

On the Use of Lightning Location System Data to Evaluate the Lightning Performance of Overhead Distribution Lines

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Abstract

This contribution discusses the impact of using parameters and statistical distributions derived from Lightning Location System (LLS) data on assessing the Lightning Performance (LP) of an overhead distribution line. Both negative and positive return strokes are considered in the analysis, and multiple-stroke flashes are simulated using the probability distributions for the flash multiplicity and the spatial separation of ground terminations. The LP of the same benchmark (Italian) network obtained with conventional lightning parameters available in the literature is compared with that using LLS-inferred distributions for Italy. Results reveal considerable differences in the expected number of annual flash-overs.