Abstracts

Multilayer Offset Fresnel Zone Plate Reflector

Y.J. Guo, I.H. Sassi and S.K. Barton. "Multilayer Offset Fresnel Zone Plate Reflector." 1994 Microwave and Guided Wave Letters 4.6 (Jun. 1994 [MGWL]): 196-198.

An offset phase-correcting Fresnel zone plate (FZP) reflector antenna based on the multilayer configuration is presented. The reflector consists of a conducting ground and four layers of conducting patterns separated by four dielectric substrates. An experimental prototype designed at 10.39 GHz was fabricated and tested. With a 0.32 m by 0.34 m elliptical reflector aperture and a pyramidal feedhorn, the antenna achieved -20-dB sidelobe level and 61% maximum efficiency. Compared with a phase reversal FZP of the same size, a 3.3-dB gain improvement and significant sidelobe reduction were obtained.

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