

A Reader Antenna with Carrier Suppression for Wireless Sensor Systems

Andreas Hennig, Gerd vom Bögel, Anton Grabmaier, Fraunhofer IMS Duisburg, Germany

Abstract

The use of sensor transponder technologies particularly in medical applications opens valuable possibilities in therapy of human cardiovascular system diseases, for example cardiac insufficiency. Especially for applications where such a sensor transponder is deeply implanted into human body, several requirements have to be kept in mind. These are for example a high transmission range and at the same time low transponder antenna dimensions. Today, there are no systems that meet these requirements. This work deals with the analysis and optimization of carrier suppression methods to enhance the performance of such systems. It is shown, that conventional approaches are not suitable for this application. A new antenna structure is presented that makes data and power transmission possible. Measurements shows a carrier suppression of about 52 dB.