



TEST REPORT



Report No. : KES-RE-23T0459-R1

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KES Co., Ltd.

#3002, #3503, #3701,
40, Simin-daero 365beon-gil, Dongan-gu, Anyang-si,
Gyeonggi-do, 14057, Republic of Korea
Tel: +82-31-425-6200, Fax: +82-31-341-3838

1. Client

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

2. Sample Description

- Product item : Barcode Reader
- Model name : TNS-9050IBC
- Variant Model : TNS-9040IBC
- Manufacturer 1 : Hanwha Vision Co., Ltd.
- Manufacturer 2 : HANWHA VISION VIETNAM COMPANY LIMITED
- Manufacturer 3 : D-TECH CO., LTD.

3. Date of test : Dec. 22, 2023

4. Test method used : IEC 60068-2-6:2007, EN 60068-2-6:2008

5. Test result : Test result reference

6. Test Report Purpose : For quality control

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Affirmation	Tested by	Technical manager
	Name : Sungwoo, Lee (Signature)	Name : Kangsun, Lee (Signature)

August 09, 2024

KES Co., Ltd.

This is the reissuance test report of KES-RE-23T0459



REPORT REVISION HISTORY

Date	Test Report No.	Revision History
Dec. 28, 2023	KES-RE-23T0459	Issued
Aug. 09, 2024	KES-RE-23T0459-R1	Additional variant model : TNS-9040IBC Model difference : The model TNS-9050IBC is the basic model that was tested. The variant model TNS-9040IBC is identical to the basic model, except for model designation and fixed lens thickness. - Fixed lens thickness of model TNS-9050IBC : 25 mm - Fixed lens thickness of model TNS-9040IBC : 16 mm

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1. General information

1.1. Introduction

Company Name	KES Co., Ltd.
Name of President / CEO	Young, Kim
Address	#3002, #3503, #3701, 40, Simin-daero365beon-gil, Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Republic of Korea
Tel	+82-31-425-6200
Fax	+82-31-341-3838
E-mail	kes@kes.co.kr

1.2. Laboratory

Address	#3002, #3503, #3701, 40, Simin-daero365beon-gil, Dongan-gu, Anyang-si, Gyeonggi-do, 14057, Republic of Korea 473-21, Gayeo-ro, Yeosu-si, Gyeonggi-do, 12658, Republic of Korea
Tel	+82-31-425-6200
Fax	+82-31-341-3838



2. Information of E.U.T.

			
Product	Model	S/N	Remark
Barcode Reader	TNS-9050IBC	TNS9050IBC	DC 24 V



3. Vibration test

- IEC 60068-2-6:2007 : Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)
- EN 60068-2-6:2008 : Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)

1) Annex A, Table A.1 – Number of sweep cycles and associated endurance times per axis

Frequency range Hz	Number of sweep cycles						
	1	2	5	10	20	50	100
1 to 35	10 min	21 min	50 min	1 h 45 min	3 h 30 min	9 h	17 h
1 to 100	13 min	27 min	1h 5 min	2 h 15 min	4 h 30 min	11 h	17 h
5 to 100	9 min	17 min	45 min	1 h 30 min	3 h	7 h	14 h
5 to 200	11 min	20 min	55 min	1 h 30 min	3 h	7 h	14 h
5 to 500	13 min	25 min	1 h	2 h	3 h 45 min	9 h	19 h
5 to 2 000	17 min	33 min	1h 15 min	2 h 30 min	5 h	13 h	25 h
10 to 55	5 min	10 min	25 min	45 min	1 h 45 min	4 h	8 h
10 to 150	8 min	16 min	40 min	1 h 15 min	2 h 30 min	7 h	13 h
10 to 500	11 min	23 min	55 min	2 h	3 h 45 min	9 h	19 h
10 to 2000	15 min	31 min	1 h 15 min	2 h 30 min	5 h	13 h	25 h
10 to 5000	18 min	36 min	1 h 30 min	3 h	6 h	15 h	30 h
55 to 500	6 min	13 min	30 min	1 h	2 h	5 h	11 h
55 to 2000	10 min	21 min	50 min	1 h 45 min	3 h 30 min	9 h	17 h
55 to 5000	13 min	26 min	1 h 05 min	2 h 15 min	4 h 15 min	11 h	22 h
100 to 2000	9 min	17 min	45 min	1 h 30 min	3 h	7 h	14 h

**2) Annex C, Table C.1 – Endurance by sweeping – Examples with lower cross-over frequency**

Amplitude m/s² Frequency range Hz	Number of sweep cycles in each axis			Examples of application
	5	10	20	
10 to 150	50	-	-	Stationary equipment such as large computers and rolling mills, long-term exposure
10 to 150	20	-	-	Stationary equipment such as large transmitters and air conditioners, intermittent exposure
10 to 150	-	20	20	Equipment intended for installation in or transport by ships, railway and land vehicles

3) Mounting : Unless otherwise stated in the relevant specification, the specimens shall be mounted on the test apparatus in accordance with the requirements in IEC 60068-2-47.

4) Severities

A vibration severity is defined by the combination of the three parameters: frequency range, vibration amplitude and duration of endurance (in sweep cycles or time).

Each parameter shall be prescribed by the relevant specification. They may be:

- chosen from the values in 5.1 to 5.3;
- chosen from examples in Annex A or Annex C;
- derived from the known environment;
- derived from other known sources of relevant data, for example, the IEC 60721-3 series.

To permit some flexibility in situations where the real environment is known, it may be appropriate to specify a shaped acceleration versus frequency curve and, in these cases, the relevant specification shall prescribe the shape as a function of frequency. The different levels and their corresponding frequency ranges, i.e. the break points, shall be selected, wherever possible, from the values given in this standard.

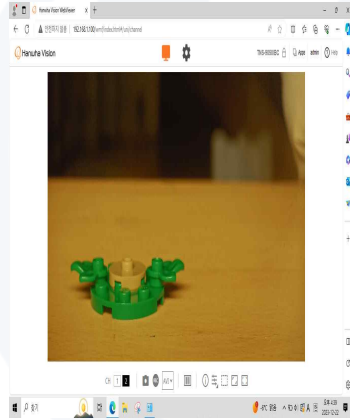
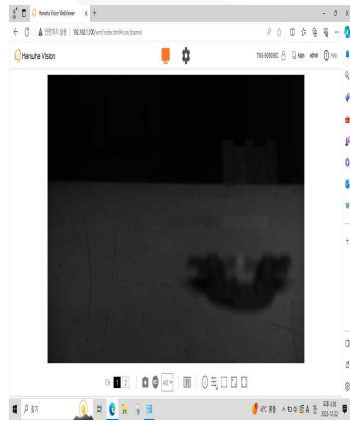
**5) Test conditions**

Item		Detailed description	Remarks
Test date		December 11, 2023	-
Atmospheric condition		(25.0 ± 10.0) °C, (50 ± 25) % R.H.	-
Test condition of E.U.T.		Packed conditions in a box	-
Power condition		Power OFF	-
Duration of endurance		Endurance by sweeping	-
Frequency range		10 Hz ~ 500 Hz	Client requirements
Acceleration		2 G	Client requirements
Test direction		Vertical, Transverse, Longitudinal	3 axis
Sweep cycles		6 (Approx. 67 min 44 sec)	Client requirements
Pre treatment conditions		☒ No regulatory conditions ☐ regulatory conditions	-
Initial measure ments	Visual inspection	Mechanical damage, loosening of screw, etc.	-
	Functional test	Normal operation check	-
Inter mediate measure ments	Visual inspection	Mechanical damage, loosening of screw, etc.	-
	Functional test	Not applicable	-
Re covery	Applicability	☐ No Regulations ☒ Regulations	-
	Condition	☒ Recovery from standard atmospheric conditions ☐ Etc :	-
Final measure ments	Visual inspection	Mechanical damage, loosening of screw, etc.	-
	Functional test	Normal operation check	-

**6) Test result**

Test Items	Test standard	Test result	Remarks
Vibration test	10 Hz ~ 500 Hz, 2 G, 3 axis (Vertical, Transverse Longitudinal directions), 6 cycles of sweep cycle, Power OFF and packed conditions in a box. No abnormalities and no mechanical defects when the performance tests are confirmed at the initial and final measurements of the test	In the initial and final measurements of the test, no problem when performance test and no mechanical fault.	-

7) Conditions of Normal operation check

		① Apply DC 24 V voltage. ② Connect to the web viewer by entering IP(192.168.1.100). ③ Check Ch1 camera output. ④ Check Ch2 camera output.
		



8) Test photos & graphs

Vertical		2023. 12. 22. / 11:25:20 Test Report Testing time: 00:00:00 Remaining Time: 00:00:00 Run Start Time: Dec-22-2023 11:25:20 Total elapsed time: 01:07:55 Full level elapsed time: 01:07:44 Test parameters: Current Frequency: 10.00 Hz Signal Plot Points: 2048 Sweeping Rate: 1 Oct/Min Sweep Type: Logarithmic Sweep Number: 12 Control Composite
Transverse		2023. 12. 22. / 13:37:11 Test Report Testing time: 00:00:00 Remaining Time: 00:00:00 Run Start Time: Dec-22-2023 13:37:11 Total elapsed time: 01:07:55 Full level elapsed time: 01:07:44 Test parameters: Current Frequency: 10.00 Hz Signal Plot Points: 2048 Sweeping Rate: 1 Oct/Min Sweep Type: Logarithmic Sweep Number: 12 Control Composite
Longitudinal		2023. 12. 22. / 14:59:57 Test Report Testing time: 00:00:00 Remaining Time: 00:00:00 Run Start Time: Dec-22-2023 14:59:57 Total elapsed time: 01:07:54 Full level elapsed time: 01:07:44 Test parameters: Current Frequency: 10.00 Hz Signal Plot Points: 2048 Sweeping Rate: 1 Oct/Min Sweep Type: Logarithmic Sweep Number: 12 Control Composite



4. Used instrument list

No.	KES Management Number	Instrument Name	Mfr.	Model	Serial #	Date of Calibration	Next Calibration Date	Calibration Cycle	Remark
1	KES-RE-048	True RMS Multimeter	FLUKE	289	21070127	Apr. 05, 2023	Apr. 05, 2024	1 year	-
2	KES-RE-107	Electronic Vibration tester	JINN Co., Ltd.	S701LS4-450	S1611032	May 11, 2023	May 11, 2024	1 year	-
		Accelerometer	PCB	J353B33	215333	Jan. 13, 2023	Jan. 13, 2023	1 year	-

- The end of test report -