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File Number **20/36402312M1**

TEST REPORT
Degrees of Protection Provided by Enclosures (IK Code)

Petitioner's Reference: LIBELIUM COMUNICACIONES DISTRIBUIDAS, S.L.

Customer Address: Av. María Zambrano, 31
Edificio WTC – Torre Este, Planta 7
E-50018 – Zaragoza

Sample: **Smart Parking Sensor**

Brand:	Libelium	Model:	Smart Parking
s/n:	N/A	Internal. id. number:	ELT0053/1

Result:

The samples described before have been tested according to the specifications detailed in section 1.5, based on the reference standard specified bellow, with a degree of protection:

Degree of protection (IK): IK10 (20 J)

After test, no cracks nor holes are observed on the tested samples.

Reference Standard:

UNE-EN 50102:1996+A1:1999+Corr:2002+A1 CORR:2002 (EN 62262:2002)	*Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code).*

Date of issue: Bellaterra, April 20, 2023

Omar Velásquez Tito
Technical Manager
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This report replaces and annuls the report with number 20/36402312 *dated* 07-10-2020.
Modifications made: Remove watermark on pages 5 and 6. Correction of internal id. number on page 1.
It is the responsibility of the petitioner to replace the previous version with this one.
The results refer only and exclusively to the sample, product or material delivered for testing in "Equipment" section above. The equipment has been tested under conditions stipulated by standard(s) quoted in this document.
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This is the first page of the document, which consists of **9** pages of which **3** are annexes.

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1. GENERAL TEST CONFIGURATION

1.1 General data

Report number:	**20/36402312M1**
Date of receipt:	29/09/2020
Date of performance of test (start):	07/10/2020
Date of performance of test (end):	07/10/2020
Testing Laboratory:	LGAI Technological Center, S.A.
Address:	Campus de la UAB. Ronda de la Font del Carme, s/n. 08193 Bellaterra (Barcelona – España)

1.2. Equipment received and tested

Equipment:	Smart Parking Sensor
Manufacturer:	Libelium
Brand:	Libelium
Model:	Smart Parking
S/N:	N/A
Internal identification number:	ELT0053/1

1.3. Ratings

Protection index (IK Code):	IK10
Protection index (IP Code):	NA
Weight:	0,3 kg

1.4. Environmental conditions during tests

Temperature (ºC):	23,2
Relative humidity (%):	50

1.5. Applied specifications

Following the petitioner requirement, the provided samples are submitted to an IK10 (20 J) impact, according to UNE-EN 50102:1996 + A1:1999 + Corr:2002 + A1 CORR:2002 (EN 62262:2002)

1.6. Picture of the tested samples

1.7. Measuring uncertainties

Measurement uncertainties have been calculated and are available to the customer on request.

1.8. Possible test case verdicts

Test case does not apply to the test object	NA (Not Applied)
Test object meets the requirement	P (Pass)
Test object does not meet the requirement	F (Fail)
Test object is not evaluated	NT (Not Tested)
Observation about test object	OBS (Observation)

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Within our improvement program we would be grateful if you would send us any commentary that you consider opportune, to the person in charge who signs this document, or to the Quality Manager of Applus+, in the following e-mail address: satisfaccion.cliente@applus.com

UNE-EN 50102:1996+A1:1999+Corr:2002+A1 CORR:2002

Clause	Requirement - Test	Result - Remark	Verdict

2. RESULTS

4	**DESIGNATION**		**P**
4.1	Code disposition	IK10	**P**
4.2	Applied code :	IK10	**P**
	IK 00	Not protected	N/A
	IK 01	Energy 0.14 J	N/A
	IK 02	Energy 0.2 J	N/A
	IK 03	Energy 0.35 J	N/A
	IK 04	Energy 0.5 J	N/A
	IK 05	Energy 0.7 J	N/A
	IK 06	Energy 1 J	N/A
	IK 07	Energy 2 J	N/A
	IK 08	Energy 5 J	N/A
	IK 09	Energy 10 J	N/A
	IK 10	Energy 20 J	**P**
4.3	IK degree applied to all enclosure	IK10	**P**
	Enclosure with different IK degrees	---	N/A

5	**GENERAL CONDITIONS**		---
5.1	Environmental conditions according to standard	Temperature: 23,2º / 50% rh Atmospheric pressure: 1015 hPa	**P**
5.2	Enclosure clean and dry		**P**
5.3	Particular standard requirements :		-
	- Number of tested samples	1	**P**
	- Mounting conditions	See photographs in Annex	**P**
	- Preconditioning applied	No preconditioning	N/A
	- Test with voltage	Internal battery	**P**
	- Mobile parts	No mobile parts	N/A
	- Number of impacts	5	**P**

UNE-EN 50102:1996+A1:1999+Corr:2002+A1 CORR:2002

Clause	Requirement - Test	Result - Remark	Verdict
6	**TESTS FOR TESTING IMPACT PROTECTION**		---
6.1	Test specified in this standard is a type test	----------	**P**
6.2	Compliance is checked by applying impacts to the envelope to be tested	----------	**P**
	Devices used for this test are those defined in clause 7	Pendulum hammer	**P**
6.3	During the test, the sample is mounted in accordance with the instructions of the manufacturer	----------	**P**
	Test is performed on a rigid support	----------	**P**
6.4	Number of impacts should be 5 in each exposed face unless the relevant product standard does not specify differently	----------	**P**
	Impacts must be evenly distributed on the faces of the envelope assay. In no case should more than 3 shocks applied next to the same point in the envelope	----------	**P**
	Particular product standard must specify the points of application of the impacts	----------	N/A
6.5	Particular product standard should specify the criteria based on the acceptance or rejection of the envelope	----------	**P**
	Acceptance criteria:		NA
	- Sample integrity is maintained	----------	**P**
	- There are no unacceptable damage	----------	**P**
	- Reliability has not been affected	----------	NT
7	**TEST APPARATUS**		---
	Pendulum hammer UNE EN 60068-2-75:99	----------	**P**
	Spring hammer UNE EN 60068-2-75:99	----------	N/A
	Vertical hammer UNE EN 60068-2-75:99	----------	N/A

	Results:		P
	After test, no cracks or holes shall be visible in a naked eye inspection of the surface of the samples.	After test, no cracks nor holes are observed on the tested samples.	P

3. ANNEXES

3.1. PICTURES OF TESTED EQUIPMENT

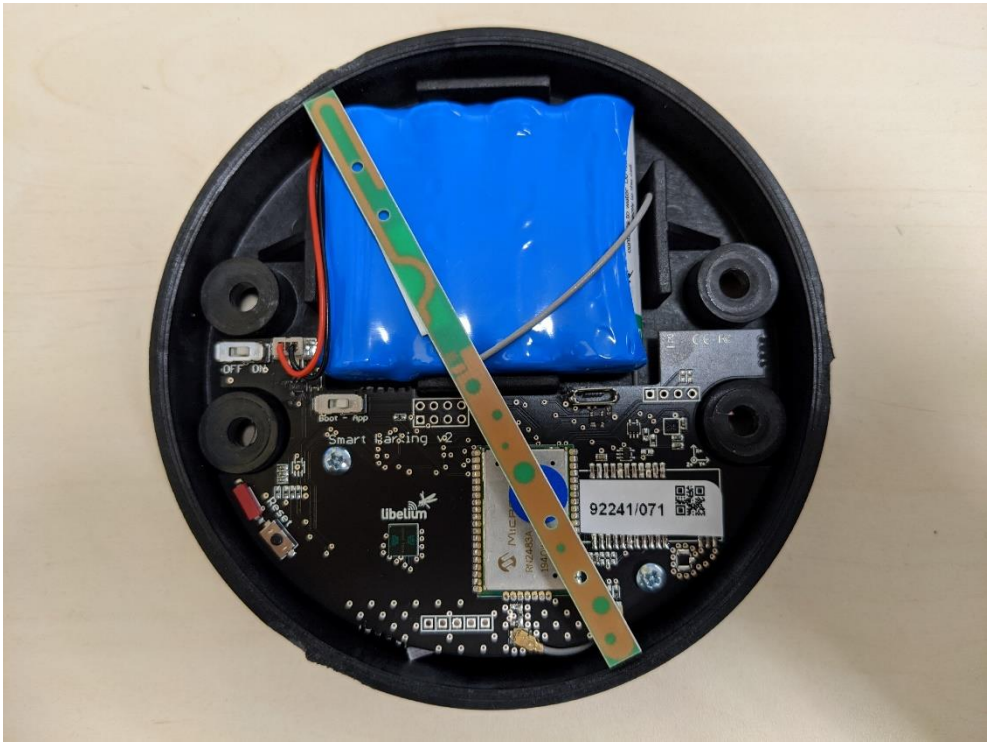
Photograph 1. Sample ELT0053/1 before test

Photograph 2. Sample ELT0053/1 before test

Photograph 3. Sample ELT0053/1 test set-up

Photograph 4. Sample ELT0053/1 after test, showing the 5 points of impact.

Photograph 5. Sample ELT0053/1 after test, showing the internal side without cracks



Photograph 6. Sample ELT0053/1 after the test showing the electronics container.