

CENELEC/TC 81X	Secretariat Italy	Date 2013-06-20
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**TC title: Lightning protection**

## **A Background**

### **A.1 Brief information on CLC/TC 81X activity since the establishment**

Before the establishment of CLC/TC 81X, standardization in this field was dealt with by CLC/SR 81 "Lightning protection system".

CLC/TC 81X held its first meeting in Milan, 5<sup>th</sup> June 1997.

First publication ENV 61024-1:1995 covered design and installation of Lightning Protection System (LPS) for common structures.

After publication of ENV 61024-1, the following publications were released:

- EN 61663-1:1999 dealing with the protection of telecommunication lines for fibre optics installations.
- EN 61663-2:2001 dealing with the protection of telecommunication lines for lines using metallic conductors.

These standards were withdrawn without replacement due to the overlapping with ITU-T documents.

In August 1999, the standard EN 50164-1 was published dealing with LPS components. Other standards EN 50164-2 to EN 50164-7 have completed the series of component standards.

Taking into consideration the complete reorganization of the IEC/TC 81 documents, the EN standards have been improved and reorganized into a single standard with 4 parts addressing the system aspects of lightning protection of structures as follows:

- EN 62305-1 dealing with general principles
- EN 62305-2 dealing with risk management including selection of protection measures
- EN 62305-3 giving requirements for the design and installation of LPS
- EN 62305-4 dealing with protection of electrical and electronic systems in a structure

New series of EN 62561 of 7 publications has been published and the previous EN 50164 series withdrawn.

In 2011, the second edition of the standards EN 62305-1, EN 62305-3, EN 62305-4 were published. EN 62305-2 was published in May 2012.

EN 50536 dealing with thunderstorm detection devices was published.

The new project on lightning protection systems performance has been launched for the development of a future standard.

## **A.2 Scope**

To prepare international standards, or, where not possible, guides for lightning protection for structures and buildings, as well as for persons, installations, services and contents.

The objective of the standards will be:

- to develop requirements for design and installation of Lightning Protection Systems for structures,
- to develop requirements for protection against lightning of services entering the buildings, especially electrical and telecommunication lines,
- to develop basic requirements for protection against electromagnetic effects due to lightning,
- to give general guidance to CLC member countries that may have need of such requirements, and
- to facilitate international exchanges that may be hampered by differences in national regulations.

## **B Business Environment**

### **B.1 General**

The international trade in lightning protection measures integrated in plants or buildings is of increasing importance: more than 600 million USD (2/3 of them in SPD), worldwide are estimated today. Consequential losses, where suitable protection measures are not provided, is some order of magnitude higher.

The business environment is affected by the worldwide economy as well as the availability of the worldwide market to the industry, which is directly influenced by the acceptance of CENELEC standards developed by CLC/TC 81X.

### **B.2 Market demand**

The market of LPS system and components is moving from a national and regional market to a global market having three dominant segments - North America, Europe and Asia-Pacific. This globalization creates a greater demand for harmonized national standards on components with quality conformance assessment and has supported the trend towards international standards.

The customers include, but are not limited to consumers, engineering companies, manufacturers, consultants, academia and other Technical Committees (TCs and SCs) in CENELEC. There is a demand from other TCs such as SC 37A, TC 64, TC 82, TC 86A, TC 88, TC 100X for a guide on the best way to include the requirements of the TC 81 standards into other standards.

Many of the standards produced by CLC/TC 81X are referenced from other EN standards that are harmonized with European Directives.

Designers, installers and manufacturers of components and devices are represented in the CLC/TC 81X but their active participation is affected by the limited amount of available resources.

The CENELEC standards are used by several extra-European countries.

### **B.3 Trends in technology**

It is not foreseen that there will be an important impact of technological innovation on the near future work of CLC/TC 81X.

External lightning protection systems are validated by empirical experience and by well-established, scientifically proven models. Improvement of knowledge on some matters such as protection models and influence of the new statistics coming from lightning location systems is desirable.

Trends in technology are resulting in more sensitive electronic equipment in structures. Embedded computers are also being installed in more and more electrotechnical equipment. This trend demands that CLC/TC 81X develop standards that address this increased sensitivity to lightning effects.

With the increase in cellular communications and wireless technologies, an increasing number of tall structures are installing towers on the roof and renting roof space for transmitters. This trend is increasing the demand for improved lightning protection methods to be considered such as the use of isolating materials.

Information technology is continuing to evolve to where insurance companies and authorities having jurisdictions are developing databases that can be accessed to track lightning vulnerabilities. Such technologies can assist in future evolutions of lightning risk assessments in the Risk Management standard.

CLC/TC 81X encourages the international scientific community as well as the industry, to continue investigating and innovating in the lightning protection field.

#### **B.4 Market trends**

Along with a trend toward an increasing need for improved product testing requirements for the LPS components manufacturers, a recent trend in many markets (notably North America and Europe) is looking to storm detection devices as an effective tool to reduce risk due to lightning.

#### **B.5 Ecological environment**

A very little impact on environment is estimated.

#### **B.6 Involvement of societal stakeholders**

In the lightning protection sector the stakeholders are mainly installers, designers, test laboratories, utilities: each of these actors is able to contribute to the standardization on the basis of their skill and interest.

Protection against lightning considers all kinds of facilities, including residential buildings, therefore it is advisable to involve European Associations like ANEC (European Association of Consumers). By the way, the participation of this kind of Associations is strongly recommended by European Commission.

#### **B.7 Involvement of SMEs**

Lightning protection systems are generally intended to be designed, installed and maintained by Small / Medium Enterprises (SMEs). For this reason the involvement of these SMEs in the European standardization works is highly recommended.

In the frame of the TC 81X Standards an important standards series concern components of lightning protection systems, moreover many components are manufactured by SMEs: this is an additional reason to encourage the participation of SMEs.

### **C System approach aspects**

CLC/TC 81X will actively continue to promote the establishment of liaisons to other committees; cooperation with system committees is still in our focus.

<b>TC 81 as a customer of standards</b>	SC 37A	Low-voltage surge protective devices
<b>TC 81 as a customer/supplier of standards</b>	TC 64	Electrical installations and protection against electric shock
<b>TC 81 as a supplier of standards</b>	TC 82	Solar photovoltaic energy systems
	TC 86A	Optical fibres and optical fibre cables
	TC 88	Wind turbines
	TC 100X	Audio, video and multimedia systems and equipment and related subsystems

Cooperation established:

- exchange documents, e.g. TC 64, TC 86A,
- liaison officers, experts participating in product/system committees, e.g. TC 64, SC 37A.
- experts working in other organisation and reporting to TC 81X for information, e.g. ITU-T.

## **D Objectives and strategies (3 to 5 years)**

### **D.1 Objectives**

1. To expand the use and knowledge of CLC/TC 81X publications in those countries not having conflicting or no standards in this area of activity.
2. Keep CLC/TC 81X standards up-to-date to reflect user requirements, both in the marketplace and customer IEC and ISO Technical Committees.
3. Develop a complete "system standards" by preparing an updated edition of IEC 62305 series covering system aspects of lightning protection of structures.
4. Develop a set of "product standards" by preparing an updated edition of EN 62561 series covering the requirements for components of lightning protection systems (LPS) for structures.

### **D.2 Strategies**

1. Identify and review standards developed by sister committees to incorporate their best practices into CLC/TC 81X documents.
2. Solve problems relevant overlapping matters and conflicting requirements.
3. Identify additional guidance documents that would be useful to project leaders.
4. Increase the knowledge of CLC/TC 81X publications – by means of presentations at seminars, trade shows, writing articles etc.

## **E Action plan**

Detailed action plan with milestones to address objective and strategies is reported in the table below.

Objective	Action	Target date
<p><b>1.</b> To expand the use and knowledge of CLC/TC 81X publications in those countries not having conflicting or no standards in this area of activity.</p>	<p>To consider ways to promoting CLC/TC 81X standards to NCs and industry through workshops, presentation at international conferences and trade shows under the CENELEC logo.</p>	<p>Ongoing, starting from issue of EN 62305 Ed.2.</p>
<p><b>2.</b> Keep CLC/TC 81X standards up-to-date to reflect user requirements both in the marketplace and customer IEC and ISO Technical committees.</p>	<p>Identify and review standards developed by sister committees to incorporate their best practices into CLC/TC 81X documents.</p>	<p>Ongoing, taking in consideration the stability date of standards.</p>
<p><b>3.</b> Develop a complete "system standards" by preparing an updated edition of EN 62305 series covering system aspects of lightning protection of structures.</p>	<p>To continue to attract more experts from lightning protection to increase to pool of knowledge.</p>	<p>Spring 2012.</p>

Objective	Action	Target date
<p>4. Develop a set of "product standards" by preparing a new edition of IEC 62561 series covering the requirements for components of lightning protection systems (LPS) for structures.</p>	<p><del>WG 2 is charged of the development of EN 62561. A greater participation of EU experts will be encouraged.</del></p> <p>In the past WG 2 was in charge of the development of the EN 50164 series (Parts 1 to 7), which has been offered to IEC, taken over by IEC/TC 81 from CLC/TC 81X and published as series IEC 62561 (Parts 1 to 7). This can be regarded as a valuable basis for the IEC 62561 series.</p> <p>Currently WG 2 is in charge of the endorsement of the IEC 62561 series at European level, ensuring that specific European requirements are taken into account.</p> <p>Currently there is a need for developing a Part 8 for this series and the task of WG 2 will be to support this work towards IEC to publish IEC 62561-8 and towards the later adoption as EN 62561-8.</p> <p>A greater participation of EU experts will be encouraged within WG 2 with the aim to reduce the lack of the experience of the participating members of this WG.</p> <p>In the IEC documents, some new tests were introduced, forcing the manufacturers to repeat testing in all their tested (according to CENELEC) products. However, in the CENELEC documents these tests have been modified in a way that many components will not be entitled to be tested again. This helps many SMEs to avoid the respective testing costs and to maintain their competitiveness in the market, offering tested products according to CENELEC requirements.</p>	<p>Spring 2012.</p>

#### F Useful links to CENELEC web site

TC home page giving access to Membership, TC/SC Officers, Scope, Publications, Work programme [password-protected area].

[http://www.cenelec.eu/dyn/www/f?p=104:7:2332630807201380::::FSP\\_ORG\\_ID,FSP\\_LANG\\_ID:870,25](http://www.cenelec.eu/dyn/www/f?p=104:7:2332630807201380::::FSP_ORG_ID,FSP_LANG_ID:870,25)