Multiband Flat-Plate Inverted-F Antenna for Wi-Fi/WiMAX Operation

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***Abstract*—A printed multiband flat-plate inverted-F antenna (IFA) is presented. The antenna is complexly structured and can operate as an internal laptop antenna over multiple Wi-Fi and WiMAX frequency bands. The antenna was studied by means of numerical simulations. The predicted achievable −10 dB return loss bandwidth of the antenna is confirmed and demonstrated by experimental measurements.**

***Index Terms*—Flat-plate antenna, inverted-F antenna (IFA), multiband antenna.**

long miniature coaxial cable (1.1 mm in outer diameter), which introduces additional decrease in the measured return loss. The IFA suggested in [4] has a more complicated backward branch, formed by a soldered ceramic chip with embedded helical metal pattern. Indeed, it showed an improved performance. It demonstrated three bands of operation, namely, 2.37–2.72 GHz, 3.19–3.79 GHz, and 5.05–5.89 GHz, where the input return loss at the antenna terminals is less than −10 dB, making it