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ANALYSIS OF INDUCED LIGHTING OVERVOLTAGES IN MIDDLE VOLTAGE OVERHEAD LINES

ABSTRACT

The problem of disturbances produced by lightning-induced over voltages on distribution overhead lines has been carefully reconsidered by power utilities in the past two decades. This is motivated by the widespread use of sensitive electronic devices in the power system equipment and, in parallel, by increasing demand by customers for good quality in power supply. Indeed, lightning-induced overvoltages are responsible for the majority of faults on distribution overhead lines, causing micro interruptions and disturbances to sensitive equipment. This paper provides methods for rough assessment of peak induced voltages and probability for flashover, as well as characterization of the response of an overhead line as a function of various parameters pertaining to the lightning discharge and to the overhead line. An estimation of the number of insulation flashovers of overhead lines is made and some possibilities for it's reduction are discussed in the paper.

Keywords: lighting, induced lighting overvoltategs, overhead lines, insulation flashover.