
On the impact of metal screens on vector potential field

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Examples of some classic electrodynamics boundary value problems inside perfectly conducting cover are discussed. Particularly, excitation of rectangular wave guide with perfectly conducting walls by electric or magnetic dipoles is considered. It is shown, that while EM field is located as usually only inside the cover, the field of vector potential exists everywhere and is not equal to zero in case of magnetic dipole. The observation can be useful for interpretation of some experiments when solenoids as the sources of the field impact biological objects being completely covered by metal.

Keywords: vector potential, waveguide, electromagnetic field.

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