

Analysis and Measurement of NRD-Guide Leaky Wave Coupler in Ka Band

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A new structure for an NRD-guide directional coupler is developed. This structure combines two NRD guides and a dielectric slab guide in order to utilize a leakage mechanism for coupling. The coupling depends on this leaky mechanism, but not on field interactions as in a conventional proximity coupler. A theoretical formula is presented. The field along the NRD guide and the decay constant are measured at Ku band (35 GHz) and compared with the theoretical data. Reasonable agreement exists between the measured data and theoretical data.

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