

Master Thesis / Research Internship

Design of Three-Phase Active Noise Separator

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Description

Electromagnetic interference (EMI) conducted emissions (CE) have become an increasing concern in power electronics due to the high switching frequencies and rapid transitions associated with modern wide-bandgap semiconductor devices. Typically, EMI filters are designed based on the conducted EMI noise level, which is decomposed into common-mode (CM) and differential-mode (DM) components using a noise separator. Consequently, the noise separator plays a critical role in achieving enhanced noise attenuation. However, at high frequencies, parasitic effects and the stringent coupling factor requirements of passive noise separators pose significant challenges. To overcome these limitations, active approaches offer more attractive features, provides a solid foundation for systematic and optimized EMI filter design.

Tasks

- Review the state of the art and define the Methodology
- Modeling & Simulation
- Schematic & PCB Design
- Measurement & Validation

Prerequisites

- Great interest in power electronics;
- Solid background in control systems and power electronics;
- Experience with MATLAB/PLECS/LTspice/GeckoCIRCUITS;
- Basic skills in analog and power circuit design.
- Basic skills in electrical testing and measurement.

Contact and further information

- Please attach your CV and the latest study transcript to the application.

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