

Numerical Analyze of Corona Discharge on HVDC Transmission Lines

Authors : H. Nouri, A. Tabbel, N. Douib, H. Aitsaid, Y. Zebboudj

Abstract : This study and the field test comparisons were carried out on the Algerian Derguna-Setif transmission systems. The transmission line of normal voltage 225 kV is 65 km long, transported and uses twin bundle conductors protected with two shield wires of transposed galvanized steel. An iterative finite-element method is used to solve Poissons equation. Two algorithms are proposed for satisfying the current continuity condition and updating the space-charge density. A new approach to the problem of corona discharge in transmission system has been described in this paper. The effect of varying the configurations and wires number is also investigated. The analysis of this steady is important in the design of HVDC transmission lines. The potential and electric field have been calculating in locations singular points of the system.

Keywords : corona discharge, finite element method, electric field, HVDC

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