

عنوان مقاله:

Analysis of Reflection phenomena of mobile waves, Method and Criteria for Choosing the suitable surge arrester for Insulation Coordination and Location of their installation in distribution networks

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خلاصه مقاله:

Transient overvoltages can disrupt the insulation of high-pressure installations and equipment and cause mains failure. Therefore, the amount of these overvoltages will determine the insulation level of the network equipment, and with the use of protective devices such as the power supply, the overvoltage can be reduced to an acceptable level. In designing an electrical grid, achieving a high reliability and stable grid against overvoltages, including lightning, is possible in two ways: One is to increase the electrical endurance of the equipment so that the overvoltage impeded does not disturb the system. And another is to reduce the amount of overvoltage generated in the system. This article firstly introduces an overvoltage in the power grid and protects the equipment against it. Then the analysis of the reflection phenomena of mobile and passing waves and the calculation of the passing wave from the junction point and the coefficient of passing wave are expressed. The necessity of using the power supply and the effect of increasing the power supply distance from the equipment to the system protection level is explained in the following sections. The method and criteria for selecting the appropriate conductor for insulation coordination are described, which include determining the maximum phase-to-ground voltage with the power frequency at the location of the current and estimating the magnitude of the discharge current and its waveform. The electric motors and their location are expressed in 20 kV distribution networks and then the speed of mobile waves propagation. Finally, conclusions and suggestions are given.

کلمات کلیدی:

surge arrester , overvoltage , switching , lightning , Insulation Coordination

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