Abstracts

Semicircular Waveguide-Type Diplexers Used for the Millimeter-Wave Waveguide Transmission System

S. Shimada and N. Suzuki. "Semicircular Waveguide-Type Diplexers Used for the Millimeter-Wave Waveguide Transmission System." 1974 Transactions on Microwave Theory and Techniques 22.2 (Feb. 1974 [T-MTT]): 111-118.

A semicircular waveguide-type diplexer consisting of semicircular hybrids and high-pass filters as a band-splitting filter for millimeter-wave multiplexing-demultiplexing networks has been newly developed. The construction and the operating principles of the diplexer are described; the design method and the experimental results are also discussed. The branching characteristics for a diplexer for dividing the frequency band 43.4-86.8 GHz into two equal parts have proved tolerably flat, with the resulting branching loss amounting to as small as 1.2-1.4 dB. The total length for the experimental model is 1.17 m, which is one-half to one-third shorter than the conventional Michelson interferometer-type diplexer. It is concluded that the semicircular waveguide-type diplexer can be effectively used for millimeter-wave waveguide transmission system.

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