

## NF EN 62561-6 Standard Requirements for lightning Impacts counters

### ■ Introduction

When choosing a lightning impacts counter to install, it is important to make sure the counter complies with the test sequence of Product Standard 62561-6 which directly comes from French works and UTE C17-106 Guide published in France in 2001.

### ■ Product Standard history for lightning impacts counter :

In 2001, France published a normative Guide UTE C 17-106 describing lightning impacts counters and the type testing to be done.

At the request of the French Standardization Committee, a project of European document was activated. In April 2009, the CENELEC finalized this document EN 50164-6 on lightning impacts counters. This document was mainly based on the French Guide.

In parallel, the International Electrotechnical Committee (IEC) began to work on an international product Standard for lightning impacts counters. In June 2011, this document IEC 62561-6 was created without modification from European document EN 50164-6.

With this, the document was validated and endorsed by the CENELEC in November 2011, replacing the EN 50164-6 Standard by the EN 62561-6 Standard.

The IEC 62561-6 Standard for lightning impacts counters is currently evolving.

A project of Edition 2 is currently being finalized at the IEC with a publication scheduled in September 2017.



### *Historical summary of the lightning impacts counters Standards*

Year	France	Europe	International
2001	17-106		
...	...		
2009	17-106	50164-6	
2010	17-106	50164-6	
2011	17-106	50164-6	
2012	50164-6	50164-6	62561-6
2013	50164-6	50164-6	62561-6
2014	50164-6	50164-6	62561-6
2015	50164-6	50164-6	62561-6
2016	62561-6	62561-6	62561-6

### ■ Tests sequence of the Standard

The lightning impacts counters compliant with the international Standard 62561-6 must have passed the following tests sequence :

- Radiation tests resistance
- Corrosion tests resistance
- Mechanical tests
- Confirmation of IP Code
- Electrical tests
- Marking tests
- Electromagnetic tests

### **Radiation and corrosion tests resistance (§6.2 and 6.3) :**

The radiation test is necessary for lightning impacts counters developed for outdoor installation or installation in specific environments.

Indeed, the lightning impacts counters packaging must resist to UV effects.



The lightning impacts counter must be installed in normal use conditions and is then submitted to an environmental test to UV radiations.



*I FLASH REPORT® counter before and after UV ageing*

The counter meets this test requirement. Indeed, there is no sign of deterioration, no crack visible with normal or corrected vision.

The UV ageing (1000h at 0,31W/m<sup>2</sup> @ 340nm) done on the counter corresponds to a full sun exposure of 10 years.

The corrosion tests are only applicable for counters with metallic casing.

**Mechanical tests (§6.4) :**

The sample used for ageing tests is then submitted 3 times to mechanical shocks tests.

The shocks are done on the accessible parts of the lightning strikes counter which can be submitted to accidental mechanical stresses.



The sample is positioned in normal use conditions.

A hammer is then dropped from a 20 cm height.

The shocks are not made on the displays or connectors.

After the tests, the counter mustn't show any crack or similar damages visible with normal or corrected vision

and without magnification. The counter mustn't show damages which could affect its future use.

After the test, the displayed counting value of the lightning impacts counter mustn't have been increased or decreased (especially for electromechanical lightning strikes counters).



*I FLASH REPORT® counter during and after impact*

**Confirmation of the IP code (§6.5) :**

The confirmation of the IP Code must be realized in accordance with the EN 60529 on the lightning impacts counter already used for the mechanical tests.

Counter Ref.	IP code	Protected against
30 001	IP 47	Solid particules (> 1mm). Short period of immersion
30 002	IP 66	Dust ingress Powerful water jets
30 004	IP 67	Dust ingress Short period of immersion

**Electrical tests (§6.6) :**

The electrical tests done allow to confirm the proper functioning of the detection system and lightning impacts record.

3 samples of counters are tested with the following current levels :

- Minimun Current, I<sub>tc</sub> = 1kA
- Discharge current for counting or maximal resistance, I<sub>mcw</sub> = 100kA
- Non-detection current, I<sub>tc</sub>/2 = 500A



*IONICOUNT® Counter during electrical tests*

After the test, it must not appear any opening or damage on the conductive parts of the current, neither on the packaging of the counters.

The counting value displayed on the counters must be increased of two.

### Marking resistance tests (§6.7) :

The 3 samples used and compliant with electrical tests must be submitted to the marking resistance tests.

Marking must be legible and shall allow the identification of the lightning impacts counter. It shouldn't be possible to easily remove the stickers, and these mustn't retract.



Before test

During test

After test

Sticker during marking resistance tests

As the plastron of the IONICOUNT® is stuck inside the packaging, the marking test is directly done on the polycarbonate.

The sticker of the I FLASH REPORT® counter was designed and developed in order to resist to ageing and external attacks as we can see on the above results.

### Electromagnetic immunity (CEM) (§7.1) :

The lightning impact counters with electronic circuits must comply with the EN 61000-6-4 requirements.

This article do not concern the counters without electronic circuits.

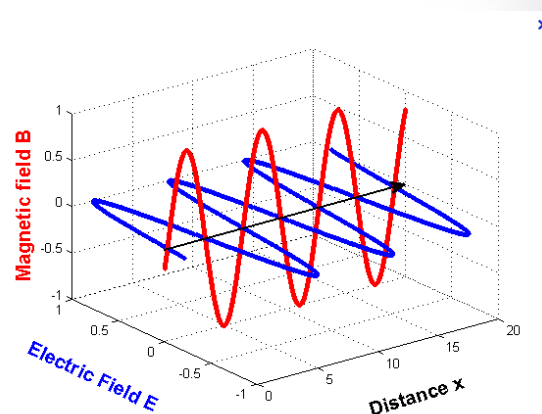


The electromechanical technology of the IONICOUNT® counter (ref. 30002) and the circuit technology of counter ref. 30001 allow them to be not submitted to electromagnetic tests.

### Electromagnetic emission (CEM) (§7.1) :

The lightning impacts counters with electronic circuits must comply with EN 61000-6-4.

This article do not concern the counters without electronic circuits.



Duality E/H of radiated electromagnetic field

The Bluetooth® communication of the I FLASH REPORT® counter passed with success the immunity tests and electromagnetic emission.

The Bluetooth® module complies with the Standard requirements and also with the requirements of RTE Directive R&TTE 1995/5/EC.