Abstracts

A 94 GHz aperture-coupled micromachined microstrip antenna

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In this paper, we present an aperture-coupled micromachined microstrip antenna operating at 94 GHz. The design consists of two stacked silicon substrates: (1) the top substrate, which carries the microstrip antenna, is micromachined to improve the radiation performance of the antenna, and (2) the bottom substrate, which carries the microstrip feed line and the coupling slot. The measured return loss is -17 dB at 91 GHz for a 10-dB bandwidth of 11%. The radiation patterns show a measured front-to-back ratio of -10 dB at 91 GHz. The micromachined microstrip antenna is an efficient solution to the vertical integration of antenna arrays at millimeter-wave frequencies.

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