

The importance of corona effect in lightning surge propagation studies.

ABSTRACT

This research focuses on the simulations of the effect of corona model on different conductors used in transmission line design when subjected to the lightning surge. The paper details the procedures used in modelling the corona, as well as the implementation in the PSCAD/EMTDC Software for surge propagation studies. There are many models available range from a simple and fixed capacitance to the more complex voltage-dependent capacitance. The corona used for this study is modeled based on the approached relationships and the analyses were done by comparing the results with other models for different types of conductors. The traveling voltage is then measured at different point-of-interest (POI) and compared in terms of the steepness and magnitude for different conductors.

Keyword: Corona model; PSCAD/EMTDC; Lightning; Travelling waves.