

Identification system based on new chipless RFID tags compatible with conventional barcodes

SUMMARY:

Nowadays, identification of items or products in the industry and trade is of vital importance because of the logistical requirements, traceability and safety of the same. The most widespread identification system is the barcode. Another identification system that is gaining popularity and aims to replace or at least to coexist with the conventional barcode system is the radio frequency identification (RFID).

One of the disadvantages of RFID technology versus conventional barcodes is the high cost of a single RFID tag. This high cost almost entirely is due to the price of the chip that RFID tags must include.

The present invention proposes a type of RFID tag that does not need these chips; hence its costs are equated to that of a barcode. The proposed labels for this technology use multi-conductor transmission line structures generating resonances by coupling lines. The position of these resonances is controlled by geometrical parameters of the conductive traces that form the multi-conductor transmission line structures. Thus, the positions of these resonances encode the information.

COMPETITIVE ADVANTAGES:

The outstanding competitive advantages of these tags are:

- No need of chips resulting in low production costs.
- Capability of electromagnetic and optical reading results in
 - Increased safety: optical reading can be forged by sticking one barcode on top of the other, but sticking an electromagnetic tag on top of another produces incorrect results in reading indicating some kind of error.
 - Increased robustness: If a stained barcode results illegible for optical reading, the electromagnetic reading still remains.
 - Increased amount of information stored.
- Compatibility with globally accepted standards.

APPLICATIONS:

The identification and security systems are present in any environment where transport and exchange of goods happen. Therefore, the present technology is applicable for all-purpose in industry and distributive trades where the logistics demand accurate traceability and safety.

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PROTECTION LEVEL

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