Abstracts

Circularly Polarized Linear Array Antenna Using a Dielectric Image Line

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A new circularly polarized antenna using a dielectric image line is proposed. This antenna is composed of a slotted conductive plane and a rectangular dielectric rod. This paper describes the design of and experimental results achieved with the circularly polarized array antenna fed by a dielectric image line. The fundemental characteristics of the image line are also presented. Since this line's losses are far lower than the microstrip line losses in the millimeter wavebands, antenna feed line losses expect to be also very low. Bandwidth within the 2-dB axial ratio was more than 7 percent, and the angle range within the same ratio was more than ±7.8 degrees at 29.5 GHz. This antenna is far superior to the microstrip line feed array antenna in the millimeter wavebands.

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