

Abstract

Engineers have been long drawn to the trade-off between parameters and the development of antennas that can fit within laptops in minimum space. The construction of an inverted-f antenna-based structure with both singleband and dualband features in the sub-6 GHz frequency band is the subject of this report. Furthermore, due to limited space availability a size reduction technique is proposed which is simple and easy to realize. A simulation based study is performed in CST Studio and variation with respect to its physical parameters were recorded.

The inverted-f antenna is printed on a small rectangular slot which is mounted on a ground plane. A simulation based study is performed in CST Studio and variation with respect to its physical parameters were recorded. These results are then utilized in order to design an antenna resonating at cellular network frequency bands. The structure resonates in two frequency bands with good radiation characteristics centered at

Inverted-f antennas are in high demand for cellular communication because they are small, compact, and cost-effective since they are made on the same PCB as other RF components and do not require any extra components for impedance matching due to the intermediate feed point. Here, the performance parameters of an IFA printed on a PCB are investigated. It is determined to be satisfactory without adding to the structure's complexity.

The designs are prototyped on a rectangular slot of FR-4 substrate with copper laminates having a dielectric of approximately 4.4 with a height of 1.6mm. The maximum dimensions of the antenna is 70 mm x 10 mm x 1.6 mm. The fabricated antenna is found suitable to be used in cellular bands such as

