Abstracts

A New Type of Low-Pass Filter that Attenuates by Dissipation (Correspondence)

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Leaky-wall filters usually consist of a straight section of main waveguide to which are attached many narrower terminated auxiliary waveguides. These may be connected only to the broad walls or to both the broad and narrow walls. Attenuation in the stop band, above the main waveguide band, is due to absorption of power in the auxiliary waveguides. Unfortunately, the attenuation in the stop band eventually decreases as frequency increases because of the "optical beam" effect in oversize waveguide. A second fault of these structures is that there often are narrow regions of relatively low attenuation in the stop band, which are caused by multiple scattering from the periodic internal facets of the main waveguide.

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