

Thermal Modeling of Medium Voltage Cable Terminations under Square Pulses

Abstract

In this paper, a proposed electro-thermal model of cable terminations is presented. The cable terminations under study are exposed to a square-pulse voltage applied at different switching frequencies. The purpose of the model is to predict the temperature distribution inside the cable termination as a means of determining the location and value of the maximum temperature. The model is based on fundamental heat transfer mechanisms: conduction, convection, and radiation. Two different distribution classes of cable terminations have been examined. A comparison of the simulated temperature rises with actual measurements reveals good agreement.