

# Master's Thesis

## EMC- Aspects of fractional horsepower drives

### Starting position and motivation

Passing the electromagnetic compatibility (EMC) test presents a significant challenge for many new devices. Inter alia this is due to the multidisciplinary nature of the EMC. Besides the used components and their placement on the printed circuit board, the control- and switching strategy as well as the motor design are essential influences. Furthermore, within the area of application of fractional horsepower drives the electronic circuit to operate the motor, the motor and the application itself are very often merged together to one single unit. Therefore, a holistic examination of the system is indispensable.

### Research questions

- Which parameters of the electronics influence the EMC?
- Which parameters of the control- and switching strategy influence the EMC?
- Which parameters of the motor design influence the EMC?

### Tasks

- Induction into basics of EMC
- Induction into the EMC standards in the Automotive sector
- Induction into the EMC compliant layout design and design of different prototypes
- Optional: EMC measurements with the designed prototypes

### Organizational matters

- Start: from now
- Workplace: Electric Drives and Machines Institute – TU Graz

### Contact

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