

Integrated Flexible UWB/NB Antenna Conformed on a Cylindrical Surface

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Abstract: In this paper, an ultra-wideband (UWB) conformal monopole antenna integrated with a narrow-band (NB) rectangular slot antenna is designed and fabricated. The proposed structure consists of a circular disc monopole antenna printed on a cylindrical surface and fed by a coplanar waveguide line (CPW). A rectangular slot antenna, excited by a microstrip line, is integrated in the front of the UWB antenna. The simulations are performed using the CST Microwave Studio software. To validate the proposed antenna concept, an experimental prototype is fabricated and measured. The measured results show that the monopole antenna covers an ultra wideband from 2 GHz to 12GHz with $S_{11} < -10$ dB and provides a very good isolation with a transmission coefficient below -20 dB across the operating band. Compared to planar integrated antennas, the proposed conformed structure possesses an important wideband, which can be used in many wearable electronic applications and communication systems.

Keywords : UWB, Conformal antenna