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Authors:Astley, Victoria (1); McCracken, Blake (1); Mendis, Rajind (1); Mittleman, Daniel M. (1)  
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Abstract:We describe an experimental and theoretical characterization of rectangular resonant cavities integrated into parallel-plate waveguides, using terahertz pulses. When the waveguide is excited with the lowest-order transverse-electric mode, these cavities exhibit resonances with narrow linewidths. Broadband transmission spectra are compared with the results of mode-matching calculations, for various cavity dimensions.