

# TEST REPORT

**CTK Co., Ltd.**

5 Dongbu-ro 221beon-gil, Cheoin-gu, Yongin-si,  
Gyeonggi-do, Republic of Korea  
Tel: +82-31-339-9970  
Fax: +82-31-624-9501

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**1. Applicant**

- Name : Hanwha Vision Co., Ltd.
- Address : 6, Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si,  
Gyeonggi-do, 13488 Republic of Korea
- Date of Receipt : Dec. 23, 2025

**2. Manufacturer**

- Name : Hanwha Vision Co., Ltd.

**3. Use of Report :**

For submission to customer

**4. Test sample / Model :**

NETWORK THERMAL CAMERA / TNO-C4080T

**5. Date(s) of test :**

Jan. 13, 2026 ~ Jan. 14, 2026

**6. Test Standard (Method) used :**

IEC 60529:1989 +A1:1999+A2:2013

**7. Testing Environment :**

Temperature: (25 ±10) °C, Humidity: (50 ±25) % R.H.

Pressure: (96 ±10) kPa

**8. Test Results :**

Refer to the test results

**9. Location of Test :**

☒ Permanent Testing Lab ☐ On Site Testing  
(113, Yejik-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, 449-100,  
Republic of Korea)

The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This report cannot be reproduced or copied without the written consent of CTK.

|          |                                |                              |
|----------|--------------------------------|------------------------------|
| Approval | Tested by                      | Technical Manager            |
|          | Name: HyungUk Jeon (Signature) | Name: HoHyun Lee (Signature) |

Remark. This report is not related to KOLAS accreditation and relevant regulation.

Feb. 04, 2025

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## 1. Testing laboratory

### 1.1 Testing laboratory information

|                |                                                                                  |
|----------------|----------------------------------------------------------------------------------|
| Lab. Name      | CTK Co., Ltd.                                                                    |
| Representative | Young Joseph Seungwon                                                            |
| Address        | 5 Dongbu-ro 221beon-gil, Cheoin-gu, Yongin-si, Gyeonggi-do,<br>Republic of Korea |
| Tel.           | +82-31-339-9970                                                                  |
| Fax.           | +82-31-624-9501                                                                  |
| E-Mail         | <a href="mailto:all.youngin@element.com">all.youngin@element.com</a>             |
| Website        | <a href="http://www.elementkorea.kr">www.elementkorea.kr</a>                     |

### 1.2 Testing laboratory accreditation status

| Country       | Classification | Accreditation Number | Logo |
|---------------|----------------|----------------------|------|
| International | KOLAS          | TESTING<br>NO. KT119 |      |

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## 2. Product description and equipment information

### 2.1 Product description

| Product Name           | Model Name | Quantity | Comment |
|------------------------|------------|----------|---------|
| NETWORK THERMAL CAMERA | TNO-C4080T | 1 EA     | –       |

### 2.2 Model description

|                         |                               |
|-------------------------|-------------------------------|
| Basic Model .....       | TNO-C4080T                    |
| Series model .....      | TNO-C4082T                    |
| Model differences ..... | Basic model and SW Difference |

### 2.3 Equipment information

| Testing equipment     | Model Name           | Manufacturer | Manufacturing Number | Next Cal. Date |
|-----------------------|----------------------|--------------|----------------------|----------------|
| Stop Watch            | NONE                 | Casio        | 612Q01R-1            | Jan. 15, 2027  |
| Push Pull Gage        | FB30K                | Imada        | 83805                | Jan. 12, 2027  |
| Test Rod Probe Ø1.0   | TRP-02               | ED&D         | S1-J15               | May. 16, 2027  |
| Dust Chamber          | NONE                 | JFM          | S5-IP02              | Feb. 14, 2026  |
| Immersion tank        | Cage for IPX7 / IPX8 | Kingpo       | -                    | -              |
| Steel measuring meter | 5.5 m                | KOMELON      | 225851               | Jan. 16, 2026  |



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## 2.4 Pre-test product images

### 2.4.1 Test sample



Top



Bottom



Front



Rear



Left side



Right side





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## 2.5 Testing equipment images

### 2.5.1 Test equipment



Stop Watch



Push Pull Gage



Test Rod Probe Ø1.0



Dust Chamber



Immersion tank



Steel measuring meter



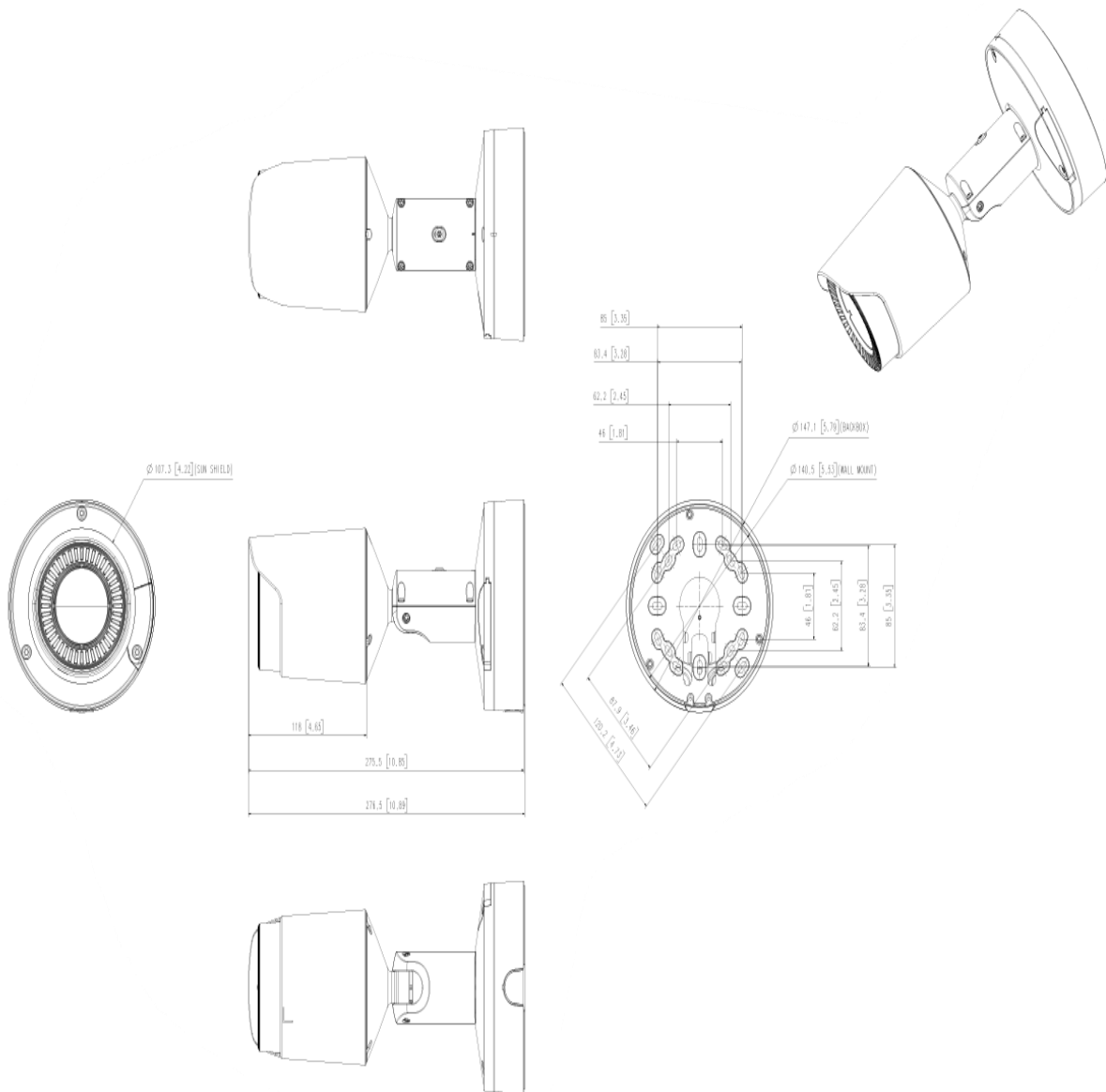
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## 2.6 Product appearance

Enclosure dimensions [unit : mm]



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### 3. Degrees of protection provided by enclosures (IP code)

#### 3.1 Test date and environmental conditions

3.1.1 Test date: Jan. 13, 2026 ~ Jan. 14, 2026

3.1.2 Measured Environmental Conditions

| Item        | Temperature (°C) | Humidity (% R.H.) | Pressure (kPa) |
|-------------|------------------|-------------------|----------------|
| Measurement | 23.5             | 55.2              | 102.2          |

#### 3.2 Test conditions and methods

3.2.1 Test standard: IEC 60529:1989+A1:1999+A2:2013

3.2.2 Arrangement of the IP code

|                                                               |    |   |   |
|---------------------------------------------------------------|----|---|---|
|                                                               | IP | 6 | 7 |
| Code letters (International protection)                       | ←  |   |   |
| First characteristic numeral (numerals 0 to 6, for letter X)  | ←  |   |   |
| Second characteristic numeral (numerals 0 to 8, for letter X) | ←  |   |   |

##### 3.2.2.1 Degree of protection against access to hazardous parts indicated by the first characteristic numeral

| First characteristic numeral | Degree of protection                                                                                                                    | Application                         |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| 6                            | Protected against access to hazardous parts with a wire.<br>The access probe of 1.0 mmØ, shall not penetrate.<br>Test force: 1 N ± 10 % | <input checked="" type="checkbox"/> |

NOTE In the case of the first characteristic numerals 3, 4, 5 and 6, protection against access to hazardous parts is satisfied if adequate clearance is kept. The adequate clearance should be specified by the relevant product committee in accordance with 12.3.

Due to the simultaneous requirement specified in table 2, the definition "shall not penetrate" is given in table 1.





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## 3.2.2.2 Degree of protection against solid foreign objects indicated by the first characteristic numeral

| First characteristic numeral                                                                                                                                                                                                           | Degree of protection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Application                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| 6                                                                                                                                                                                                                                      | <p>In Dust Testing Equipment, the test sample must have no ingress of dust after testing atmospheric pressure present condition for 8 h.</p> <p>(The talcum powder must pass through a calibrated sieve with a 50 µm wire mesh, spaced at 75 µm intervals in a square pattern. Additionally, the bulk density of the talcum powder should be 2 kg/m<sup>3</sup>)</p> <p>Products in volume .....: <b>4 696.670 cm<sup>3</sup> → 4.696 L</b></p> <p>Target intake volume (Products in volume 80) : <b>375.733 L</b></p> <p>Suction volume (Max product in volume 60) ...: <b>281.800 LPH → 4.696 LPM</b></p> <p>Actual Suction volume .....: <b>4.662 L</b></p> <p>Suction pressure (Up to 2 kPa) .....: <b>1.79 kPa</b></p> <p>Test time (Up to 8 time) .....: <b>8 hr</b></p> | <input checked="" type="checkbox"/> |
| <p><sup>1)</sup> The full diameter of the object probe shall not pass through an opening of the enclosure.<br/>Due to the simultaneous requirement specified in table 2, the definition “shall not penetrate” is given in table 1.</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                     |

## 3.2.2.3 Degree of protection against water indicated by the second characteristic numeral

| Second characteristic numeral | Degrees of protection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Application                         |
|-------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| 7                             | <p>Sink the product in the water by the Pressure and Time according to regulation and the product must not be harmed.</p> <p>Immersion tank water-level on enclosure with:</p> <p><input type="checkbox"/> height equal to or greater than 850 mm: the highest point of enclosures located 0.15 m below the surface of the water</p> <p><input checked="" type="checkbox"/> height less than 850 mm: the lowest point of enclosures located 1 m below the surface of the water</p> <p>Duration of test: 30 min</p> | <input checked="" type="checkbox"/> |



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### 3.3 Testing images

#### 3.3.1 Evidence of test setting (1)



Probe test



Probe test



Probe test



Probe test



Dust test



Water test

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**3.4 Test result****3.4.1 Test result table**

| IP code | Evaluation Criteria | Test Results | Remark |
|---------|---------------------|--------------|--------|
| IP 6X   | No ingress of Probe | Normal       | -      |
|         | No ingress of dust  | Normal       | -      |
| IP X7   | No ingress of water | Normal       | -      |

※ Refer to the product photos after the completion of testing in section 3.5.





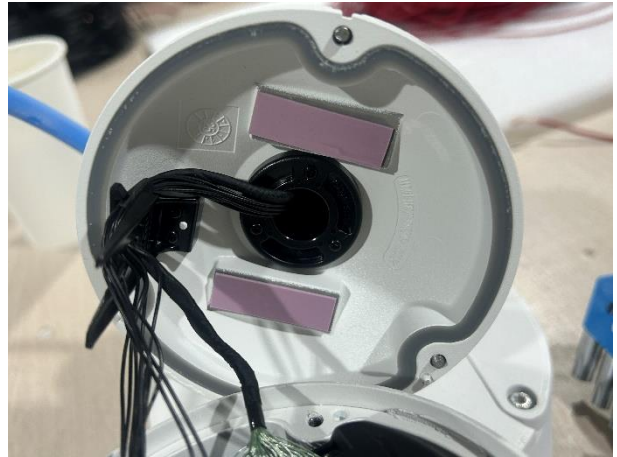
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### 3.5 Post-test product images

#### 3.5.1 Product internal images after test [The first characteristic numeral test]



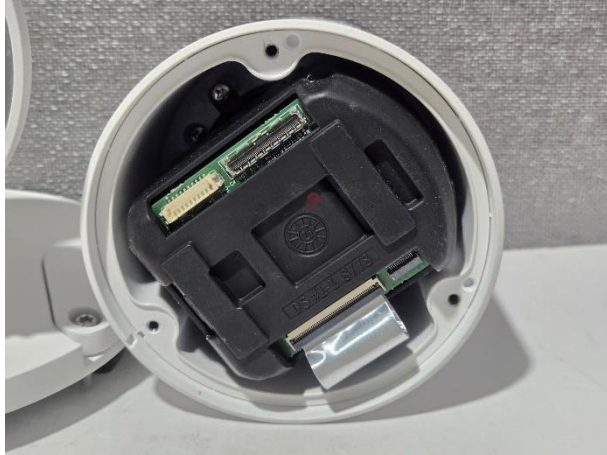


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### 3.5.2 Product internal images after test [The second characteristic numeral test]



- End -