

Analysis of Antennas for Sensor Tags Embedded in Tyres

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Abstract

The implementation of ID functions and sensors in a tyre has been discussed intensively for some time past. Such an intelligent tyre is necessary to identify the manufacturer and the type of the tyre. Additionally, physical parameters of the tyre can be measured during use to warn the driver against possible damages or to test different tyres in a lab. The RFID technique is one possibility to realise such an application. So, this paper will focus on the analysis of an inductively coupled transponder system that can be used for such an application. It presents an approach for modelling and analysing the transmission channel including the influence of a metal rim. Furthermore, a test set-up was realised in the lab to verify the simulation results. The used transponder of the test set-up contains a pressure sensor and a temperature sensor.