-----------------|------|------------|
| 0.150000        | ---              | 34.50           | 66.00        | 31.50       | 1000.0          | 9.000           | N    | 19.5       |
| 0.150000        | 52.63            | ---             | 79.00        | 26.37       | 1000.0          | 9.000           | N    | 19.5       |
| 0.170000        | ---              | 29.02           | 66.00        | 36.98       | 1000.0          | 9.000           | N    | 19.5       |
| 0.170000        | 49.76            | ---             | 79.00        | 29.24       | 1000.0          | 9.000           | N    | 19.5       |
| 0.905000        | ---              | 20.29           | 60.00        | 39.71       | 1000.0          | 9.000           | N    | 19.6       |
| 0.905000        | 28.37            | ---             | 73.00        | 44.63       | 1000.0          | 9.000           | N    | 19.6       |
| 7.795000        | ---              | 36.25           | 60.00        | 23.75       | 1000.0          | 9.000           | N    | 19.9       |
| 7.795000        | 43.23            | ---             | 73.00        | 29.77       | 1000.0          | 9.000           | N    | 19.9       |
| 7.870000        | ---              | 36.29           | 60.00        | 23.71       | 1000.0          | 9.000           | N    | 19.9       |
| 7.870000        | 43.27            | ---             | 73.00        | 29.73       | 1000.0          | 9.000           | N    | 19.9       |

#### ◆ 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

[1 000 Mbps]

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

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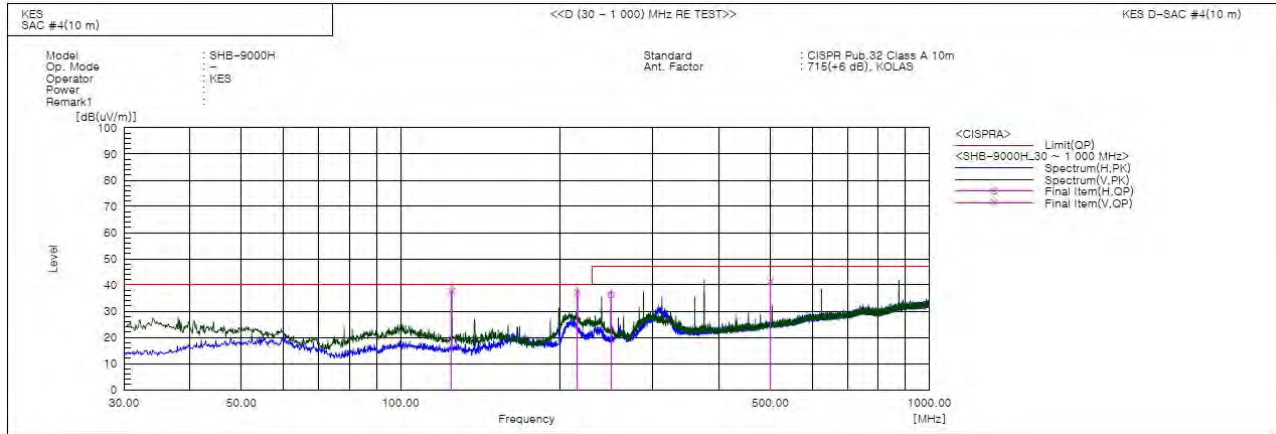
3701, 40, Simin-daero 365beon-gil,  
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### Radiated Electric Field Emissions(Below 1 GHz)



#### Final Result

| No. | Frequency<br>[MHz] | (P) | Reading<br>QP<br>[dB(uV)] | c.f<br>[dB(1/m)] | Result<br>QP<br>[dB(uV/m)] | Limit<br>QP<br>[dB(uV/m)] | Margin<br>QP<br>[dB] | Height<br>[cm] | Angle<br>[deg] | Remark |
|-----|--------------------|-----|---------------------------|------------------|----------------------------|---------------------------|----------------------|----------------|----------------|--------|
| 1   | 124.939            | V   | 62.6                      | -25.0            | 37.6                       | 40.0                      | 2.4                  | 100.0          | 111.0          |        |
| 2   | 215.998            | V   | 58.1                      | -20.9            | 37.2                       | 40.0                      | 2.8                  | 127.0          | 96.0           |        |
| 3   | 249.948            | H   | 56.3                      | -20.1            | 36.2                       | 47.0                      | 10.8                 | 338.0          | 285.0          |        |
| 4   | 499.965            | V   | 54.1                      | -12.9            | 41.2                       | 47.0                      | 5.8                  | 183.0          | 333.0          |        |

#### ◆ Calculation

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

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

Correction Factor : ANT FACTOR + Cable loss

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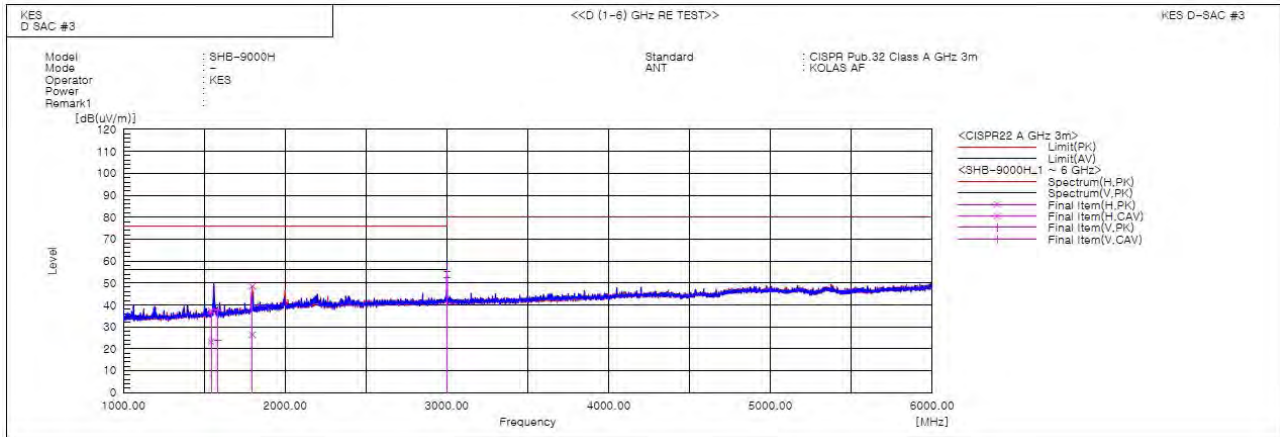
3701, 40, Simin-daero 365beon-gil,  
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### Radiated Electric Field Emissions(Above 1 GHz)



#### 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   | 1542.973        | H   | 43.4                | 29.2                 | -6.2          | 37.2                 | 23.0                  | 76.0                | 56.0                | 38.8           | 33.0            | 100.0       | 41.1        |        |
| 2   | 1583.465        | V   | 43.5                | 29.8                 | -5.9          | 37.6                 | 23.9                  | 76.0                | 56.0                | 38.4           | 32.1            | 100.0       | 330.5       |        |
| 3   | 1796.660        | H   | 52.1                | 30.1                 | -3.7          | 48.4                 | 26.4                  | 76.0                | 56.0                | 27.6           | 29.6            | 100.0       | 68.7        |        |
| 4   | 2999.980        | V   | 53.8                | 50.9                 | 1.3           | 55.1                 | 52.2                  | 76.0                | 56.0                | 20.9           | 3.8             | 100.0       | 154.5       |        |

#### ◆ 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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**Conducted Emissions at Telecommunication Ports**

N/A

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## Radiated Electric Field Emissions(Below 1 GHz)



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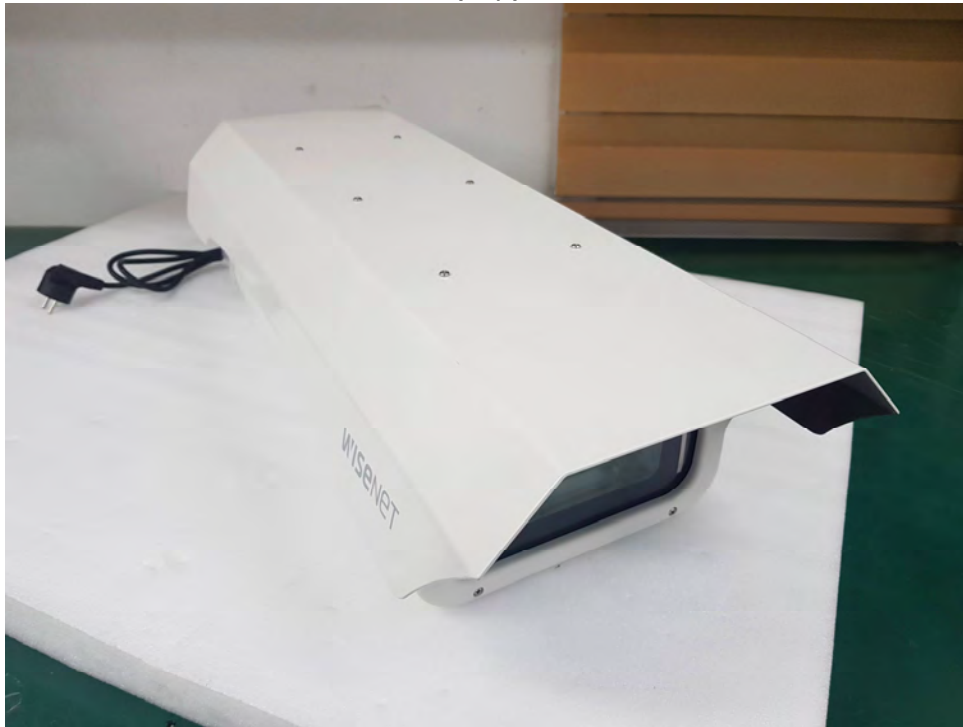
## **Radiated Electric Field Emissions(Above 1 GHz)**



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## EUT External Photographs

(Top)



(Bottom)



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## EUT Internal Photographs

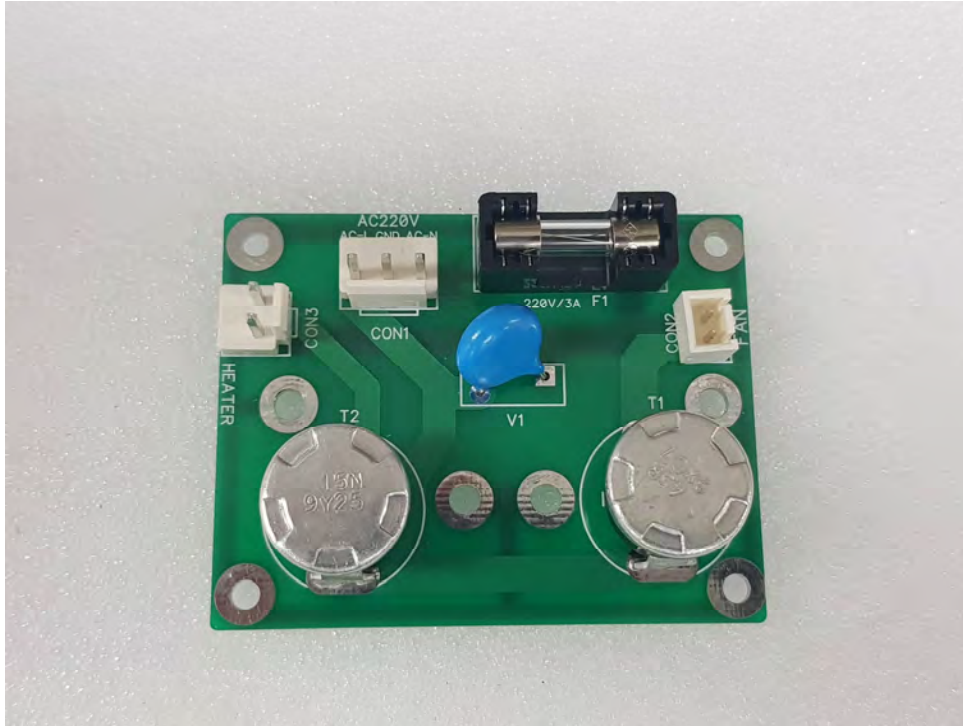
(Internal View)



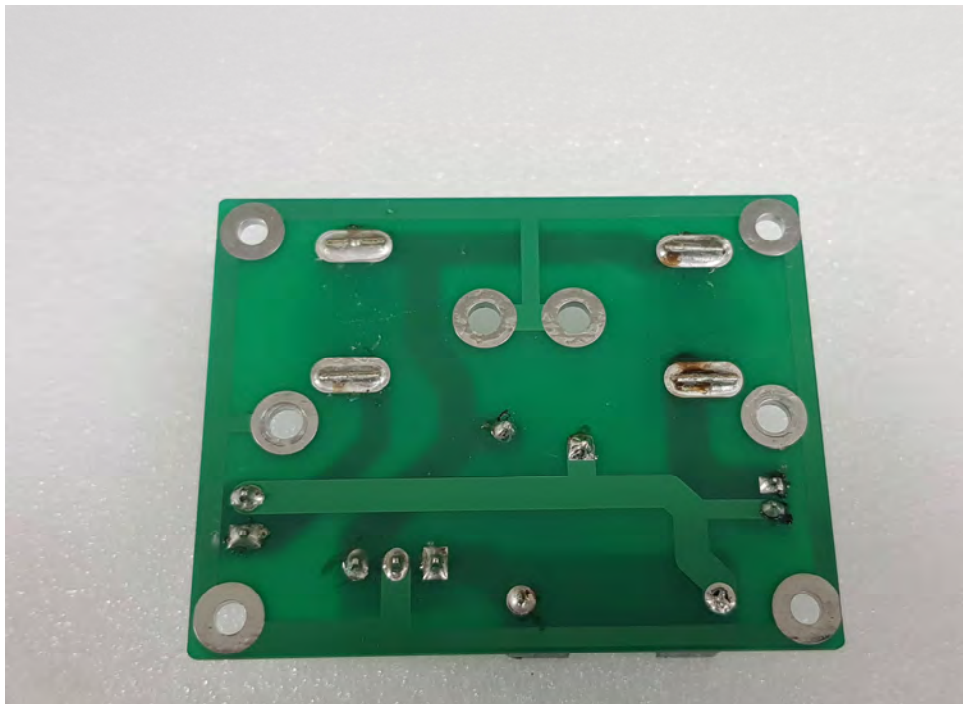
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## EUT Internal View – Power Board

(Top)



(Bottom)



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## Label Photographs



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VCCI-A