ABSTRACT

Lightning surge is transient overvoltage phenomenon due by lightning stroke. Transient overvoltage is a voltage that has a very large amplitude and lasted very short. Transient overvoltage can damage insulation of equipment and component of electrical power system, if the voltage magnitude exceeds BIL (Basic Insulation Level) insulation equipment and electrical power system components that use. In this study created and analyzed the modelling of surge propagation wave in 150 kV transmission line using Multi-Conductor Transmission Line (MTL) method, which can be used as the basis of the protection system design of transmission line. The method used to perform simulation is using MATLAB programs. The results of this simulation shows that lightning stroke that hit a conductor will be induced the nearby conductor. Surge propagation wave on a conductor decrease the peak voltages up to ± 5%, and would induce a peak voltage on the nearby conductor up to ± 7% from the peak voltage value.

Keyword: Multi-Conductor Transmission line (MTL), lighting surge modelling, transmission line.
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