

Upper cut-off frequency of the bound wave and new leaky wave on the slotline

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This paper contributes to a more profound understanding of uniplanar circuit behaviour. A simple closed-form formula providing the upper cut-off frequency of the bound wave propagating over the slotline is presented. A new leaky wave which brings down this limit due to the overlapping of the bound- and leaky-mode regions is identified and reported. This wave can deteriorate circuit performance, especially in the mm-wave band. Conclusions made for the slotline hold generally for open printed-circuit lines.

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