

Narrow-Size Multiband Inverted-F Antenna

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Abstract—We present a narrow-size multiband inverted-F antenna (IFA), which can easily fit inside the housing of display units of ultra-slim laptops. The narrowness of the antenna is achieved by allowing some of its metallic parts to extend over the sidewalls of the dielectric substrate. The antenna is aimed to operate in all the allocated WiFi and WiMAX frequency bands while providing near-omnidirectional coverage in the horizontal plane. The multiband performance of the proposed antenna and its omnidirectionality are validated by measurements.

Index Terms—Compact IFA, inverted-F antenna (IFA), IFA with slotted monopole, multiband antenna, printed IFA.

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II. ANTENNA DESIGN

The starting point for the design of the proposed narrow-size IFA was the prototype IFA described in [16]. As pointed out earlier, the modification of the prototype IFA to a much narrower one was facilitated by allowing the planar printed metallic parts to extend over the sidewalls of the dielectric substrate. The dimensions of the new IFA were optimized to achieve the desired performance while rendering the IFA's width greatly reduced.