


# TEST REPORT

 CTK Co., Ltd. <small>The Power Leader of Global Regulatory Compliance</small>	<b>CTK Co., Ltd.</b> 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-2022-00972 Page (1) / (15) pages
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## 1. Client

- Name : Hanwha Techwin Co., Ltd.
- Address : 6 Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, 13488 KOREA
- Date of Receipt : 2022-02-25

## 2. Manufacturer

- Name : Hanwha Techwin Co., Ltd.
- Address : 6 Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, 13488 KOREA

## 3. Use of Report : Quality control

## 4. Test Sample / Model: Thermal Camera / TNM-C4940TD

## 5. Date of Test : 2022-03-21 to 2022-03-24

## 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 : KS C IEC 60529:2013

## 8. Testing Environment: Temperature: (20.0 ± 10.0) °C, Humidity: (50.0 ± 25.0) %R.H.,

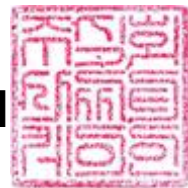
## 9. Test Results : Refer to each test items

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	
	Min-Gi Mun : Test Engineer	 (Signature)	WonHyeon Choi : Technical Manager

2022-03-28

**CTK Co., Ltd**



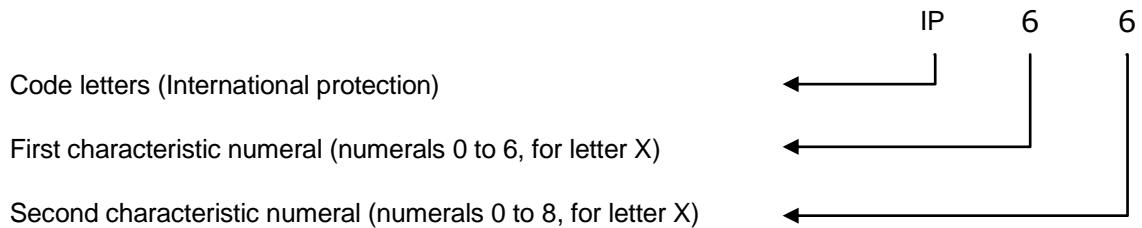
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## 1. Degrees of protection provided by enclosures (IP code)

1.1 Test standard: KS C IEC 60529:2013


### 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
0	Non-protected	<input type="checkbox"/>
1	Protected against access to hazardous parts with the back of a hand. The access probe, sphere of 50 mmØ, shall have adequate clearance from hazardous parts. Test force: 50 N ± 10 %	<input type="checkbox"/>
2	Protected against access to hazardous parts with a finger. The jointed test finger of 12 mmØ, 80 mm length, shall have adequate clearance from hazardous parts. Test force: 10 N ± 10 %	<input type="checkbox"/>
3	Protected against access to hazardous parts with a tool. The access probe of 2.5 mmØ, shall not penetrate. Test force: 3 N ± 10 %	<input type="checkbox"/>
4	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 type="checkbox"/>

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First characteristic numeral	Degree of protection	Application
5	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 type="checkbox"/>
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.

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

First characteristic numeral	Degree of protection	Application
0	Non-protected	<input type="checkbox"/>
1	Protected against solid foreign objects of 50 mmØ and greater. The object probe, sphere of 50 mmØ, shall not fully penetrate <sup>1)</sup> . Test force: 50 N ± 10 %	<input type="checkbox"/>
2	Protected against solid foreign objects of 12.5 mmØ and greater. The object probe, sphere of 12.5 mmØ, shall not fully penetrate <sup>1)</sup> . Test force: 30 N ± 10 %	<input type="checkbox"/>
3	Protected against solid foreign objects of 2.5 mmØ and greater. The object probe, sphere of 2.5 mmØ, shall not penetrate at all <sup>1)</sup> . Test force: 3 N ± 10 %	<input type="checkbox"/>
4	Protected against solid foreign objects of 1.0 mmØ and greater. The object probe, sphere of 1.0 mmØ, shall not penetrate at all <sup>1)</sup> . Test force: 1 N ± 10 %	<input type="checkbox"/>




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First characteristic numeral	Degree of protection	Application
	<p>Suction volume (Max product in volume 60) . : <b>653.085 LPH → 10.884</b> LPM</p> <p>Actual Suction volume ..... : <b>10.884 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>	

<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 Degrees of protection against water indicated by the second characteristic numeral

Second characteristic numeral	Degrees of protection	Application
0	Non-protected	<input type="checkbox"/>
1	<p>Water that drops vertically has to be harmless</p> <p>Drip box Fig.3, Enclosure on turntable</p> <p>Water flow rate: 1 mm/min</p> <p>Speed of Rotating platform: 1 r/min</p> <p>Eccentricity: Approximately 100 mm</p> <p>Duration of test: 10 min</p>	<input type="checkbox"/>
2	<p>When outskirts of the product have been tilted by 15° Water that drops vertically has to be harmless.</p> <p>Drip box Fig.3, Enclosure in 4 fixed positions of 15° tilt</p> <p>Water flow rate: 3 mm/min</p> <p>Duration of test: 2.5 min for each position of tilt</p>	<input type="checkbox"/>
3	<p>Vertical line of water that moves by <math>\pm 60^\circ</math> and its drops has to be harmless</p> <p><input type="checkbox"/> Oscillating tube Fig.4, Spray <math>\pm 60^\circ</math> from vertical, Distance max. 200 mm Water flow rate: each of watering pit 0.07 l/min <math>\pm 5\%</math> per hole Duration of test: 10 min</p> <p><input type="checkbox"/> spray nozzle Fig. 5, Spray <math>\pm 60^\circ</math> from vertical Water flow rate: 10 l/min <math>\pm 5\%</math> Duration of test: 1 min/m<sup>2</sup> at least 5 min: <b>min</b></p>	<input type="checkbox"/>
4	<p>The product must not be harmed in any direction even splashing water.</p> <p>As for numeral 3, Spray <math>\pm 180^\circ</math> from vertical</p> <p><input type="checkbox"/> Oscillating tube Fig.4, Spray <math>\pm 180^\circ</math> from vertical, Distance max. 200 mm Water flow rate: each of watering pit 0.07 l/min <math>\pm 5\%</math> per hole Duration of test: 10 min</p> <p><input type="checkbox"/> spray nozzle Fig. 5, Spray <math>\pm 180^\circ</math> from vertical Water flow rate: 10 l/min <math>\pm 5\%</math> Duration of test: 1 min/m<sup>2</sup> at least 5 min: <b>min</b></p>	<input 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.

## Manufacturer's name


Name and address of factory (ies)	1) HANWHA TECHWIN SECURITY VIETNAM CO.,LTD 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 .....	TNM-C4940TD
Series model .....	TNM-C4950TD, TNM-C4960TD
Model differences .....	Use of the same external shape and materials (case, finishing material, PCB, cable, etc.), differences in electronic parts inside the product.




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## List of test equipment used:

Instrument type	Model	Make	Serial	Calibration Effective Date
Stop Watch	NONE	Casio	612Q1R-1	2023-03-03
Aneroid Barometer	BAROMEX	SATO	84682	2022-10-19
Hygro Thermograph	ST-50M	SEKONIC	HE51-000147	2022-10-19
Push Pull Gage	FB30K	Imada	83805	2022-08-19
Test wire (1.0 mm)	TRP-02	ED&D	S1-J15	-
Big Dust Chamber	NONE	JFM	S3-IP34	2022-12-16
Waterproof test apparatus	IPX3-6	Kingpo	0190309001	-

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## 2. APPENDIX

### 2.1 Product Photographs


< Photo 1 > Product External view



< Photo 2 > Product External 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

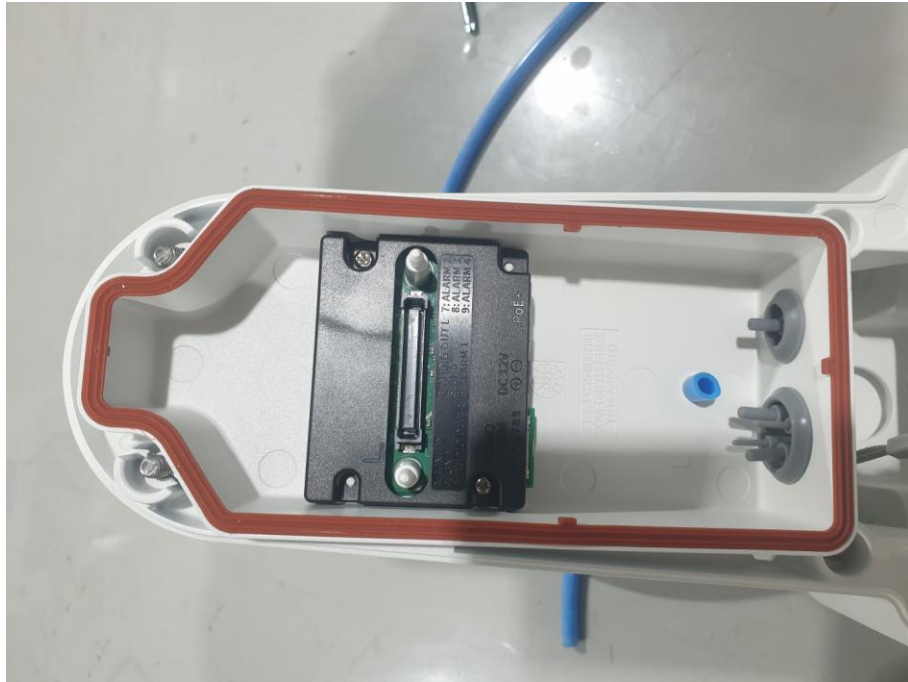


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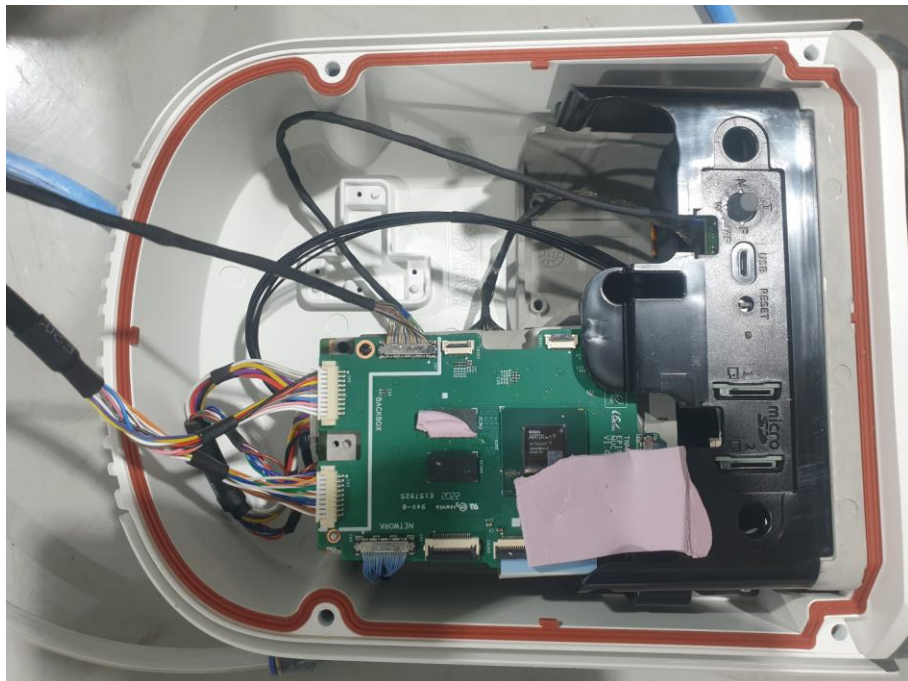
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## 2.3 Product internal photographs after test

< Photo 5 > The first characteristic numeral test




< Photo 6 >





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< Photo 7 > The first characteristic numeral test



< Photo 8 > The second characteristic numeral test



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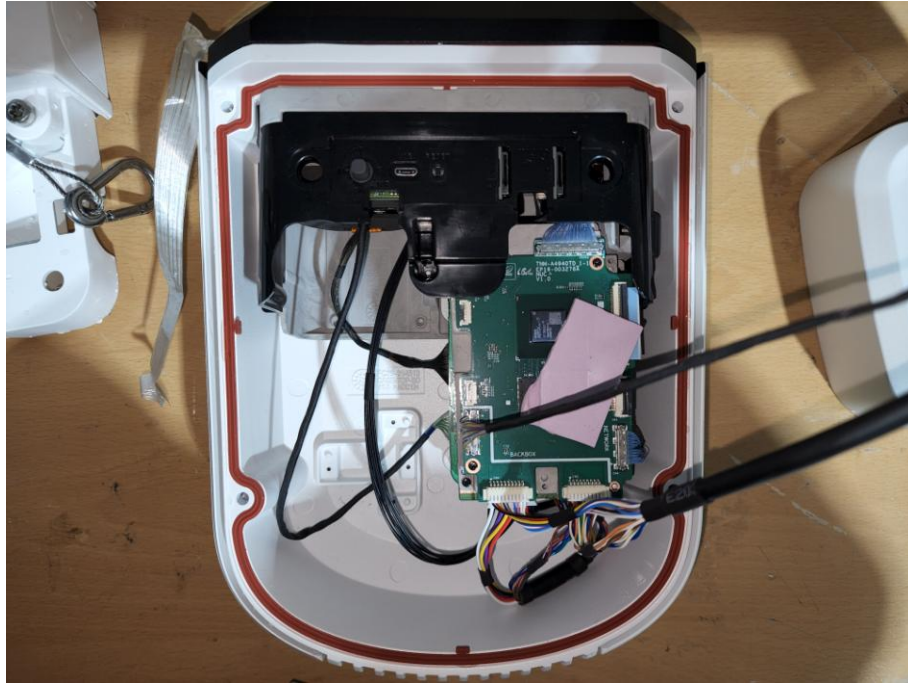


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< Photo 9 > The second characteristic numeral test



< Photo 10 >

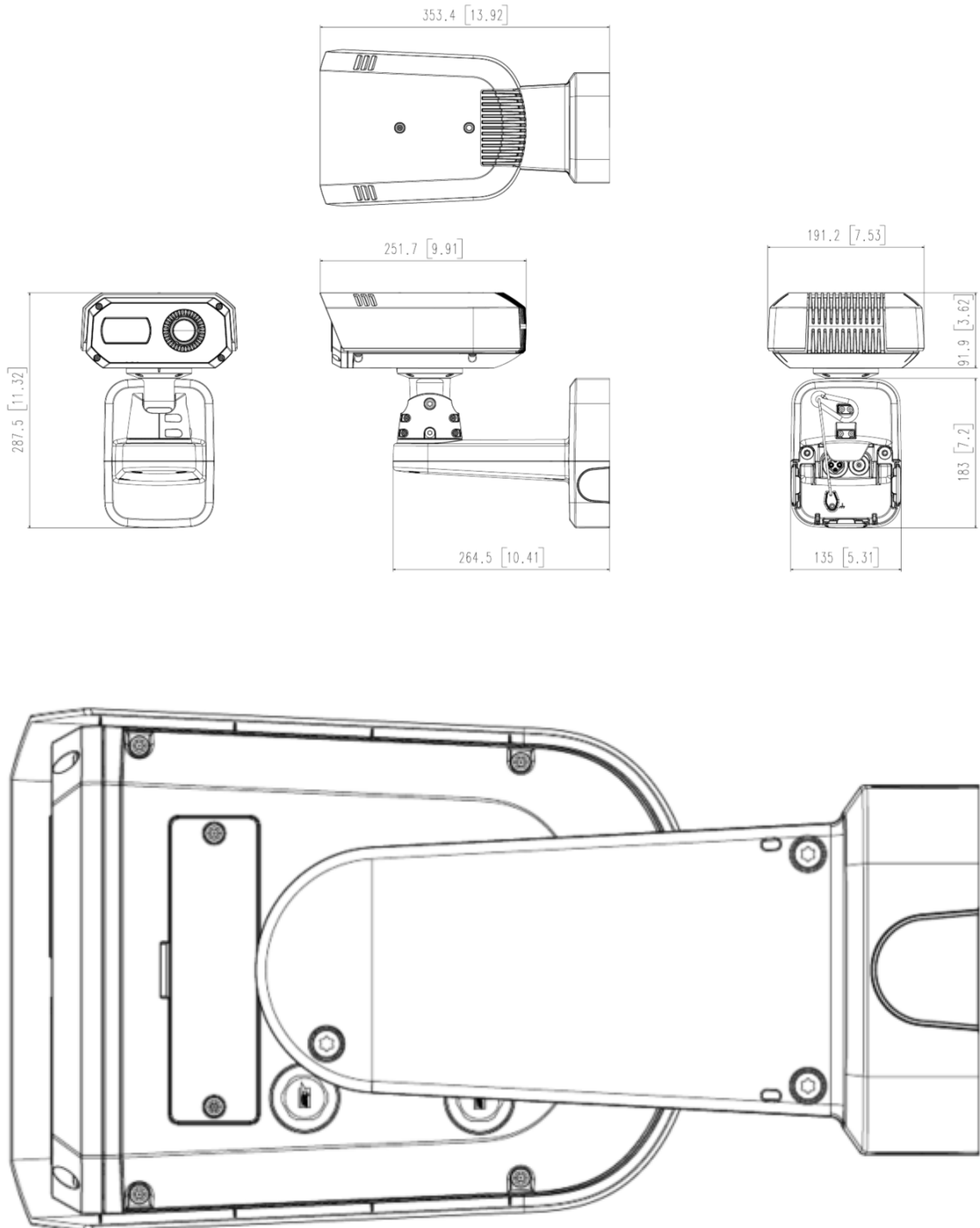


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## 2.4 Product Appearance

### Enclosure Dimensions [Unit: mm]



- End -