Ultra-Wideband Antenna Integrated with Dual-Band Dielectric Resonator

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Abstract: In this paper, we proposed a novel integrated ultrawideband (UWB) monopole antenna with dual-band antenna. The antenna consists of planar rectangular with semi-elliptical base and a rectangular dielectric resonator (DRA) with dual-band operation. Both of them are excited via coplanar waveguide (CPW) lines. The numerical results show that the planar monopole provides a -10 dB impedance bandwidth between 2 GHz and 12 GHz which largely covers the entire UWB spectrum, and the rectangular DRA operates at two bands; 5.7-6.2 GHz and 8.2-9.7 GHz. The electromagnetic analysis is carried out using CST microwave studio and HFSS software. The numerical results, obtained from simulation, are given and compared in terms of S-parameters and radiation patterns.

Keywords: CPW-fed line, dielectric resonator antenna (DRA), Dual-band antenna, Integrated antennas, UWB antenna.