Abstracts

Quasi-optical discrete beam steering grids

J. Mazotta, M. DeLisio and Jung-Chih Chiao. "Quasi-optical discrete beam steering grids." 1999 MTT-S International Microwave Symposium Digest 99.4 (1999 Vol. IV [MWSYM]): 1825-1828 vol.4.

Quasi-optical discrete beam-steering grids were presented using PIN-diode switch arrays to change reactances across the transmission aperture. E-plane and H-plane beam-steering angles of (+10/spl deg/, -12.5/spl deg/) and /spl plusmn/20/spl deg/ were demonstrated at 3 GHz, respectively, with transmission losses less than 6 dB. The insertion loss is due to the series resistance of the PIN-diodes and can be reduced by reducing the series resistance of the switches. The theory was verified with a 5-GHz passive grid, which had E-plane and H-plane beam-steering angles of (+12.5/spl deg/, -15/spl deg/) and /spl plusmn/12.5/spl deg/, respectively, compared with the theoretical angles of +12/spl deg/. The total transmission losses were less than 2 dB. Millimeterwave discrete beam-steering grids are proposed using new MEMS see-saw-bar switches to reduce losses.

❑ Return to main document.