A Balance-fed Wideband Disc Antenna for Mobile Communication Application

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ABSTRACT

Two novel planar are proposed in this thesis for modern mobile communication applications: A disc-slit microstrip antenna and a balance-fed disc-slit antenna. A disc-slit microstrip antenna, has a microstrip line-feeding. The balance-fed disc-slit antenna, is realized by merging a single-ended disc-slit monopole antenna with a defected-ground balun. The resulting antenna has the special merits of high immunity against electromagnetic interference from nearby circuit and less sensitivity to size variation of the corresponding ground plane.

The balance-fed disc-slit antenna can be designed by three steps: (1) Design an unbalance-fed antenna for the specified band; (2) design a DCL balun for this band; (3) merge the antenna and balun implemented in Steps 1 and 2 into a balance-fed antenna. A prototype was created and examined, and the results obtained demonstrate the promising performance of the newly proposed antenna.

Key Words : planar antenna, disk antenna, balance-fed antenna, mobile communication

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