



ABSTRACT IDE1007

An Active Backscatter Wake-up and Tag Identification Extraction Protocol for Low Cost and Low Power Active RFID

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Abstract

In this paper we present a Radio Frequency Identification (RFID) protocol used to wake up and extract the ID of every tag (or a subset thereof) within reach of a reader in an active backscatter RFID system. We also study the effect on tag energy cost and read-out delay incurred when using the protocol, which is based on a frequency binary tree. Simulations show that, when using the 2.45 GHz ISM band, more than 1500 tags can be read per second. With a population of 1000 tags, the average read-out delay is 319 ms, and the expected lifetime of the RFID tags is estimated to be more than 2.5 years, even in a scenario when they are read out very often.

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