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Titel des Beitrags: Passive UHF RFID Tag with Multiple Sensing Capabilities

Abstract:
This work presents the design, fabrication, and characterization of a printed radio frequency identification tag in the ultra-high frequency band with multiple sensing capabilities. This passive tag is directly screen printed on a cardboard box with the aim of monitoring the packaging conditions during the different stages of the supply chain. This tag includes a commercial force sensor and a printed opening detector. Hence, the force applied to the package can be measured as well as the opening of the box can be detected. The architecture presented is a passive single-chip RFID tag. An electronic switch has been implemented to be able to measure both sensor magnitudes in the same access without including a microcontroller or battery. Moreover, the chip used here integrates a temperature sensor and, therefore, this tag provides three different parameters in every reading.

Stichworte: screen printing; printed electronics; UHF antenna; RFID tag; sensor; switch

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