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Title

Enhanced-transmission metamaterials as anisotropic plates

Source

Physical Review B (Condensed Matter and Materials Physics), vol.84, no.3, 15 July 2011, 035107 (8 pp.). Publisher: American Physical Society, USA.

Abstract

We present an original design of anisotropic metamaterial plates exhibiting extraordinary transmission through perfectly conductor metallic screens perforated by a subwavelength double-pattern rectangular aperture array. The polarization properties of the fundamental guided mode inside the apertures are at the origin of the anisotropy. The metal thickness is a key parameter that is adjusted in order to get the desired value of the phase difference between the two transversal electromagnetic field components. As an example, we treat the case of a half-wave plate having 92% transmission coefficient. Such a study can be easily extended to design anisotropic plates operating in terahertz or microwave domains. (25 References).