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MAGNETOTORQUERS “MTB” DESIGN AND REALIZATIONFOR NANOSATELLITE APPLICATIONS

Abstract

For a low-torque attitude control on satellites, magnetotorquersare the actuators mostly used for despinning or unloading undesirable satellite angular momentum, as in case of desaturate the reaction wheels when it reaches their maximum speed, by producing magnetic dipole moment which interact with the Earth's magnetic field, allowing a change of attitude satellite in the 3 axes. The manufacture of the magneto-coupler requires, in the first place, a means of winding in order to create the electrical self that corresponds to the requested specification. In this work we will also develop our home winding system support to allow the turns the coil to be evenly distributed along the core made of Permendur-49. The illustrate work will cover the development of 03 magneto torquers bar (MTB) for nanosatellite applications in control and determination attitude ADSC: technical specifications,mechanical design and prototype realization,the COMSOL modelization, developed means of winding, theproposed technics in manufacturing and qualification tests.