Abstracts

The Measured and Computed Performance of a 140--220 GHz Schottky Diode Mixer

P.H. Siegel and A.R. Kerr. "The Measured and Computed Performance of a 140--220 GHz Schottky Diode Mixer." 1984 Transactions on Microwave Theory and Techniques 32.12 (Dec. 1984 [T-MTT] (1984 Symposium Issue)): 1579-1590.

In this paper, we compare the measured and theoretical performance of a room-temperature single-ended Schottky diode mixer in the WR-5 (140-220-GHz) waveguide band. Using the computer program GISSMIX, combined with measurements made on a 100X scale model of the WR-5 mixer, we have been able to predict the millimeter-wave mixer performance over a wide tuning range with unprecedented accuracy. In addition we have examined the sensitivity of the mixer performance to various diode and mount characteristics. Our rneasured conversion loss and mixer noise temperature, single sideband, are 5.7 dB and 750 K at 180 GHz, and 5.7 dB and 500 K at 150 GHz, which we believe to be the best reported for a room-temperature mixer at these frequencies.

❑ Return to main document.