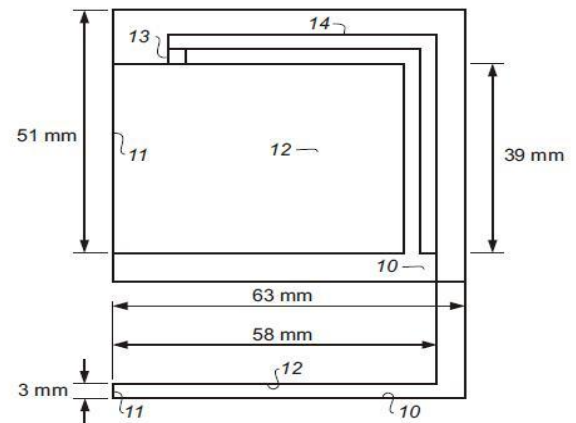




Multi-frequency antenna for RFID applications



Solution and its benefits

A multi-frequency antenna comprises main conductor plate (12); ground plane (10); short-circuit plate (11) that couples the main conductor plate to the ground plane; an open microstrip line (14) having one end attached to microcircuit and other end being open, to achieve two-frequency operation; and microchip (13) coupled to a supply site of power. The microstrip line functions as the ground terminal for the microchip.

Competitive advantage

The short circuit plate has a length corresponding to the length of the side of the main conductor plate and a rear end that necessitates no ground plane. The antenna has small size compared to conventional multiple element solutions.

Technical description

The antenna has a planar i.e. PIFA structure including a main conductor plate (12) disposed on top of a parallel ground plane (10), the main conductor plate (12) being, in addition, connected to the ground plane (10) with a perpendicular short-circuit plate (11). The short-circuit plate (11) has a length corresponding to about the length of the main conductor plate. The antenna supply point (13) is placed on the edge of the main conductor plate (12), to which it is possible to attach a microchip acting as the transceiver of an RFID transponder. The ground terminal of the microchip is arranged using an open microstrip line (14) whose end is bent towards the open edge of the main conductor plate (12) to achieve two-frequency behavior. Additional operating frequencies can be generated by using additional conductor plates.

Intellectual property rights

HIRVONEN M: MULTIFREQUENCY ANTENNA FOR RFID APPLICATIONS

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