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Magnetic Simulation of the Underground Electric Cable in the Presence of a Short Circuit and Harmonics

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Abstract : The purpose of this study is to evaluate the magnetic emission of underground electric cable of high voltage, because these power lines generate electromagnetic interaction with other objects near to it. The aim of this work shows a numerical simulation of the magnetic field of buried 400 kV line in three cases: permanent and transient states of short circuit and the last case with the presence of the harmonics at different positions as a function of time variation, with finite element resolution using Comsol Multiphysics software. The results obtained showed that the amplitude and distribution of the magnetic flux density change in the transient state and the presence of harmonics. The results of this work calculate the magnetic field generated by the underground lines in order to evaluate and know their impact on ecology and health.

Keywords : underground, electric power cables, cables crossing, harmonic, emission
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