Abstracts

Engraved NRD-guide for millimeter-wave integrated circuits

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Practical realization of NRD (non-radiative dielectric)-guide components such as filter, T-junction or hybrid planar NRD-guide circuit is rather complicated because of the alignment requirement of various elements of the structure. We present a new platform called "Engraved NRD-guide (ENRD)". In this proposed structure, only the outline of NRD-guide is machined out of a dielectric block. It eliminates the alignment constraint and allows for a more precision design/realization and also a better physical integrity of the overall circuit. Using the ENRD-guide, a microstrip-to-NRD-guide transition and a filter were realized and measured, confirming its feasibility. It is believed that this technique will ease the fabrication of NRD-based millimeter-wave transceiver that may involve multiple NRD components.

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