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A Hybrid Integrated Ultra-Wideband/Dual-Band Antenna with High Isolation

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Abstract: In this paper, we propose a novel integrated ultra-wideband (UWB) monopole antenna with dual-band antenna. The antenna consists of planar rectangular with semi-elliptical base and a rectangular dielectric resonator antenna (DRA) with dual-band operation. Both of them are excited via coplanar waveguide (CPW) lines. The experimental measurements show that the planar monopole provides an impedance bandwidth between 2.44 and 11.9 GHz which largely covers the entire UWB spectrum, and the rectangular DRA operates at two bands; 5.3–6.2 and 8.5–9.4 GHz. Additionally, the proposed structure ensures low mutual coupling between the two ports (with S21 less than 22 dB in the whole operating frequency band).

Keywords : CPW-fed line, Dielectric resonator antenna, Dual-band antenna, Integrated antennas, isolation, UWB antenna