Multi-Band Handset Antenna Design Using A Genetic Algorithm

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Abstract

With the rapid growth of mobile communications and antenna market demands, the need for a mu lti-band, simple geometry, low cost and small size handset antenna design became a vital necessity. In the constricted place in a mobile handset the main aim will be to design a multi-band handset antenna which must effectively operates on at least three wave bands with high efficiency and also be free from unwanted spurious radiation illuminating the user's head (low SAR value). To design such a complex multi-band antenna, a novel way is required rather than using the empirical method. The search for best design geometry requires an optimisation method, and one promising method is the Genetic Algorithm (GA). A GA will be presented through this paper, and its capabilities will be showed through a design example of simple dipole and a dual-band antenna handset primary design. It is intended that the dual-band antenna is a development step towards a multi-band design with a low manufacturing cost.