

## The 110kV cable thermal field analysis based on the thermal path model and simulation calculation

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The heat dissipation problem is important in high voltage XLPE extruded insulation cable, which restricts its carrying capacity. In this paper, the 110kV cable simulation model and the thermal path model are established according to cable size and material thermal properties of each layer. The temperature distribution of actual operating cable can be obtained through ANSYS if the cable conductor current and surface temperature is known, also it can be calculated in each layer of the cable through the thermal path model. The results of simulation model and thermal path model are analyzed and compared. Simulation model and thermal path model can be verified and updated after measuring each layer temperature of actual operating cable by thermocouple. The experimental results show that the accurate cable temperature distribution in each layer can be calculated from updated thermal path model and simulation model, which can provide suggestion for the selection of covering material and design for cable structure.