

Effect of the Non-Standard Lightning Current and Waveshape on Lightning Surge Analysis

ABSTRACT

The withstand capability of the insulation system of an equipment under lightning overvoltages is measured by the international standard 1.2/50 μ s waveform. Many workers and designers of the power apparatus equipment have dedicated their research tried to understand how the insulation behaves under the non-standard waveform. The fact that the lightning-caused transient voltage can have very fast components and the need for higher reliability and cost effectiveness have added the impetus in recent years to better understand the effects of a non-standard lightning voltage on the power system. As far as the lightning is concerned, much attention has been paid to the breakdown occurring at extremely fast rise times, which could be in nanosecond regime. This research provides some reviews on the non-standard waveform of the lightning and focuses on the simulation of the effect of the non-standard lightning current and waveshape on lightning surge analysis using the PSCAD/EMTDC software.