Abstracts

A high-Q reconfigurable planar EBG cavity resonator

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A reconfigurable planar electromagnetic bandgap (EBG) cavity resonator has been designed, fabricated, and tested. The resonator, based on a microstrip-coupled cavity constructed with periodic metallic post side walls, resonates at 10.60 GHz or 8.63 GHz, depending on the state of two rows of switchable post elements. Fabricated on 0.031 inch 5880 Duroid, the resonator exhibits Qs of 348 and 274 for the 10.60 GHz and 8.63 GHz resonances, respectively. In addition to the reasonably high Qs achievable with this design, the circuit utilizes standard printed circuit board (PCB) fabrication techniques and is 100% compatible with commercial PCB processes, enabling low-cost mass production.

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