

“Using an electrically large loop antenna with Uniform current distribution as RFID ultra high frequency near field reader antenna”

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Abstract – The aim of this work was to design a simple ultra high frequency reader antenna with well defined electromagnetic field distribution enabling applications like item level tagging, smart shelves or point of sale terminals, which are very sensitive to false positive reads. Other problems that arise in this frequency range are high dielectric materials like liquids in the proximity of reader or transponder antennas. Especially these materials affect the electric field components of the reader antenna. Therefore, only loop antennas are investigated. This kind of antenna shows a predominating magnetic field in its near field region, which is preferable when dielectric materials are next to it.