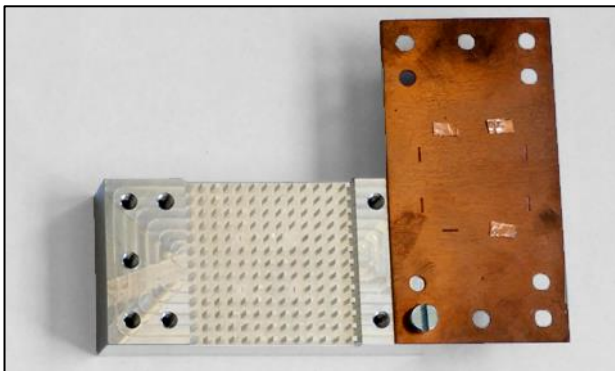


Chipless RFID-tag design for harsh environmental conditions

Innovative design widens application field of chipless RFID-tags



Status quo

Chipless radio frequency identification (RFID) tags usually can only be used under certain environmental conditions. Furthermore, RFID-tags are usually operating below 10 GHz. For higher frequencies, the influence of production tolerances increases, resulting in higher production costs and lower operating range.

Our technology: Robust design for chipless RFID-tags

Based on the *bed of nails*, a new technology was developed to extend the frequency range of

chipless RFID tags to the millimeter-wave range. Defined metal cavities allow for the coding of currently up to 8 bits (256 ID's).

Benefits

- Operation in harsh environmental conditions (vibration, temperature above 200°C, strong electromagnetic fields).
- Operating range up to several meters.
- High durability (good mechanical stability, no electronic components).

Current stage of development

Technology-Readiness-Level (TRL): Level 3

Tests are successfully completed, Proof of Concept delivered.

Application possibilities

Application in production environments with harsh conditions (e.g. in steel mills or in machine tools), coding of sensors in Structural

Health Monitoring (e.g. monitoring of bridges) or RFID near to high-voltage components.

Intellectual property situation

The presented technology is protected by intellectual property rights.

Commercialization opportunities

We are looking for industry partners who are interested in using the technology. If there is any need for further development, a close cooperation between the industry partner and TU Darmstadt is possible.

Your contact partner

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