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Design for Filter and Transitions to Substrat Integated Waveguide at Ka Band

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Abstract : In this paper, the concept of substrate integrated waveguide (SIW) technology is used to design filter for 30 GHz communication systems. SIW is created in the substrate of RT/Duroid 5880 having relative permittivity ε_r= 2.2 and loss tangent tanφ = 0.0009. Four Via are placed on the century filter the structures of SIW are modeled using and have been optimized in software HFSS (High Frequency Structure Simulator), à transition is designed for a Ka-band transceiver module with a 28.5GHz center frequency, . and then the results are verified using another simulation CST Microwave Studio (Computer Simulation Technology). The return loss are less than -18 dB, and -13 dB respectively. The insertion loss is divided equally -1.2 dB and -1.4 respectively.

Keywords : transition, microstrip, substrat integrated wave guide, filter, via
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