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THE PENETRATION OF NONUNIFORM ELECTROMAGNETIC FIELD OF CURRENT COUNTER IN CONDUCTING MEDIUM

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Abstract

The reduction of nonuniform electromagnetic field created by current contour in conducting half-space is analyzed by analytical solution of three-dimensional field problem and numerical computation of the problem using program Comsol. As shown, the rate of the field reduction depends on skin depth. The greater the depth, the faster the rate of such field penetration. At strong skin-effect, the rate of field reduction is approximated to uniform field penetration for all points on the interface, and the disagreement is associated with the value of small parameter. References 10, figures 4.

Key words: three-dimensional electromagnetic field, eddy current, field penetration, numerical and analytical methods.

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