Reliability Test Report

Applicant and Manufacturer Informations

Applicant name ..... : KYTronics Co., Ltd.

Address..... : A-306, Twin Tower, 144, Gwangdeok 4-ro, Danwon-gu, Ansan-si, Gyeonggi-do, REPUBLIC OF KOREA

Manufacturer name.....: KYTronics Co., Ltd.

Manufacturer address .....: A-306, Twin Tower, 144, Gwangdeok 4-ro, Danwon-gu, Ansan-si, Gyeonggi-do, REPUBLIC OF KOREA

Date of receipt..... : 2022-04-28

Purpose of the test report .. : For qualitiy management

Product Informations

Product description .....: Card reader

Model name .....: KEC-4500

Ratings .....: -

Serial No.....: -

Derivative model name.....: -

Testing Informations

Test standard / method..... : IEC 60529 / IP65

Period of testing ..... : 2022-05-03 to 2022-05-04

Test environment..... : Temp.: (25 ± 10) °C, Relative Humidity: (50 ± 25) %

Test result..... : See the test result

- The test result of this test report only limited in the sample(s) provided by the applicant.
- This test report shall be used only within the purpose of its defined usage and also shall not be used for public relation, advertisement and suit.
- **This report is not related to the approval of the Korean Accreditation Organization (KOLAS). This report is not valid internationally recognized under ILAC-MRA.Option**
- It is not allowed to copy this report even partly without the permission of testing Laboratory.
- This report shall not be used by the applicant to claim product endorsement by any agency.

Tested by (Engineer) **Approved by (Technical Manager)**

Name : Dokyung, Thak (Signature) **Name : Seungwon, Moon** (Signature)

2022-05-04

Bureau Veritas CPS ADT Korea Ltd.

1. Test Result

1.1 Dust-proof Test

Test subject	Test requirement			Remark
First characteristic numeral	Protection against access to hazardous parts	☐ IP0X	Not-protected.	-
		☐ IP1X	The sphere of 50 mm Ø shall have adequate clearance from hazardous parts. (50 N applied)	-
		☐ IP2X	The jointed test finger of 12 mm Ø and 80 mm length shall have adequate clearance from hazardous parts. (10 N applied)	-
		☐ IP3X	The test rod of 2.5 mm Ø shall not penetrate and adequate clearance shall be kept. (3 N applied)	-
		☐ IP4X	The test wire of 1.0 mm Ø shall not penetrate and adequate clearance shall be kept. (1 N applied)	-
		☐ IP5X	The test wire of 1.0 mm Ø shall not penetrate and adequate clearance shall be kept. (1 N applied)	-
		☒ IP6X	The test wire of 1.0 mm Ø shall not penetrate and adequate clearance shall be kept. (1 N applied)	Pass (No pass through the opening)
	Protection against solid foreign objects	☐ IP0X	Non-protected	-
		☐ IP1X	The sphere of 50 mm Ø shall not penetrate and adequate clearance shall be kept. (50 N applied) [1)]	-
		☐ IP2X	The sphere of 12.5 mm Ø shall not fully penetrate (30 N applied) [1)]	-
		☐ IP3X	The test rod of 2.5 mm Ø shall not penetrate and adequate clearance shall be kept. (3 N applied) [1)]	-
		☐ IP4X	The test wire of 1.0 mm Ø shall not penetrate and adequate clearance shall be kept. (1 N applied) [1)]	-
		☐ IP5X	Ingress of dust in not totally prevented, but dust shall not penetrate in a quantity to interfere with satisfactory operation of the apparatus or to impair safety.	-
		☒ IP6X	No ingress of dust	Pass (No penetrate)
Supplementary information: [1)] The full diameter of the object probe shall not pass through an opening of the enclosure.				

1.2 Water-proof Test

Test subject	Test requirement			Remark
Second characteristic numeral	Degree of protection against water	☐ IPX0	No-protected	-
		☐ IPX1	Protected against vertically falling water drops. Test conditions: Flow rate: 1 mm/min, Rotation speed: 1 r/min Eccentricity (distance between turntable axis and specimen axis): Approximately 100 mm Duration of test: 10 min.	-
		☐ IPX2	Protected against vertically falling water drops when enclosure tilted up to 15°. Test conditions: Flow rate: 3 mm/min. Duration of test: 10 min. (2.5 min. in each of four fixed positions of tilt)	-
		☐ IPX3	Protected against spraying water. Test conditions: ☐ Oscillating tube Spray ± 60° from vertical, distance max. 200 mm, Flow rate: 0.07 L/min. (per hole multiplied by number of holes). Duration of test: 10 min. ☐ Spray nozzle Spray ± 60° from vertical. Flow rate : 10 L/min, Water pressure: (50 – 150) kPa, Duration of test: Enclosure surface area shall be 1 min per 1 m2 at least 5 min.	-
		☐ IPX4	Protected against spraying water. Test conditions: ☐ Oscillating tube Spray ± 180 o from vertical, distance max. 200 mm, Flow rate: 0.07 L/min. (per hole multiplied by number of holes) Duration of test: 10 min. ☐ Tube Radius: 200 mm ☐ Tube Radius: 400 mm ☐ Tube Radius: 800 mm ☐ Spray nozzle Spray ± 180° from vertical. Flow rate : 10 L/min, Water pressure : (50 – 150) kPa, Duration of test : Enclosure surface area shall be 1 min per 1 m^2 at least 5 min.	-

Second characteristic numeral	Degree of protection against water	☒ IPX5	Protected against water jets. Test conditions: Diameter of the nozzle：6.3 mm / delivery rate: 12.5 L/min. Core of the substantial stream: Circle of approximately 40 mm diameter at 2.5 m distance from nozzle. Distance from nozzle to enclosure surface: between 2.5 m and 3 m, Duration of test : Enclosure surface area shall be 1 min per 1 m^2 at least 3 min.	Pass (No penetrate)
		☐ IPX6	Protected against powerful water jets. Test conditions: Internal diameter of the nozzle: 12.5 mm / Delivery rate: 100 L/min. Core of the substantial stream: Circle of approximately 120 mm diameter at 2.5 m distance from nozzle distance from nozzle to enclosure surface: between 2.5 m and 3 m, Duration of test : Enclosure surface area shall be 1 min per 1 m^2 at least 3 min.	-
		☐ IPX7	Protected against the effects of temporary immersion in water. Test conditions: The lowest point of enclosures with a height less than 850 mm is located 1 000 mm below the surface of the water. The highest point of enclosures with a height equal to or greater than 850 mm is located 150 mm below the surface of the water. Duration of test : 30 min.	-
		☐ IPX8	Protected against the effects of continuous immersion in water. Test conditions: The test conditions are subject to agreement between manufacturer and user, but they shall be more severe than those prescribed in numeral 7 and they shall take account of the condition that the enclosure will be continuously immersed in actual use. Distance from the upper end of the enclosure surface to the surface of the water : ____ m Duration of test: ___ min.	-
		☐ IPX9	Protected against high pressure and temperature water jets Flow rate: (15 ± 1) L/min. ☐ Turn Table speed (5 ± 1) r/min Spray at 0°, 30°, 60°, 90° Duration of test: 30 s per position ☐ Test of large enclosure as per intended use. Spray from all practical directions distance:(175 ± 25) mm, Duration of test: 1 min/m^2 at least 3 min.	-
Supplementary information: -				

2. Photographs of EUT

< Front view >

< Rear view >

3. Test photographs

3.1 Dust test for first characteristic numeral (Cl. 13)

< Before Test >

< After Test >

3.2 Water test for second characteristic numeral (Cl. 14)

< Before Test >

< During Test >

4. Photographs after test

4.1 Access to hazarous parts for first characteristic numeral (Cl. 12)

4.1 Dust test for first characteristic numeral (Cl. 13)

4.3 Water test for second characteristic numeral (Cl. 14)

< End of test report >