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## Planar parallel slotted circular disk passive UWB-RFID tag (Article)

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## Abstract

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The research on chipless RFID is getting popular everyday due to its ease of construction and cheap manufacturing. However, the existing dimensions reported in the open literature are still too large and the detection techniques are also complex in nature. In this paper, a new passive UWB tag structure and a corresponding relatively simple detection technique have been proposed. The structure contains a number of slots inserted in a planar circular disk. Two different tags have been designed and simulated, the first with one slot and the second with five different slots. Taconic TLX-8 has been chosen as the substrate material of structure having a dielectric constant of 2.55 and 0.5mm of height. The backscattering information from the tag has been utilized for the detection of the tag bits on board. The tag structure justification has been done by the surface current response and the detection method is employed to extract the bits. A good agreement has been found in the simulation. For five bit system, bit '10000' and bit '11111' have been successfully extracted. This will motivate RFID researchers to employ more bits on the tag and will provide the encoding the bits with ease. © 2006-2019 Asian Research Publishing Network (ARPN).

## Author keywords

[Backscatter](#) [Chipless RFID](#) [Passive UWB tag](#) [Planar circular disk](#) [Slots](#)

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