

TEST REPORT

DT&C Co., Ltd.

42, Yurim-ro, 154Beon-gil, Cheoin-gu, Yongin-si,
Gyeonggi-do, Korea

Tel : 031-321-2664, Fax : 031-321-0220

Report No : DRCREL1605-0206
Pages : (1) / (23) page



1. Customer

- Name : Kun Hung Electric Co., Ltd.
- Address : 183, Hancheon-ro, Dongdaemun-gu, Seoul, 02534 Rep. of Korea

2. Use of Report : Validation

3. Product Name (Model / Serial No.) : Emergency Stop Switch (KSEB-30 Series / -)

4. Date of Test : May 02, 2016 ~ May 04, 2016

5. Test Method Used : Request of applicant

6. Testing Environment

- Temperature : (21 ± 5) °C
- Humidity : (39 ± 10) % R.H.

7. Test Result : Refer to the attached document

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 Name : KiDeok Kim (Signature)	Technical Manager Name : JaeHan Jung (Signature)
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2016. 05. 13.

DT&C Co., Ltd.

* If this test report is required to confirmation of authenticity, please contact to report@dtnc.net

TEST RESULT

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TEST RESULT

1. Overview

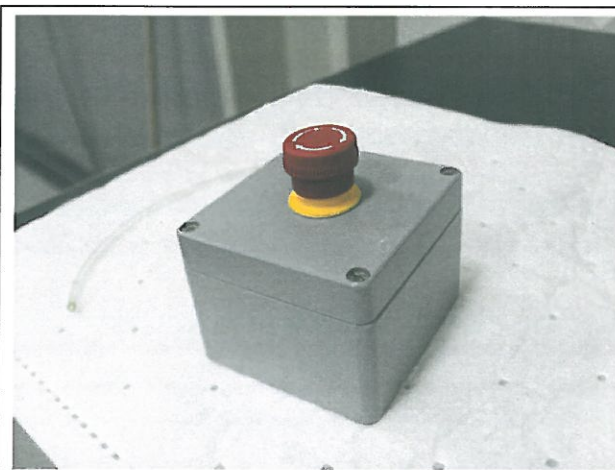
As requested by the applicant, this test was conducted on test sample according to the test specification presented by the applicant.

2. Product

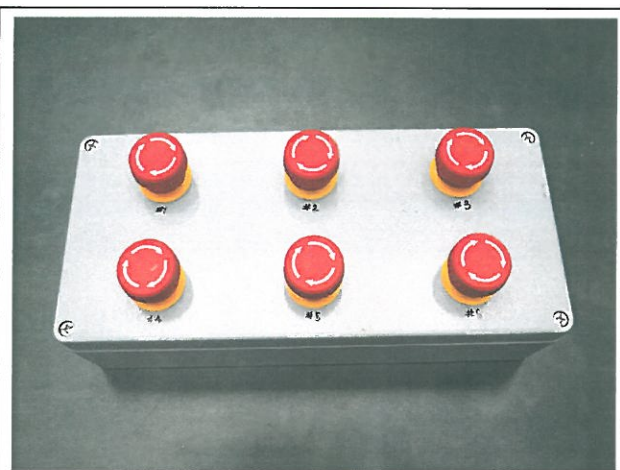
2.1. Description

- (1) Applicant : Kun Hung Electric Co., Ltd.
- (2) Manufacturer : Kun Hung Electric Co., Ltd.
- (3) Product : Emergency Stop Switch
- (4) Model : KSEB-30 Series
- (5) Serial No. : -
- (6) Derivative model : KSEB-22 Series, KSEB-25 Series

2.2. Photograph



a. IP66 Product



b. Vibration Product

[Photo 1. Emergency Stop Switch]

TEST RESULT

3. Test condition & Test result

• p-p = Peak to Peak • 0-p = Zero to Peak • 0.254 mm = 0.01 inch

3.1. Vibration test

<Table 1. Product information>

Applicant	Kun Hung Electric Co., Ltd.	Date	May 02, 2016
Product	Emergency Stop Switch	Test standard	IEC 60947-5-5
Model	KSEB-30 Series	Serial No.	-

(1) Test conditions

- 1) Test type : Sine
- 2) Frequency & acceleration, Displacement

<Table 2. Frequency & acceleration, Displacement>

Frequency (Hz)	Acceleration (m/s ²)	Displacement (mm)
(10 ~ 60.15)	-	0.7 (p-p)
(60.15 ~ 500)	50 (0-p)	-

- 3) Sweep rate : 1 oct/min
- 4) Test cycle : 10 cycles
- 5) Test time : 1 h 52 min in each axis
- 6) Test axis : X-axis, Y-axis, Z-axis
- 7) Total test time : 5 h 36 min
- 8) Sample check : Before the test and after the test visual check
- 9) Sample condition : ① Unpackaged ② Non-operation
- 10) Sample quantity : 1 Set (6 ea)

TEST RESULT

(2) List of used equipment

<Table 3. List of used equipment>

Description	Model / Manufacturer	Serial number	The next scheduled calibration date	Calibration laboratory
Vibration tester	K125 / IMV	14101525	August 24, 2016	SICT
Vibration tester	J260-HB10 / IMV	14101470	February 25, 2017	KTL
Accelerometer	VP-32 / IMV	8373U	December 31, 2016	SICT
Accelerometer	VP-32 / IMV	9602U	August 20, 2016	SICT
Hygrometer	PC-5000TRH-2 / SATO	-	January 19, 2017	HCT

(3) Test method

- 1) Perform the visual inspection check of the test specimen.
- 2) Fixed the test specimen on the test table.
- 3) Perform the vibration test in accordance with test condition.
- 4) Perform the test for the 3-axis. (X, Y, Z)
- 5) Perform the visual inspection check of the test specimen.

TEST RESULT

(4) Test photograph



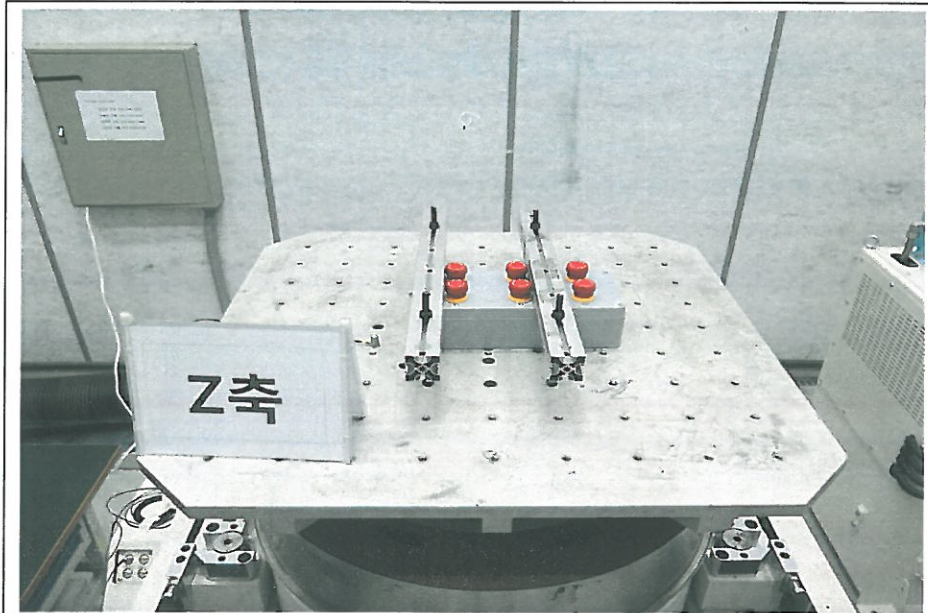
a. X-axis



b. Y-axis

TEST RESULT

<Continue>



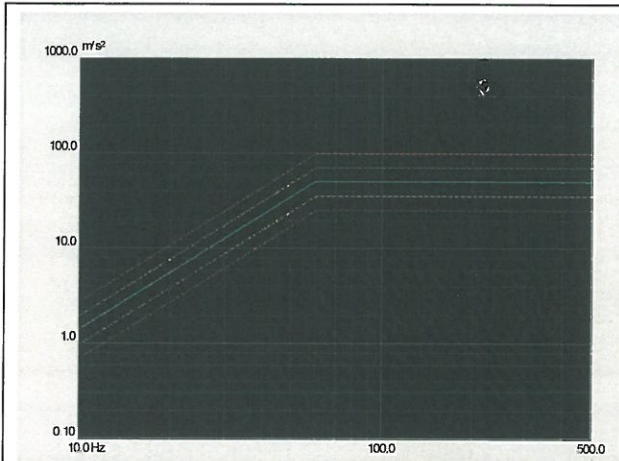
c. Z-axis

[Photo 2. Test photograph]

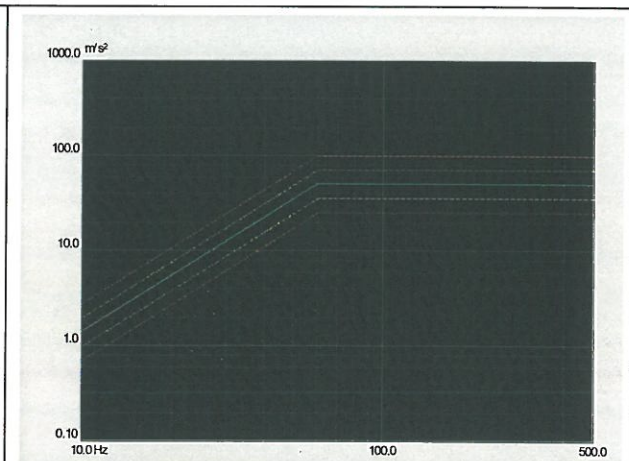
TEST RESULT

(5) Test result

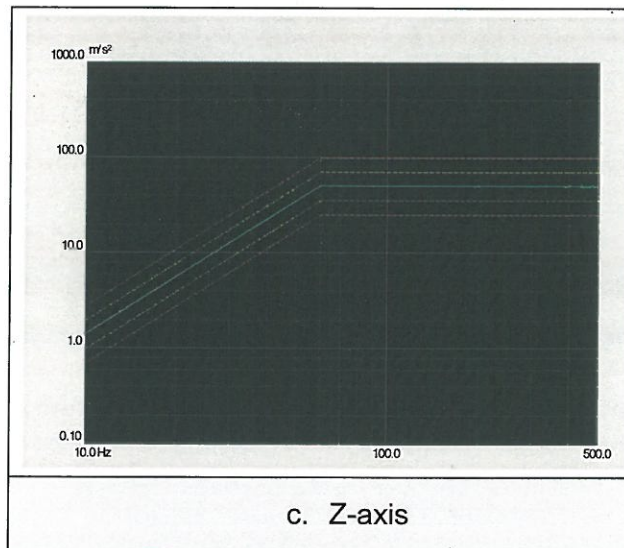
1) Test profile



a. X-axis



b. Y-axis



c. Z-axis

[Photo 3. Test profile]

TEST RESULT

2) Check the product

<Table 4. Check the product list>

Division	Check list	Test result
Visual	- Mechanical damage such as deformation, crack, separating, loosening of screw, etc.	No abnormal was found

TEST RESULT

3.2. Shock test

<Table 5. Product information>

Applicant	Kun Hung Electric Co., Ltd.	Date	May 02, 2016
Product	Emergency Stop Switch	Test standard	IEC 60947-5-5
Model	KSEB-30 Series	Serial No.	-

(1) Test Conditions

- 1) Test type : Half sine
- 2) Acceleration : 15 g
- 3) Duration time : 11 ms
- 4) Test time : 3 times in each axis
- 5) Test axis : $\pm X$ -axis, $\pm Y$ -axis, $\pm Z$ -axis
- 6) Total test time : 18 times
- 7) Sample check : Before the test and after the test visual check
- 8) Sample condition : ① Unpackaged ② Non-Operation
- 9) Sample quantity : 1 Set (6 ea)

TEST RESULT

(2) List of used equipment

<Table 6. List of used equipment>

Description	Model / Manufacturer	Serial number	The next scheduled calibration date	Calibration laboratory
Vibration tester	K125 / IMV	14101525	August 24, 2016	SICT
Vibration tester	J260-HB10 / IMV	14101470	February 25, 2017	KTL
Accelerometer	VP-32 / IMV	8373U	December 31, 2016	SICT
Accelerometer	VP-32 / IMV	9602U	August 20, 2016	SICT
Hygrometer	PC-5000TRH-2 / SATO	-	January 19, 2017	HCT

(3) Test method

- 1) Perform the visual inspection check of the test specimen.
- 2) Fixed the test specimen on the test table.
- 3) Perform the shock test in accordance with test condition.
- 4) Perform the test for the 3-axis. ($\pm X$, $\pm Y$, $\pm Z$)
- 5) Perform the visual inspection check of the test specimen.

TEST RESULT

(4) Test photograph



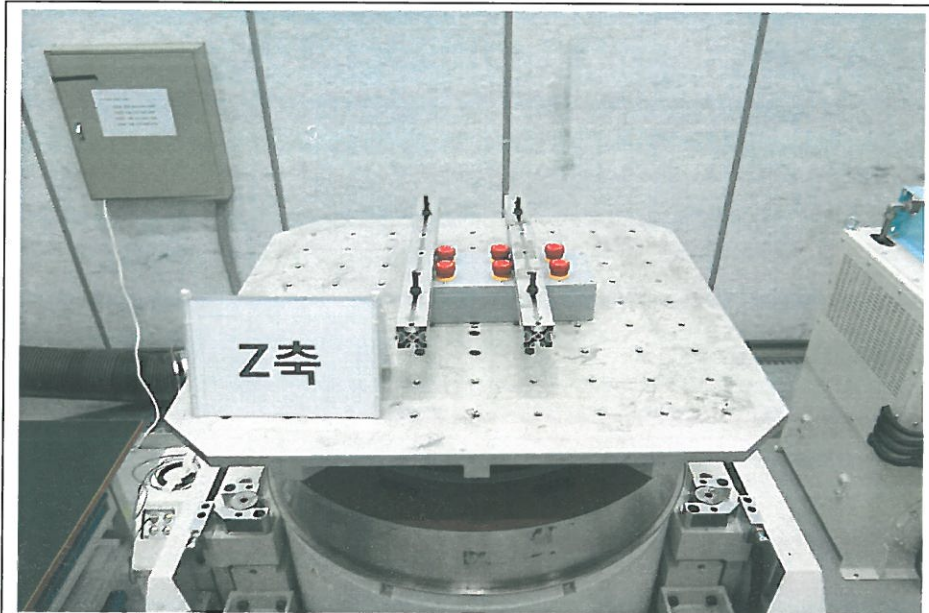
a. \pm X-axis



b. \pm Y-axis

TEST RESULT

<Continue>



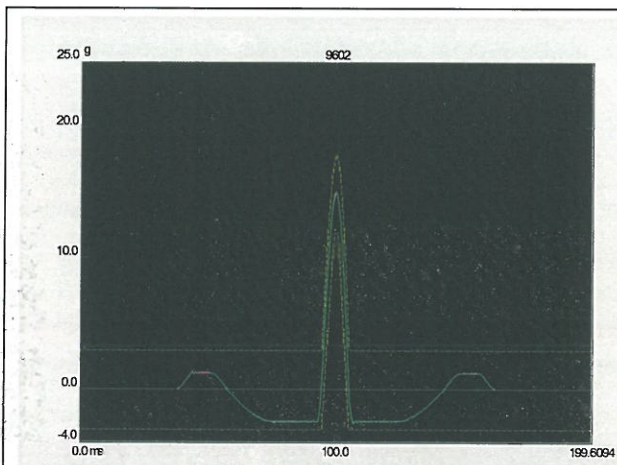
c. $\pm Z$ -axis

[Photo 4. Test photograph]

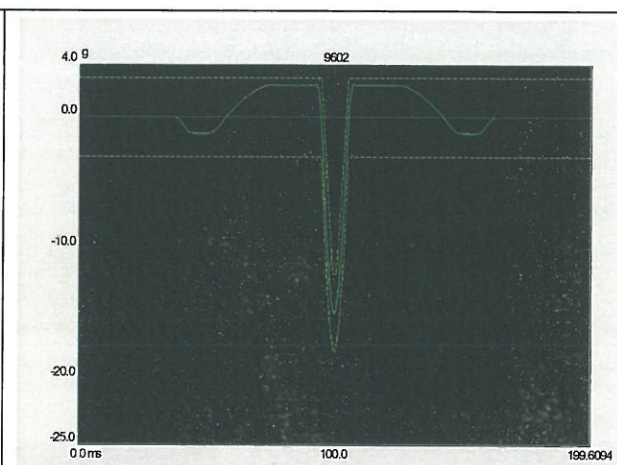
TEST RESULT

(5) Test result

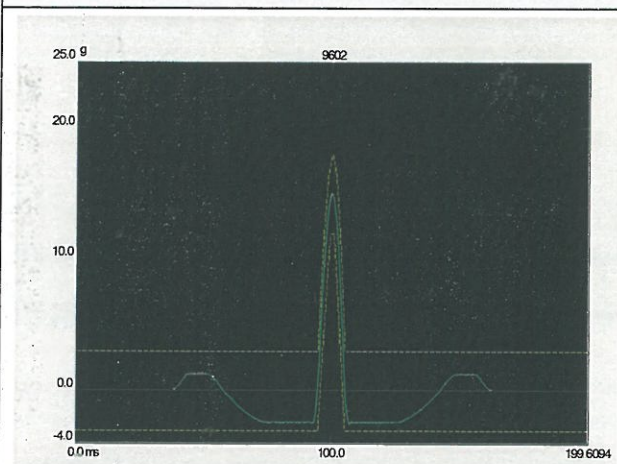
1) Test profile



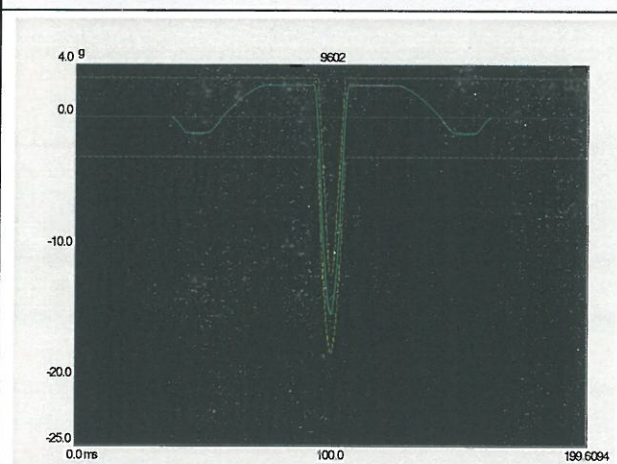
a. X-axis (Positive)



b. X-axis (Negative)



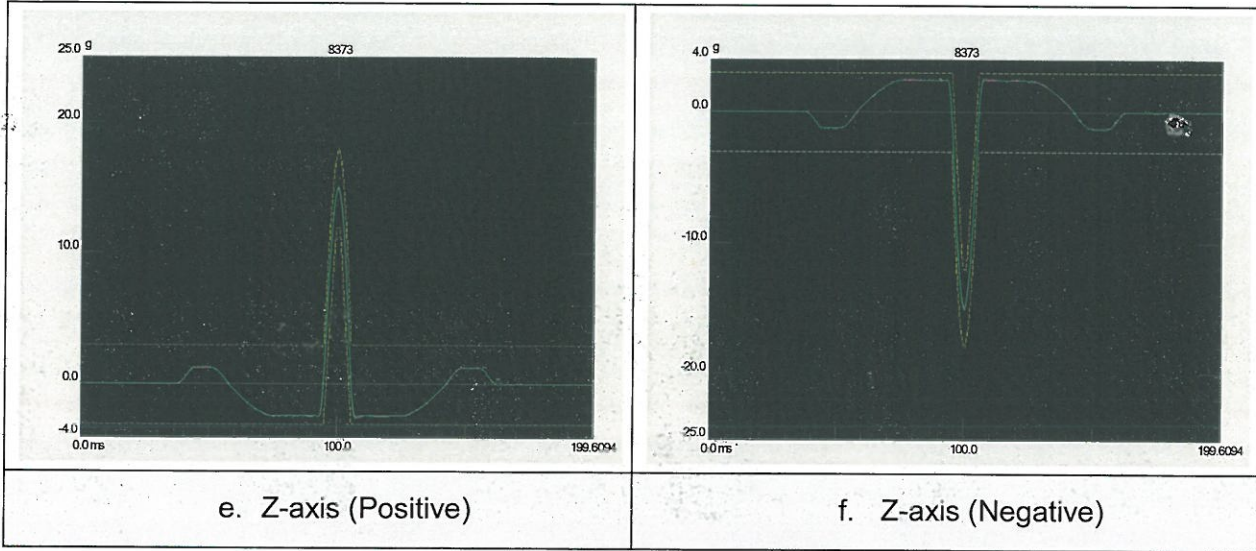
c. Y-axis (Positive)



d. Y-axis (Negative)

TEST RESULT

<Continue>



[Photo 5. Test profile]

2) Check the product

<Table 7. Check the product list>

Division	Check list	Test result
Visual	- Mechanical damage such as deformation, crack, separating, loosening of screw, etc.	No abnormal was found

TEST RESULT

3.3. IPX6

<Table 8. Product information>

Applicant	Kun Hung Electric Co., Ltd.	Date	May 03, 2016
Product	Emergency Stop Switch	Test standard	IEC 60529 : 2013
Model	KSEB-30 Series	Serial No.	-

(1) Test Conditions

- 1) IP Code : IPX6 (Protected against powerful water jets)
- 2) Waterproof rate: 100 x (1 ± 5 %) L/min
- 3) Spray distance : (2.5 ~ 3.0) m
- 4) Test time : 3 min
- 5) Sample condition : ① Unpackaged ② Non-operation
- 6) Sample quantity : 1 ea

TEST RESULT

(2) Used equipment

<Table 9. List of used equipment>

Description	Model / Manufacturer	Serial number	The next scheduled calibration date	Calibration laboratory
Water Resistance Tester	SOS-100 / SCM TECH	-	-	-
Area flow meter	GA-101 / Kometer	G-1503240	March 12, 2017	Kometer
Stop Watch	Stop Watch / CASIO	412Q08R	February 24, 2018	HCT
Tape line	SFGL25-75(7.5m) / TAJIMA	258954	February 25, 2017	SICT

TEST RESULT

(3) Test photograph



a. Before the test



b. During the test



c. After the test

[Photo 6. Test photograph]

TEST RESULT

(4) Test result

<Table 10. Test result>

Check list	Test result
Confirmation of dust penetration	No dust penetration was found (Refer to ※ Appendix 1.)

TEST RESULT

3.4. IP6X

<Table 11. Product information>

Applicant	Kun Hung Electric Co., Ltd.	Date	May 03, 2016 ~ May 04, 2016
Product	Emergency Stop Switch	Test standard	IEC 60529 : 2013
Model	KSEB-30 Series	Serial No.	-

(1) Test Conditions

- 1) IP Code : IP6X (Dust-tight)
- 2) Talcum powder(mesh) : wire diameter of which is 50.μm and the nominal width of
a gap between wires 75 μm
- 3) Amount of talcum powder of the test chamber : 2 kg/m³
- 4) Maximum depression : 2 kPa (20 mbar)
- 5) Test time : 8 h
- 6) Sample condition : ① Unpackaged ② Non-operation
- 7) Sample quantity : 1 ea

TEST RESULT

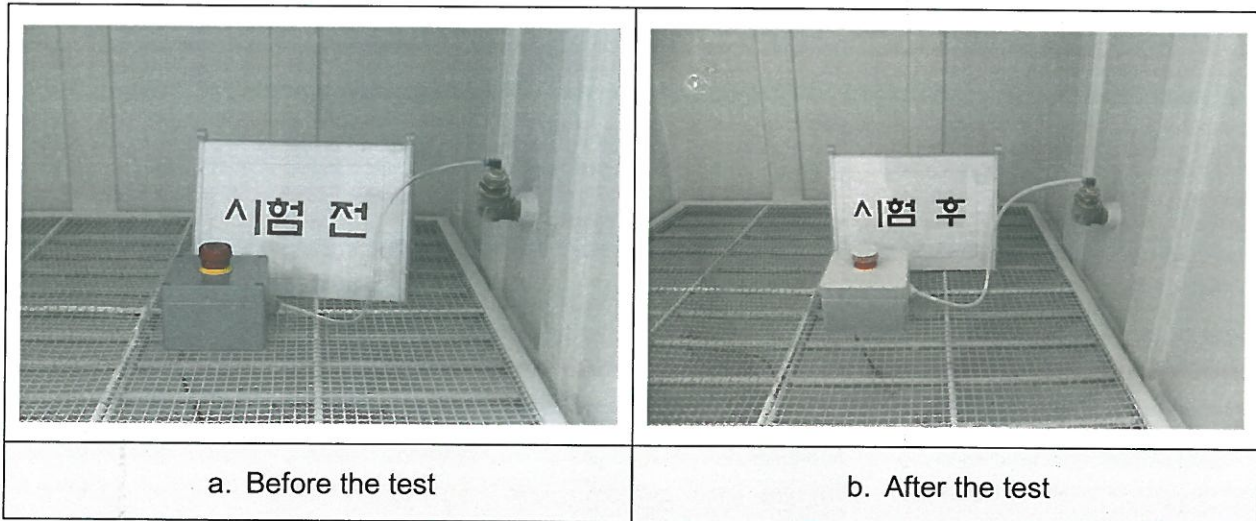
(2) List of used equipment

<Table 12. List of used equipment>

Description	Model / Manufacturer	Serial number	The next scheduled calibration date	Calibration laboratory
Dust Tester (Timer)	EN-DCT-1000F / Enex (LE3S)	- (14-16764)	- (April 17, 2017)	- (Cal Lab)
Standard Sieve	75 μ m / ChungGye Industrial Mfg., Co.	N/A	March 27, 2017	KTL
Differential Pressure Gauge	(0 ~ 2.9) kPa / DWYER	N/A	June 10, 2016	SCTI
Gas Flow Meter	RMA-14-SSV / DWYER INSTRUMENTS	N/A	May 07, 2016	KTL

TEST RESULT

(3) Test photograph



[Photo 7. Test photograph]

(4) Test result

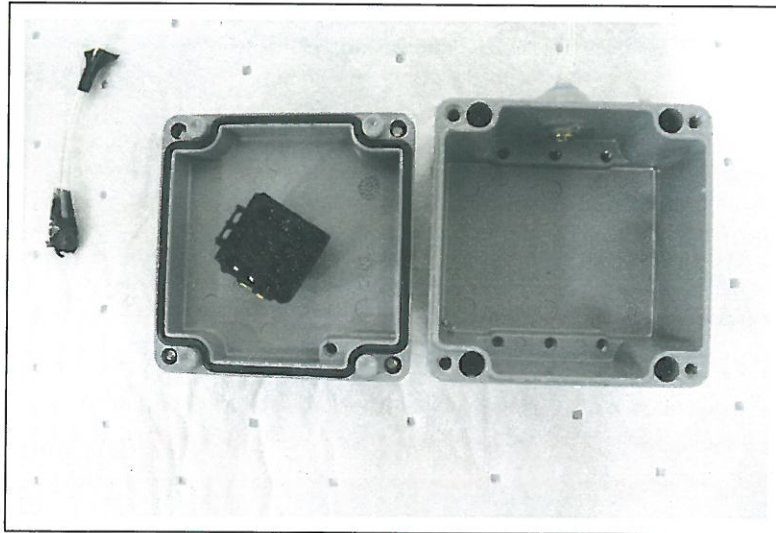
<Table 13. Test result >

Check list	Test result
Confirmation of dust penetration	No dust penetration was found (Refer to ※ Appendix 1.)

TEST RESULT

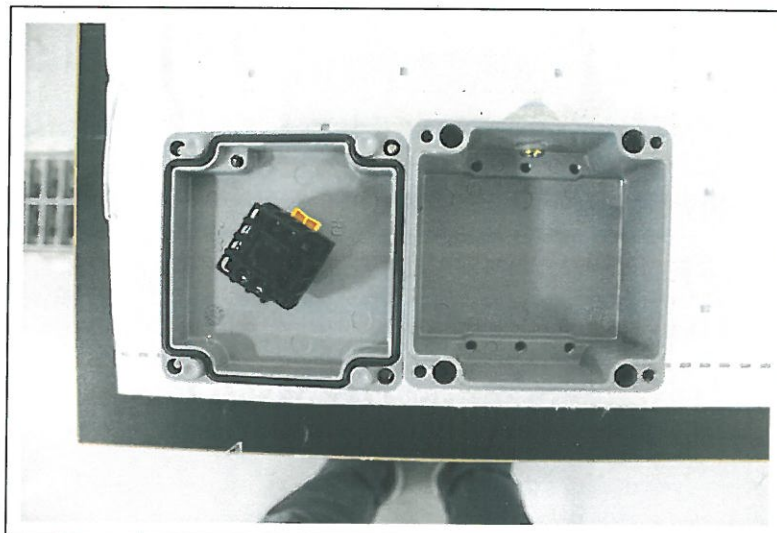
※ Appendix 1. IP66 test result photograph

(1) IPX6



[Photo 8. IPX6 Test result]

(2) IP6X



[Photo 9. IP6X Test result]

- End -