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SHIELDING OF UNDERGROUND EXTRA-HIGH VOLTAGE CABLE LINE BY PLANE FERROMAGNETIC SHIELD

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Abstract

The computer modeling by finite-element method is used to study the features of magnetic field distribution around the underground single-circuit three-phase 330 kV cable line with polyethylene insulation when using a flat ferromagnetic shield. In the developed model, the three-phase currents running in cable conductors along with the currents induced in cable metallic shields are taken into account. The open-shield configuration is considered. The shield is made of the ferromagnetic hot-rolled low-carbon material Magnetil with specified electrophysical properties. The computed distributions of the magnetic field established by the cable line are obtained and discussed. The magnetic field level depending on the depth of the shield in the ground, the dimensions of the shield (including its width and thickness), the magnetic permeability of shield material as a function of magnetic flux density are analyzed. References 10, figures 5.

Key words: underground three-phase cable line, ferromagnetic screen, magnetic field, computer simulation.

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