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# AN ANALYTICAL CALCULATION METHOD OF QUASI-STATIONARY THREE-DIMENSIONAL ELECTROMAGNETIC FIELD CREATED BY THE ARBITRARY CURRENT CONTOUR THAT LOCATED NEAR CONDUCTING BODY


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**Abstract**

*On the basis of the analytical decision of problem on a field of radiating harmonious current dipole the analytical calculation method of quasi-stationary three-dimensional electromagnetic field created by arbitrary spatial current contour, located near conducting body with a flat surface is developed. The analytical decision taking into account closed current contour is found for vector potential, induction of magnetic field and intensity of electric field in dielectric and conducting media without limitations on contours geometry, media properties and current frequency It is established, that the current density in the conducting medium has no component directed perpendicularly to flat surface of body for any initial current system and for any*

*dependence of currents on time. As consequence, the perpendicular component of electric field intensity on a surface of the dielectric medium and surface density of electric charge do not depend on properties of the conductive medium and they are defined only by a vertical component of the induced electric field of the initial currents at any dependence on time.* References 21, figure 1.

***Key words***: quasi-stationary three-dimensional electromagnetic field, arbitrary spatial current contour, eddy currents.

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