

LIGHTNING INDUCED VOLTAGES ON DISTRIBUTION LINES PROTECTED WITH SURGE ARRESTERS

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INTRODUCTION

One of the most important causes of energy supply interruptions is related to the occurrence of lightning discharges in the vicinity of distribution lines. However, although it is known that the installation of surge arresters may reduce the induced voltages amplitudes, the complexity of the phenomenon makes the evaluation of the benefits associated to this method of protection very difficult. The divergences among the existing theories for induced voltages calculation - even in case of lines without arresters - also emphasize the need for more studies on this subject. Furthermore, no mathematical model that takes into account the presence of arresters has yet been experimentally validated. In fact, there have been no reports of induced voltage oscillograms obtained together with the basic parameters necessary for their computation (such as the stroke current waveform, exact distance between the arresters and the point of measurement, etc.). These were the basic motivations of this study, whose principal aim is to contribute to a better understanding of the phenomenon by presenting some results obtained experimentally, in a scale model.