Near-field scanner – Huygens Box

Project work, MA thesis

Motivation

- By using near-field measurements, so called Huygens Boxes can be created, which can be used as a source in further electromagnetic field simulations
- The ground plane of the near-field scanner influences the field distribution of the Device Under Test (DUT), which leads to incorrect measurements
- For correct simulations a free space Huygens box is highly preferable

Tasks

- Literature research on recent methods for source reconstruction in near-field measurement
- Development of a method for the extraction of the ground plane and implementation of the method in Python or Matlab
- Validation of the technique through simulations in CST Studio Suite

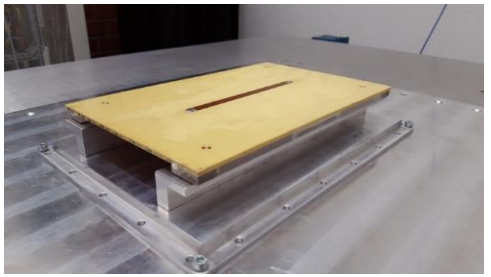
Requirements

- Good knowledge in theoretical electrical engineering
- Knowledge in Python or Matlab

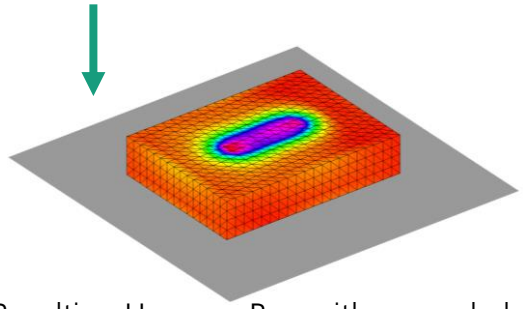
Contact

Christoph Marschalt, mail: christoph.marschalt@enas-pb.fraunhofer.de

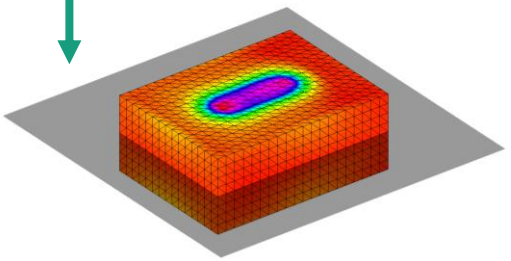
Dominik Schröder, mail: dominik.schroeder@enas-pb.fraunhofer.de



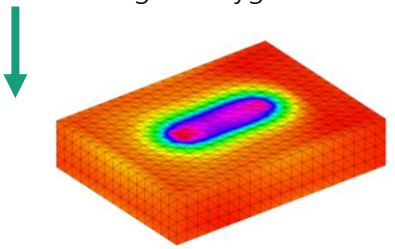
DUT above ground plane



Resulting Huygens Box with ground plane



Imaged Huygens Box



Desirable free space Huygens Box

TET Theoretische Elektrotechnik Prof. Dr. Jens Förstner

UNIVERSITÄT PADERBORN

Fraunhofer ENAS