FDTD Computations of Lightning-Induced Voltages in the Presence of Nearby Buildings

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Abstract—In this paper, we have computed lightning-induced voltages on distribution lines in the presence of nearby buildings using the 3D finite-difference time-domain (FDTD) method. In the simulations, four-conductor lines with surge arresters and pole transformers are considered. It appears that the presence of nearby buildings cause reduction of lighting induced voltages, as expected. The observed trend is in general agreement with that reported from the small-scale experiment by Piantini et al. (2007).