

Coaxial End-Launched and Microstrip to Partial -Plane Waveguide Transitions

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Abstract

Conventional rectangular waveguides are commonly used for high power and other microwave and millimeter wave applications. Their use at lower frequencies has been limited by their bulky nature. A new type of compact waveguide called a partial H-plane waveguide has previously been proposed that has only one quarter of the cross sectional area of a conventional waveguide. However, only limited information relating to the feeding of such waveguides is available. This paper presents two types of transitions to partial H-plane waveguides from the coaxial and microstrip transmission mediums. Additionally, in the coaxial case the transition is end-launched to offer collinear properties. The development of both transitions is discussed and optimized designs presented with simulated and measured results over H-band (3.95–5.85 GHz).