

SUMMARY

This thesis is about small satellite magnetic actuators used– magnetorquers. Small satellites are cheap and for this reason the variety of technical solutions it can use is very limited. Magnetorquer is a simple device that can provide the rotation in space with minimal requirements over the software control, but it is quite imprecise and different from sample to sample.

The goal of this thesis is to find out what can be done to make a magnetorquer a more stable and reliable tool in space control. To do so, the state of art research was made, which gives overview on the contemporary solutions in magnetorquer specifics, same as other components of a satellite that are forming a working environment for this actuator. The main design features of different magnetorquers were analysed to pay attention to the most important parameters in the next stage. As the last step, the sample of a magnetorquer was tested and the results were compared to the estimations.

Due to the fact that this analysis is made after the satellite is sent into the orbit, and not on the stage of planning and equipment testing, it is hard to make valuable conclusions from an actual theory to practice comparison, so the focus was drifted to the method that can provide valid information regarding possible amendments that can be added in the control phase. As the result of the work, the working methodology was determined, this gives and opportunity for the further projects to be more efficient at the stage of laboratory testing and calibration.