

# 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

Report No.:  
CTK-2023-02383  
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### 1. Applicant

◦ Name : Hanwha Vision Co., Ltd  
◦ Address : 6 Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, 13488 KOREA  
◦ Date of Receipt : 2023-10-16

### 2. Manufacturer

◦ Name : Hanwha Vision Co., Ltd

### 3. Use of Report

: Quality control

### 4. Test sample / Model

: NETWORK THERMAL CAMERA / TNO-C3032TRA

### 5. Date(s) of test

: 2023-10-17 to 2023-10-19

### 6. Location of Test

: ☒ Permanent Testing Lab ☐ On Site Testing

Address: 5 Dongbu-ro 221beon-gil, Cheoin-gu,  
Yongin-si, Gyeonggi-do, Republic of Korea

7. Test Standard (Method) used : IEC 60529:1989 +A1:1999+A2:2013

8. Testing Environment : Temperature: (25.0 ± 10.0) °C,  
Humidity: (50.0 ± 25.0) %R.H.

9. Test Results : Refer to each test items

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.  
This Test Report cannot be reproduced, except in full.

Affirmation	Tested by:	Technical Manager:
	Name: Min-Gi Moon (Signature)	Name: SooChan Bae (Signature)

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

2023-11-01

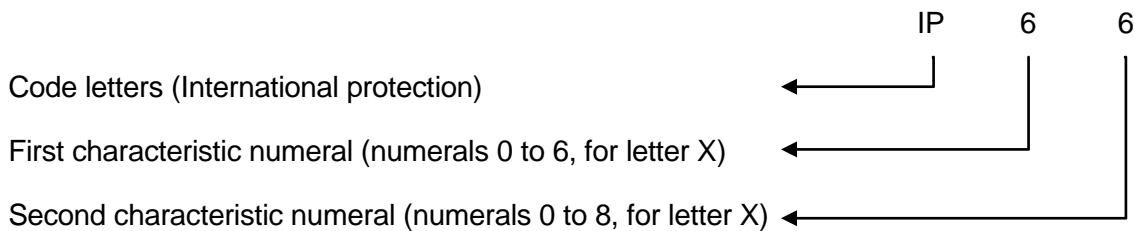
CTK Co., Ltd



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

### 1.1 Test standard: IEC 60529:1989 +A1:1999+A2:2013


### 1.2 Arrangement of the IP code



#### 1.2.1 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. The access probe of 1.0 mmØ, shall not penetrate. 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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## 1.2.2 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 has to have no ingress of dust after testing atmospheric pressure present condition for 8 hr.</p> <p>(Talcum powder have to go through the measured sieve by <math>\Phi</math> 50 <math>\mu</math>m wire that are spacing 75 <math>\mu</math>m in squared, per volume and union Talcum powder have to be 2 kg/m<sup>3</sup>)</p> <p>Products in volume .....: <b>5 052.57 cm<sup>3</sup> → 5.05 L</b></p> <p>Target intake volume (Products in volume 80) .....: <b>404.21 L</b></p> <p>Suction volume (Max product in volume 60) .....: <b>303.15 LPH → 5.05 LPM</b></p> <p>Actual Suction volume .....: <b>5.05 L</b></p> <p>Suction pressure (Up to 2 kPa) .....: <b>2 kPa</b></p> <p>Test time (Up to 8 time) .....: <b>8 hr</b></p>	<input checked="" type="checkbox"/>
<sup>1)</sup> The full diameter of the object probe shall not pass through an opening of the enclosure. Due to the simultaneous requirement specified in table 2, the definition “shall not penetrate” is given in table 1.		

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


Second characteristic numeral	Degrees of protection	Application
6	<p>The product must not be harmed in any direction even strong jet water.</p> <p>Water jet hose nozzle Fig.6, Nozzle 12.5 mm diameter</p> <p>Water flow rate: 100 l/min <math>\pm</math> 5 % : <b>100 LPM</b></p> <p>Distance: 2.5 m to 3 m: <b>3 m</b></p> <p>Duration of test: 1 min/m<sup>2</sup> at least 3 min: <b>3 min</b></p>	<input checked="" type="checkbox"/>

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### 1.3 Test Result

IP Code	Remark
IP 6X	No penetration of probe. No ingress of dust.
IP X6	No ingress of water.

※ The results shown in this test report refer only to the sample(s) tested unless otherwise stated


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## Manufacturer's name

Name and address of factory (ies)	1) HANWHA VISION VIETNAM COMPANY LIMITED Lot O-2, Que Vo Industrial Zone extended area, Nam Son commune, Bac Ninh city, Bac Ninh province, Vietnam  2) D-TECH CO.,LTD. 173-25, Saneop-ro, Gwonseon-gu, Suwon-si, Gyeonggi- do, Korea (Suwon Industrial Complex)
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## Model description

Basic Model .....:	TNO-C3032TRA	
Series model .....:	TNO-C3010TRA, TNO-C3020TRA, TNO-C3030TRA, TNO-C3012TRA, TNO-C3022TRA	
Model differences .....:	TNO-C3012TRA, TNO-C3022TRA	Use of the same external shape and materials (case, finishing material, PCB, cable, etc.), differences in Fixed Lens inside the product.
	TNO-C3010TRA, TNO-C3020TRA, TNO-C3030TRA	Use of the same external shape and materials (case, finishing material, PCB, cable, etc.), differences in Fixed Lens and SW inside the product.

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**List of test equipment used:**

Instrument type	Model	Make	Serial	Calibration Effective Date
Stop Watch	NONE	Casio	612Q01R-1	2024-02-21
Aneroid Barometer	BAROMEX	SATO	84682	2024-02-02
Thermo/Humidity meter	Smart600	ZOGLAB	SMART1706010741A	2024-04-03
Push Pull Gage	FB30K	Imada	83805	2024-02-03
Test wire (1.0 mm)	TRP-02	ED&D	S1-J15	-
Dust Chamber	NONE	JFM	S3-IP36	2024-03-27
Area flow meter	Z-6504	NURITECH	04	2024-02-12
Waterproof test apparatus	IPX3-6	Kingpo	S3-IP37	-
Steel measuring meter	10 m	KOMELON	S3-D01	2024-11-11

## 2 APPENDIX

### 2.1 Product Photographs


#### < Photo 1 > Product Front View



#### < Photo 2 > Product Rear View





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## 2.2 Test Setup Photos and Configuration

### < Photo 3 > The First Characteristic Numeral Test



### < Photo 4 > The Second Characteristic Numeral Test



## 2.3 Product internal photographs after test

### < Photo 5 > The First Characteristic Numeral Test



### < Photo 6 >



**< Photo 7 > The First Characteristic Numeral Test**



**< Photo 8 >**



**< Photo 9 > The First Characteristic Numeral Test**



**< Photo 10 >**



**< Photo 11 > The First Characteristic Numeral Test**



**< Photo 12 > The Second Characteristic Numeral Test**



**< Photo 13 >**





< Photo 14 > The Second Characteristic Numeral Test



< Photo 15 >




< Photo 16 > The Second Characteristic Numeral Test



< Photo 17 >





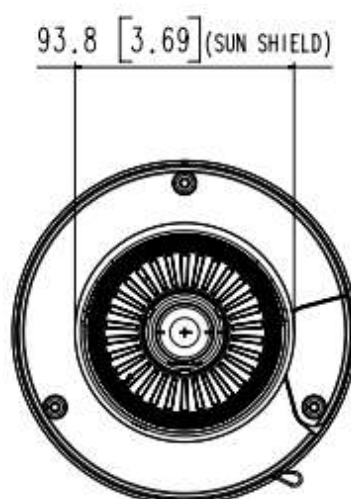
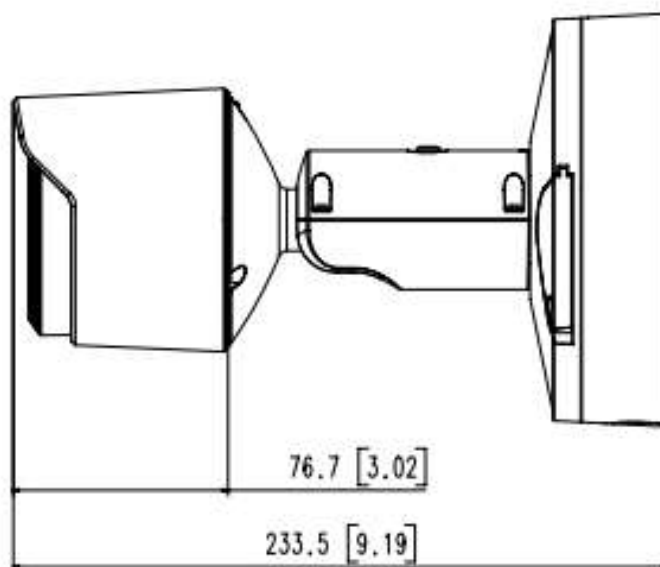
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**< Photo 18 > The Second Characteristic Numeral Test**

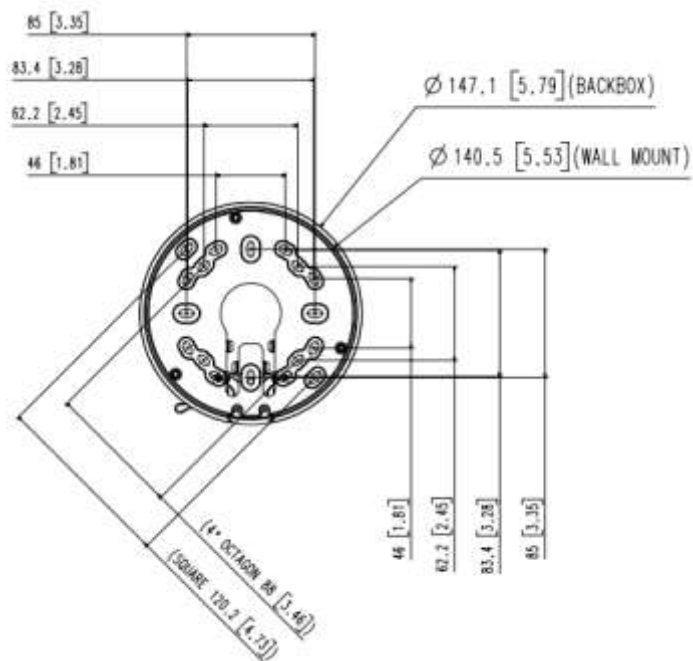


## 2.4 Product Appearance

Enclosure Dimensions [Unit: mm]



## Enclosure Dimensions [Unit: mm]



- End -