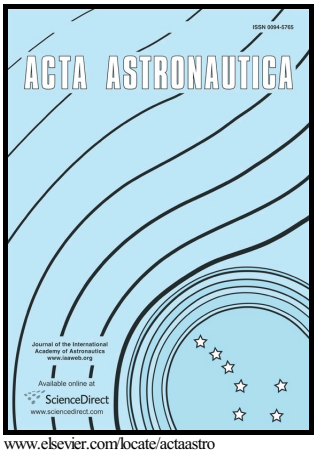

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Abstract

Spacecraft on board electronic devices are subjected to the effects of Space environment, in particular, electromagnetic radiation. The weight limitations for spacecraft pose an important material and structures problem: developing effective protection for on board electronic devices from high frequency electromagnetic radiation. In the present paper the problem of the effect of external high frequency electromagnetic field on electronic devices shielding located on orbital platforms is investigated theoretically. It is demonstrated that the characteristic time for the unsteady stage of the process is negligibly small as compared with characteristic time of electromagnetic field diffusion into a conductor for the studied range of governing parameters. A system of governing material parameters is distinguished, which contribute to protecting electronic devices from induced electrical currents.

Key words
Electronic, Devices, Safety, High frequency, Electromagnetic, Radiation

Introduction.

Space flight safety in terms of radiation hazards is widely discussed nowadays [1-4]. The aim of the present paper is studying the effects of high frequency electromagnetic radiation on shielding on board electronic devices. Contrary to ground based electronic equipment affecting spacecraft on board electronic equipment is determined not only by energy and frequency of radiation but also by relative velocity of spacecraft and radiation source.

Protection of devices from oscillatory electromagnetic field is achieved by placing the device inside a cover made of conducting material. Such a cover blocks the constant electrical field, but oscillatory field induces in the conductor oscillatory electric current, which, itself, serves a source of induced electromagnetic field. However, penetration of this