TEST REPORT

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-9060IBC
○ Manufacturer 1 : HANWHA VISION VIETNAM COMPANY LIMITED
○ Manufacturer 2 : D-TECH CO., LTD.

3. Date of test : August 13, 2024 to August 14, 2024

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

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
This report shall not be reproduced except in full, without the written approval of KES Co., Ltd.
This report is prohibited form being used other than for use of report.

Affirmation	Tested by Name : Sungwoo, Lee (Signature) [이성우]2024/08/14	Technical manager Name : Kangsun, Lee (Signature) [이강선]2024/08/14

August 14, 2024

KES Co., Ltd.

The authenticity of the test report can be found on the verification page of our website (www.kes.co.kr).

REPORT REVISION HISTORY

Date	Test Report No.	Revision History
August 14, 2024	KES-RE240326	Issued

This report shall not be reproduced except in full, without the written approval of KES Co., Ltd. This document may be altered or revised by KES Co., Ltd. personnel only, and shall be noted in the revision section of the document. Any alteration of this document not carried out by KES Co., Ltd. will constitute fraud and shall nullify the document.

TABLE OF CONTENTS

1. General information ····· 3

2. Information of E.U.T. ····· 4

3. Vibration test ····· 5

4. Used instrument list ····· 10

The authenticity of the test report can be found on the verification page of our website (www.kes.co.kr).

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	+82-31-424-0450
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, Yeoju-si, Gyeonggi-do, 12658, Republic of Korea
Tel	+82-31-425-6200
Fax	+82-31-424-0450

The authenticity of the test report can be found on the verification page of our website (www.kes.co.kr).

2. Information of E.U.T.





Product	Model	S/N	Remark
Barcode Reader	TNS-9060IBC	N/A	DC 24 V

The authenticity of the test report can be found on the verification page of our website (www.kes.co.kr).

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

The authenticity of the test report can be found on the verification page of our website (www.kes.co.kr).

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

Amplitude m/s^2 / 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 th 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:

a) chosen from the values in 5.1 to 5.3;
b) chosen from examples in Annex A or Annex C;
c) derived from the known environment;
d) 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.

The authenticity of the test report can be found on the verification page of our website (www.kes.co.kr).

5) Test conditions

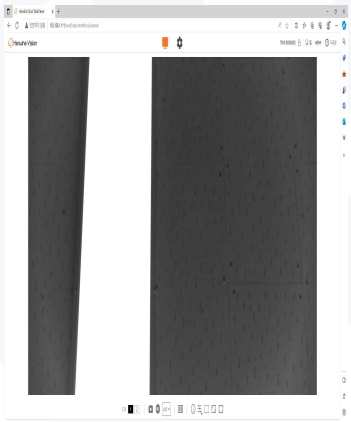
Item		Detailed description	Remarks
Test date		August 13, 2024 to August 14, 2024	-
Atmospheric condition		(25.0 ± 10.0) ℃, (50 ± 25) % R.H.	-
Test condition of E.U.T.		Packed conditions in a box	-
Power condition		Power OFF	-
Duration of endurance		Endurance by sweeping	-
Frequency range		10 Hz ~ 500 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	-

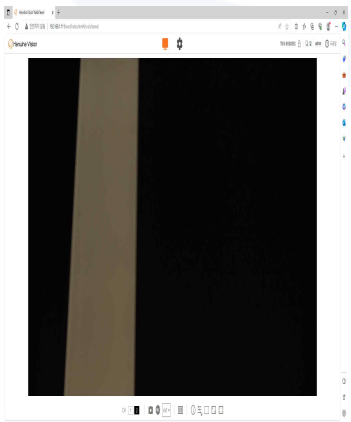
The authenticity of the test report can be found on the verification page of our website (www.kes.co.kr).

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.

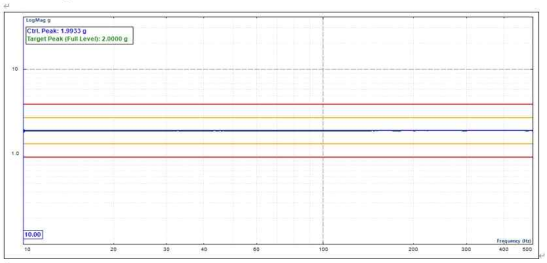
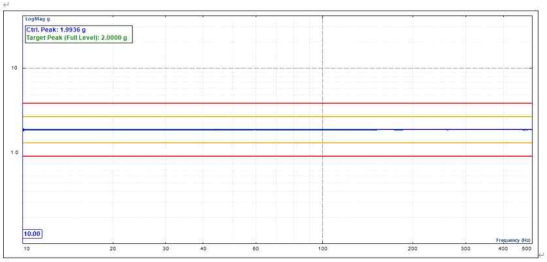
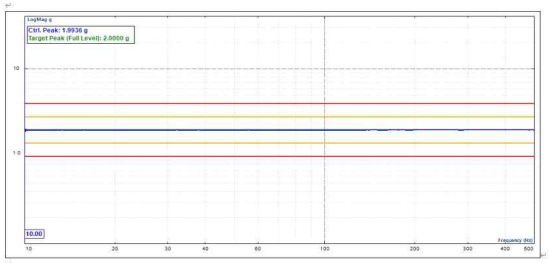
② Connect to the web viewer by entering IP(192.168.1.111).

③ Check Ch1 camera output.

④ Check Ch2 camera output.

The authenticity of the test report can be found on the verification page of our website (www.kes.co.kr).

8) Test photos & graphs

Vertical		2024. 08. 13. / 15:33:41 **Test Report** **Testing time** **Remaining Time:** 00:00:00 **Total elapsed time:** 01:07:52 **Full level elapsed time:** 01:07:44 **Run Start Time:** Aug-13-2024 15:33:41 **Test parameters** **Current Frequency:** 10.00 Hz **Sweeping Rate:** 1 Oct/Min **Sweep Number:** 12 **Signal Plot Points:** 2048 **Sweep Type:** Logarithmic **• Control Composite** 
Transverse		2024. 08. 13. / 17:12:23 **Test Report** **Testing time** **Remaining Time:** 00:00:00 **Total elapsed time:** 01:07:55 **Full level elapsed time:** 01:07:44 **Run Start Time:** Aug-13-2024 17:12:23 **Test parameters** **Current Frequency:** 10.00 Hz **Sweeping Rate:** 1 Oct/Min **Sweep Number:** 12 **Signal Plot Points:** 2048 **Sweep Type:** Logarithmic **• Control Composite** 
Longitudinal		2024. 08. 14. / 09:09:49 **Test Report** **Testing time** **Remaining Time:** 00:00:00 **Total elapsed time:** 01:07:55 **Full level elapsed time:** 01:07:44 **Run Start Time:** Aug-14-2024 09:09:49 **Test parameters** **Current Frequency:** 10.00 Hz **Sweeping Rate:** 1 Oct/Min **Sweep Number:** 12 **Signal Plot Points:** 2048 **Sweep Type:** Logarithmic **• Control Composite** 

The authenticity of the test report can be found on the verification page of our website (www.kes.co.kr).

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. 03, 2024	Apr. 03, 2025	1 year	-
2	KES-RE-107	Vibration tester	JINN Co., Ltd.	S701LS4-450	S1611032	May 02 2024	May 02 2025	1 year	-
		Accelero meter	PCB	J353B33	215333	Jan. 12 2024	Jan. 12 2025	1 year	-

- The end of test report -

The authenticity of the test report can be found on the verification page of our website (www.kes.co.kr).