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A Compact Wideband Patch Antenna for Ultra High Frequency RFID Tag

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Abstract

A compact and simple patch antenna for ultra high frequency band is current demand for RFID tag. By embedding a pair of symmetrical key-shaped slot near the non-radiating edge of the rectangular patch, a new adjacent resonant mode close to the fundamental mode is excited to form a wide half-power impedance bandwidth (Return loss ≥ 3 dB) of 122 MHz to cover the entire frequency range of ultra high frequency RFID operation (860-960 MHz). The structure of the antenna is completely planar without any cross or multi-layered construction thus it provides ease of fabrication and reduced cost. Performance of the antenna is evaluated by using a commercial electromagnetic simulator, Ansoft HFSS v13. Simulation results demonstrate that the antenna is able to perform considerably well when mounted on different size of metallic plate as well as in free space.

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