Abstracts

A novel compact millimeter wave diplexer

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A novel compact millimeter wave diplexer is presented. The structure is composed of an H-plane transformer section and two cross-coupled folded E-plane metal-insert filters. The design is based on generalized scattering matrices of the key building blocks of the diplexer which are computed using a standard mode matching technique. The new diplexer requires half the number of resonators of a conventional E-plane diplexer with T-section power dividers, is thus much shorter and shows less insertion loss. At the same time the ease of manufacturing known from typical E-plane filters is maintained.

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