

**ABSTRACTs of SESSION 10****Paper n°11***Lightning and suggestion of SPD standardization*

Abstract: The paper is aimed at the development and standardizations of lightning protection in China. The content includes status of lightning protection, the need and development of standardization of Chinese lightning protection engineering, the discussion and suggestion on frequently encountered questions of SPD products.

Keywords: SPD;standardization;discussion;suggestion

---

**Paper n°66***Additional criteria for designing lightning protection of a complex of structures (LPCS)*

Abstract: The paper discusses some functional criteria for the design and installation of Lightning Protection of Structures (LPS) with reference to a case study of a complex of strategic buildings constituted by existing and historical structures. Considering the special cases of strategic structures like hospital, military and government buildings, in the assessment of the risk of damage by lightnings, the paper suggests an additional criterion, that assigns a suitable weight to the need of maintaining the service and the functionality of the structures, after a lightning stroke. Considering the case of complexes of structures in close areas, the paper highlights the characteristics of functional interdependence and interference in lightning interception and it suggests a coordinated and integrated design of Lightning Protection of Complexes of Structures (LPCS).

Keywords: LPS, risk management

---

**Paper n°74***A call to Standardize the Waveforms used to Test SPDs*

Abstract: This paper reviews the history of test waveforms used in SPD testing. The source of each of the major waveforms was identified as well as the technical data which supported its use. Various lightning-measurement efforts that have been undertaken around the world were surveyed to see if any parameters could be imputed to a typical lightning strike. The results show the 10/350 waveform to be an inappropriate waveform for simulating actual lightning in the laboratory.

Keywords: Class I test, SPD test waveforms, 8/20 $\mu$ s, 10/350 $\mu$ s, W/R

---

**Paper n°82***Lightning protection standard in Mexico based on IEC-1024 and practical aspects*

Abstract: The objective of this work is to show the philosophy of protection used for the Mexican Lightning Protection Standard (MLPS) still in progress, based on IEC 1024 [1], stressing the limitations in the scopes of the standards used in its elaboration, how the practical aspects gathered by experience of engineering groups in Mexico are incorporated to the MLPS without breaking IEC criteria and to discuss why the Internal Lightning Protection System in the MLPS should be mandatory.

Keywords: Lightning, Lightning Protection System, Mexican Lightning Protection Standard

---

**Paper n°165**

*Protection against lightning overvoltages of electrical and electronic systems: Evaluation of the protective distance of an SPD*

Abstract: The paper deals with the evaluation of the protection distance of a Surge Protective Device (SPD) in order to be effective in the reduction of the probability of failure of electrical and electronic systems within a structure. Surges due to flashes to the structure, to ground near the structure and to the entering lines are considered. By computer simulation (PSPICE and Power Systems Simulink of Matlab) the protection distance is evaluated as function of different influencing parameters. Simple relations are proposed to evaluate the protection distance of an SPD to be effective against overvoltages due to resistive and inductive coupling with lightning current.

Keywords: Lightning Protection, Surge Protective Device, Lightning Equipotential Bonding

**Paper n°198**

*Further South African experiences with the application of the International Electrotechnical Commission (IEC) lightning protection standards based on their application at four major installations*

Abstract: Over the past decade there has been a move toward the installation of integrated earthing and lightning protection systems at a variety of South African industries. This paper reviews the experiences gained from the diligent application of the International Electrotechnical Commission standards for earthing and lightning protection at four major sites. As each site had very specific interventions, these are presented in detail. It is noted that in some cases there was initial resistance to the introduction of many of these interventions, but it is concluded that these methods have had a very significant positive effect on performance of the installations.

Keywords: equipotentialisation, integrated earth electrodes, LPS.

**Paper n°215**

*Feedback on the lightning protection of high-risk industrial facilities in France*

Abstract: this paper aims to assess the effectiveness of current legislation in France concerning the lightning protection of industrial facilities classified as presenting a risk to the environment. A satisfaction survey carried out among site managers reveals that many facilities are not yet protected and that damage incurred primarily involves electrical equipment. A draft protection program could be included in the legislation.

Keywords: industrial facilities, risk, effectiveness lightning protection

**Paper n°216**

*A Critical View on the Lightning Protection International Standard*

Abstract. The Technical Committee TC81 (Lightning Protection) of the IEC (International Electrotechnical Commission) has finalised the new presentation of its work in five parts (IEC 62305-1 to -5) treating general principles, risk management, physical damage, life hazards, protection against electrical and electronic systems within structures and some services entering the structure. We criticise some options retained.

Keywords. Lightning Protection, Standardization.

**Paper n°217**

*Effect of distance on surge arrester locatio: comparison of recommended practises*

Abstract: Modern ZnO surge arresters have helped to increase the reliability of electric power transmission and distribution networks and, hence, to improve the security of supply. Their highly non-linear voltage-current characteristic allows limitation of the overvoltages to safe levels that do not present a threat to the integrity of plant insulation. Selection of ZnO surge arresters for a particular application requires the determination of the prospective overvoltage levels (switching, temporary) and lightning currents. In addition, system data may be required to optimise the selection.

---

**Paper n°252**

*Black boxes, blind spots, and disconnectors: How not to test SPDs*

Abstract: The current standards for testing surgeprotective devices (SPDs), leave some ambiguities for their implementation. Field failure data show that some SPDs that pass standard tests can still fail in unacceptable or unexpected modes, perhaps because of “blind spots” in the test regimen. The paper shows examples of such unresolved issues and also suggests closer attention to the disconnector function.

Keywords: SPD testing, blind spots, disconnector black box

---