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Research Article

Multiband Antennas for SDR Applications

E. Surducan,^{1,2} V. Surducan,^{1,2} D. Iancu,^{1,3} and J. Glossner¹

¹Sandbridge Technologies, 120 White Plains Road, 4th floor Tarrytown, NY 10591, USA

²Department of Molecular and Biomolecular Physics, National Institute for Research and Development of Isotopic and Molecular Technologies, 65-103 Donath Street, 400293 Cluj Napoca, Romania

³Department of Computer Systems, Tampere University of Technology, Korkeakoulunkatu, 3, 33720 Tampere, Finland

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Abstract

We present multiband antennas configurations for SDR applications. Using a composite folded dipole structure as starting point, we derived more complex antenna configurations to support multiple communication protocols for mobile application with linear and circular polarizations. Prototypes as single antenna with circular polarization, tunable single antenna with PIN diode and MIMO systems with three and four antennas, all derivatives of the same basic structure, were produced in an iterative fashion until the desired parameters were achieved. These antennas are suitable for microstrip circuit realizations and can be included in the printed circuit board (PCB) of the device, or used as stand alone. The shapes and measurement results are presented throughout the paper. From the illustrated graphs it can be seen that the stand-alone antennas exhibit positive gain for all the frequency bands of interest while the separation between antennas, for the multiple-input multiple-output (MIMO) case, is better than 15 dB.

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