

Bachelors/Master thesis

EMI Source Imaging Using a Holographic Method

Motivation

One of the most common tools used to locate the source of radiated emissions from circuits and devices is electromagnetic near-field measurement. Measuring the magnitude of the EMI near field is only one way to identify the source of the emission, and it has its limitations. The true source of far field emission is difficult to locate, especially with very dense circuits emitting at the same frequency. Near-field probes can help find the source of near-field emission (hot spots), but this may not be the source of far-field emission. A solution to this problem is provided by Emission Source Microscopy (ESM) technology. Using the principle of phase measurement, the true sources of far field emissions can be reconstructed from the magnitude and phase data of the non-reactive region of a DUT's near field.

Research topic

The basic concept is the application of SAR (Synthetic Aperture Radar) technology to EMC. Fields are scanned in non-reactive near-field regions where most evanescent waves die out. The measured magnitude and phase data are processed in the space frequency domain, allowing efficient back-propagation to the field sources.

Your Profile

You are eager to learn. Prior knowledge and experience in the field of electromagnetics or Electronics is highly appreciated. You will learn about different near-field scanning test setup, simulation and the associated instruments. Further, you can improve your skill in computational electromagnetics.

Organizational matters

- Start: as soon as possible
- Workplace: at the institute

Contact/Supervision

IFE: David Pommerenke - david.pommerenke@tugraz.at

IFE: Sajjad Sadeghi – Sajjad.Sadeghi@tugraz.at