



**Pozyx
Anchor PoE+
Anchor IP66/67 Lid
(IP)**



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Environmental Test Report

**EUT :
Pozyx
Anchor PoE+
Anchor IP66/67 Lid
(IP)**

Filename : ENV-056-2020

Date : 11 Dec. 2020



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Approval Sheet

Function title		Name	Signature	Date
Technical Support Engineer	Author	Jorn Dekyvere		11 Dec. 2020
Technical Manager	Reviewer	Ivan Malfait		11 Dec. 2020

B G E M C L A B



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Test Overview and Results

Test	Test Date	Test result
Degrees of protection provided by enclosures for electrical equipment against access to hazardous parts (IP6X code)	27 Aug. 2020	Pass
Degrees of protection provided by enclosures for electrical equipment against solid foreign objects (IP6X code)	27 Aug. 2020 28 Aug. 2020	Pass
Degrees of protection provided by enclosures for electrical equipment against ingress of water (IPX6 code)	02 Oct. 2020	Pass
Degrees of protection provided by enclosures for electrical equipment against ingress of water (IPX7 code)	27 Aug. 2020	Pass



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Revision history

Document	Release	Release date	Author	Description
ENV-056-2020	01	11 Dec. 2020	Jorn Dekyvere	Initial release

Referenced data items

The table below lists all data items that are used or referenced to in this report (Categories : Customer info, Standards, Other info)

Document name	Release date	Revision	Category
EN 60529:1991 +A1:2000+A2:2013	2013	NA	Standard
IEC 60529:1989 +A1:1999+A2:2013	2013	NA	Standard

Abbreviations and acronyms

Abbreviation	
EUT	Equipment Under Test
RH	Relative Humidity



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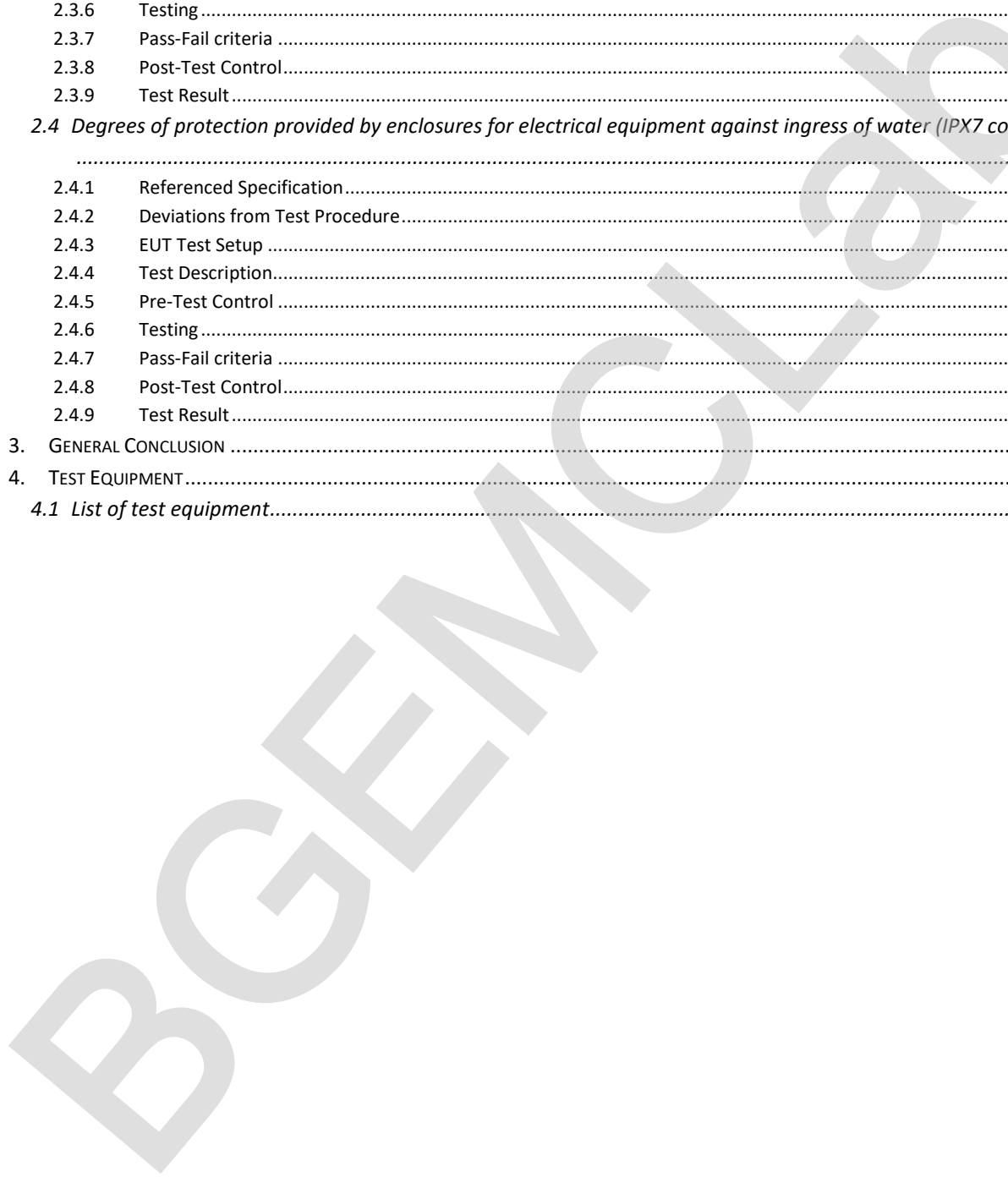


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1. EUT Description

1.1 EUT Identification

EUT Anchor:

Name : Pozyx Anchor PoE+
Item number : 100020002-1
Serial Number : 20310042

EUT IP66/67 Lid:

Name : Anchor IP66/67 Lid
Item number : 900100101-1



1.2 Customer Identification

Manufacturer: Pozyx NV
Vrijdagmarkt 10/201
9000 Gent
Belgium
Offer Number: BGEMC-20-209

2. Tests

Atmospheric conditions in test lab:

Ambient Temperature* : 21,9 °C
Ambient Relative Humidity * : 57 %RH

Water Temperature : 22,2 °C

2.1 Degrees of protection provided by enclosures for electrical equipment against access to hazardous parts indicated by the first characteristic numeral (protection of persons) (IP6X)

2.1.1 Referenced Specification

Test Performed according EN 60529:1991 + A1:2000 + A2:2013

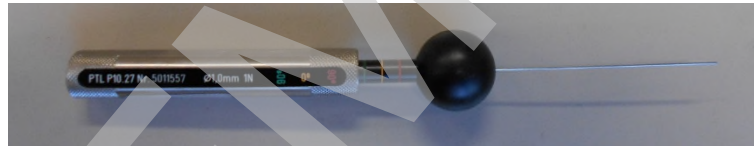
6	Protection against hazardous parts with a wire	1.0 mm probe
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2.1.2 Deviations from Test Procedure

None

2.1.1 EUT Test Setup

- The EUT is mounted and positioned in position or as instructed by manufacturer or the relevant product specification: EUT tested unmounted, representative cabling connected.
- Test equipment: Test wire 1.0 mm



2.1.2 Test Description

- The EUT is not operational during the test
- The access probe is pushed against or inserted through any openings of the enclosure with the force specified in the table below:

Degrees of protection against access to hazardous parts indicated by the first characteristic numeral (protection of persons)		
6	Test wire 1 mm (PEMC 11-005)	1N

- If applicable (not required if it's obvious the access probe is not penetrating at all) for low voltage equipment (<1000VAC/1500VDC) a low voltage supply (40V-50V) in series with a suitable lamp will be connected between the probe and the hazardous parts inside the enclosure:

2.1.3 Pre-Test Control and initial measurements

- Specific observations/conditions: representative cabling connected to EUT

2.1.4 Pre-conditioning

None

2.1.5 Testing



2.1.6 Pass-Fail criteria

To comply with the conditions of the first characteristic numeral, adequate clearance shall be kept between the access probe and the hazardous parts (as practical definition of hazardous live parts definition 1.2.8.6 of IEC60950 is applied):

- The protection is satisfactory if adequate clearance is kept between the access probe and hazardous parts.



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2.1.7 Post-Test Control

- Specific observations/conditions: none

2.1.8 Final measurements

None

2.1.9 Test Result

No hazardous parts can be touched by the test probe. The probe could not enter the unit.

Test Results: PASS

2.2 Degrees of protection provided by enclosures for electrical equipment against solid foreign objects by the first characteristic numeral 6 (protection of equipment) (IP6X)

2.2.1 Referenced Specification

Test Performed according EN 60529:1991 + A1:2000 + A2:2013

6	Dust protected	dust chamber
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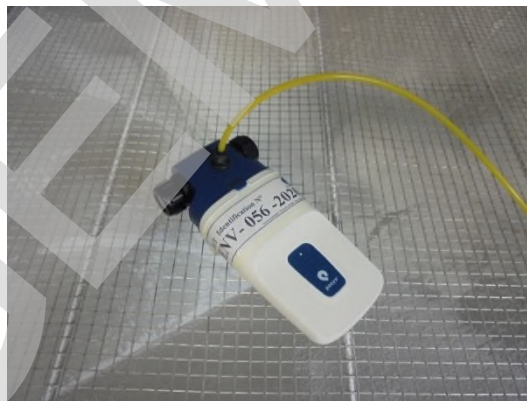
Category 1 (with under pressure) for IP6X

2.2.2 Deviations from Test Procedure

None

2.2.3 EUT Test Setup

- The EUT is placed in the dust chamber.
- A small hole (12mm) was made in the housing for the depression connection (by means of a dedicated nipple)
- The EUT is tested non-operational.



2.2.4 Test Description

- The EUT is not operational during the test
- Parameters for category 1.
- The object of the test is to draw into the enclosure, by means of depression, a volume of air 80 times the volume of the enclosure tested without exceeding the extraction rate of 60 volumes per hour. In no event shall the depression exceed 20 mbar (20 kPa or 0,002MPa).
- The volume of the EUT is approximately $100 * 230 * 40 \text{ mm} = 0,92 \text{ liter}$ (-> $80 * \text{volume} = 80 * 0,92 \text{ liter} = 73,6 \text{ liter}$)
- The maximum extraction rate of 60 volumes/hour = 55,2 liter/hour
- Extraction rate during test: 330 liter/hour (5,5 liter/minute) → test the EUT for 2 hours

2.2.5 Pre-Test Control

- Check if the EUT is operating normally: OK
- Specific observations/conditions: connectors are left “closed”

2.2.6 Testing

- Testing for 2 hours, with cycles of 10 minutes (5 minutes circulation, 5 minutes rest)
- Manometer pressure < 20 mbar



2.2.7 Pass-Fail criteria

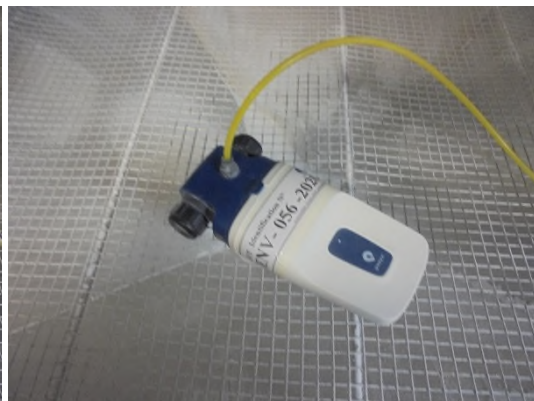
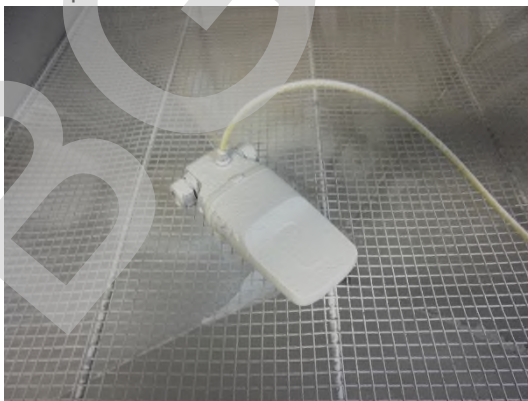
The EUT will pass the test when :

- No dust ingress can be seen.

2.2.8 Post-Test Control

The dust on the outside of the EUT was mostly wiped off using a soft cloth.

- Check if the EUT is operating normally: OK
- Specific observations/conditions: none



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2.2.9 Test Result

- Check if the EUT is operating normally: OK
- No deposit of dust was found inside the enclosure

Test Results: PASS

2.3 Degrees of protection provided by enclosures for electrical equipment against ingress of water (IPX6 code)

2.3.1 Referenced Specification

Test performed according EN 60529:1991 +A1:2000 +A2:2013, protection against ingress of water

6	Protection against powerful water jets	Water jet nozzle
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2.3.2 Deviations from Test Procedure

None

2.3.3 EUT Test Setup

- The EUT is mounted in vertical position
- The turntable was rotating as the EUT.
- Test equipment: Water jet hose noddle with flow meter (12,5 mm diameter)



2.3.4 Test Description

- The EUT is not operational during the test
- The EUT was sprayed from all directions
- Water flow rate: 100 liter per minute
- Duration of test: 1min/m², at least 3 min (IPX5/6) -> 3 minutes
- Distance from nozzle to EUT: between 2,5 and 3 meter



2.3.5 Pre-Test Control

- Specific observations/conditions: none

2.3.6 Testing



2.3.7 Pass-Fail criteria

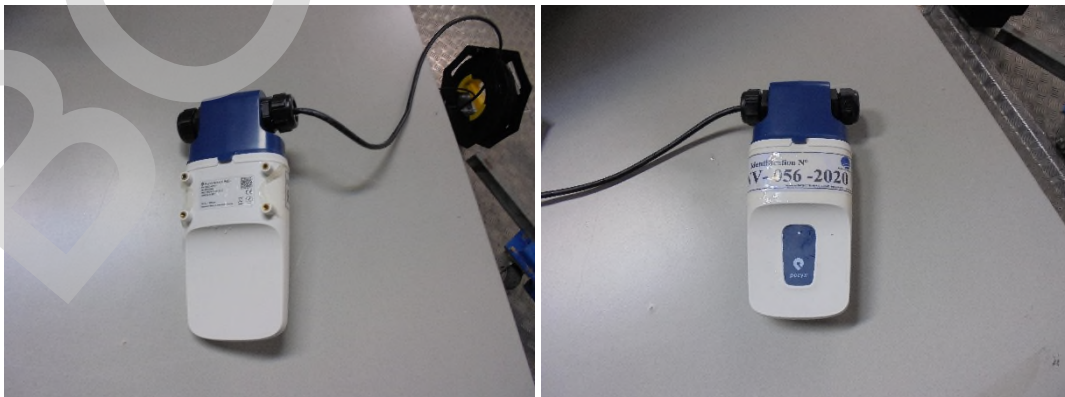
The EUT will PASS the test when :

- No ingress of water observed, or if ingress of water is observed it shall not:
 - be sufficient to interfere with the correct operation of the equipment,
 - deposit on insulation parts,
 - reach live parts or windings not designated to operate when wet,
 - accumulate near the cable end or enter the cable if any

2.3.8 Post-Test Control

After the test, the EUT is evaluated by visual inspection on the outside for water ingress.

- Specific observations/conditions: inside is no water is present





2.3.9 Test Result

There was no water ingress into the EUT.

Test Results: PASS

2.4 Degrees of protection provided by enclosures for electrical equipment against ingress of water (IPX7 code)

2.4.1 Referenced Specification

Test performed according EN 60529:1991 +A1:2000 +A2:2013, protection against ingress of water

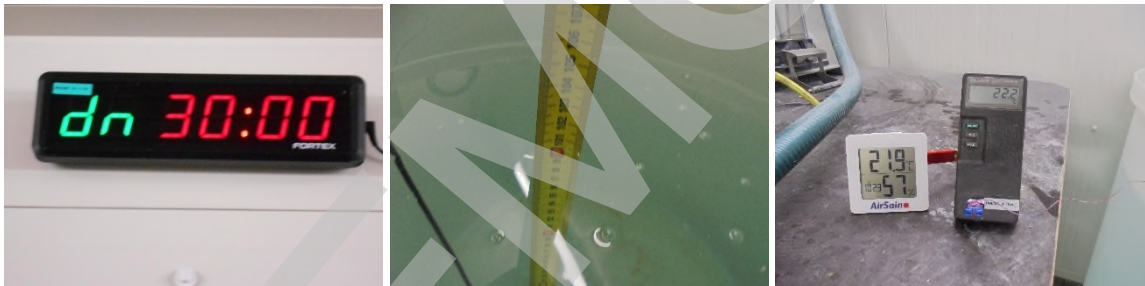
7	Protection against temporary immersion	Water tank
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2.4.2 Deviations from Test Procedure

None

2.4.3 EUT Test Setup

- The EUT is mounted in normal position on a plate using straps
- Test equipment: Water tank



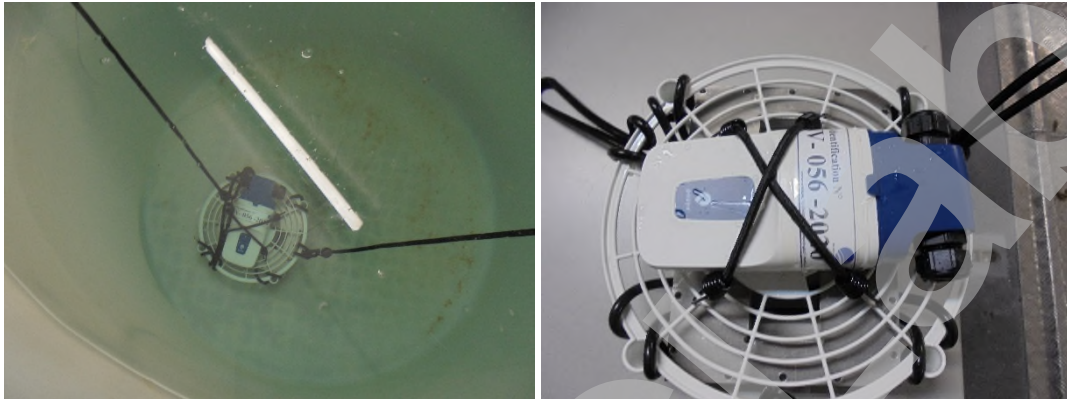
2.4.4 Test Description

- The EUT is not operational during the test
- The lowest point of the EUT was submerged 1m below the water surface.
- Duration of test: 30 min.

2.4.5 Pre-Test Control

- Specific observations/conditions: none

2.4.6 Testing



2.4.7 Pass-Fail criteria

The EUT will PASS the test when :

- No ingress of water observed, or if ingress of water is observed it shall not:
 - be sufficient to interfere with the correct operation of the equipment,
 - deposit on insulation parts,
 - reach live parts or windings not designated to operate when wet,
 - accumulate near the cable end or enter the cable if any

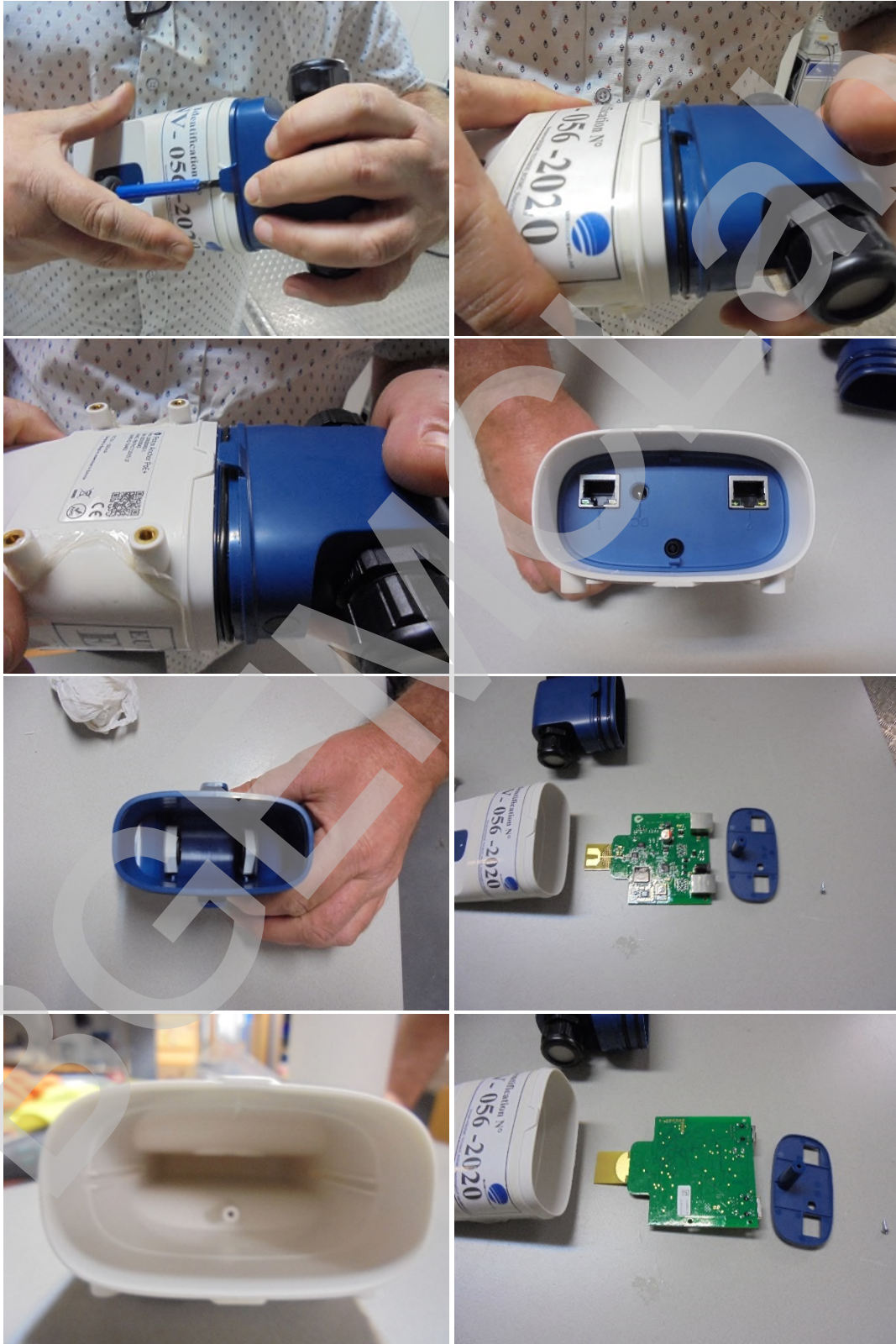
2.4.8 Post-Test Control

After the test, the EUT is evaluated by visual inspection on the outside for water ingress. The EUT is screwed open to check for water ingress.

- Specific observations/conditions: inside is no water is present



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2.4.9 Test Result

There was no water ingress into the EUT.

Test Results: PASS

3. General Conclusion

The EUT passes the IP66 and IP67

4. Test Equipment

4.1 List of test equipment

Equipment	Brand	Model	Serial number
Test wire 1.0 mm (rigid IEC steel rod with dynamometer 1N) PEMC 11-005	PTL	PTL P10.27	5011557
Dust chamber BGEMC 01-055	Shenzen Autostrong Instrument Co, Ltd	U13-SS0J08	U13-20140804
Air pressure/flow meter BGEMC 01-084	Testo	512	AF024086/601
Water jet hose noddle IP5/6 (6,3 / 12,5 mm diameter) BGEMC 01-042	Shenzen Autostrong Instrument Co, Ltd	AUTO_IPX5/6	AUTO130902001
Flow meter (19-190l/min) BGEMC 01-064K	Great Plans Industries	TM100	01/064
Timer 99 min BGEMC 01-117K	Fortex	FX-TMR-01	N/A
Temperature/humidity meter BGEMC 01-107K	Testo	608-H1	706 0147/0660 6081/45117109
Water Tank BGEMC 01-043	N/A	1200 L	BGEMC 01-043