2007-11-16

GA/MoM optimization of PIFA antennas with meandering slits

Michael, K.

IET Digital Library

https://doi.org/10.1049/ic.2007.1135

GA/MoM optimization of PIFA antennas with meandering slits

K. Michael and A. A. Kucharski

DOI: 10.1049/ic.2007.1135

Abstract:

The optimization of a mobile antenna by genetic algorithm (GA) can be done in many ways, e.g. by random removal of rectangles on the patch radiator, movement of shorting patches, etc. In this paper we will demonstrate the optimization of planar inverted F antenna (PIFA) for multiband and broadband operation by random removal of slits on the patch radiator to form a meandering PIFA antenna. Optimization technique is based on the combination of GA and method of moments (MoM), in which MoM is based on RWG (Rao-Wilston-Glisson) edge elements. GA manipulates slits on the patch radiator in order to obtain a specific frequency response. Recalculation of the MoM interaction matrix for each individual in the GA is avoided by application of DMM (direct matrix manipulation)[3].

Keywords: microstrip antennas; genetic algorithms; mobile antennas; planar inverted-F antennas; method of moments