Abstracts

Parallel-plate mode reduction in conductor-backed slots using electromagnetic bandgap substrates

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By fabricating a resonant slot over a reflecting back plate and filling the resulting parallel-plate with an appropriately designed artificial electromagnetic bandgap (EBG) structure, noticeable enhancements in both radiation pattern and bandwidth are achieved using a significantly lower profile than traditional designs. This design uses a two-dimensional artificial EBG substrate in conjunction with a reflecting plate to completely block radiation from the backside of the slot from propagating to the finite edges of the resulting parallel-plate cavity. Measured and simulated data for conductor-backed slots with homogeneous substrates and with EBG substrates are compared.

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