Abstracts

Transmission characteristics of metallodielectric photonic crystals and resonators

A. Serpenguzel. "Transmission characteristics of metallodielectric photonic crystals and resonators." 2002 Microwave and Wireless Components Letters 12.4 (Apr. 2002 [MWCL]): 134-136.

K/sub u/ band Fabry-Perot type resonances have been observed in the stop band of a metallodielectric photonic crystal by transmission measurements at microwave frequencies. The metallodielectric photonic crystal has a face centered cubic Bravais lattice structure with a lattice constant of 15 mm. Metallic spheres with 6.35 mm diameter are placed at the lattice sites. The metallodielectric photonic crystal displayed a directional bandgap with a lower band edge of 13.0 GHz, an upper band edge of 21.5 GHz and a center frequency of 17.25 GHz, corresponding to a stop bandwidth center frequency ratio of 50%. The maximum rejection at the band center is 35 dB, corresponding to a 7 dB per unit cell rejection ratio. The Fabry-Perot type resonance in the K/sub u/ band has a quality factor of 200, with a maximum transmission peak of -5 dB.

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