



## **The performance of the Vector Field Magnetometer on the Swarm mission**

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Swarm is ESA's fifth Earth Explorer mission with the objective of providing the best-ever survey of the geo-magnetic field. The Swarm mission consists of three identical satellites orbiting in polar orbits at about 500 km altitude, which were launched on November 22nd, 2013.

The main instrument on each of the Swarm spacecraft is the Vector Field Magnetometer (VFM), which measures the three components of the magnetic field with extremely high accuracy. The VFM is co-mounted on an optical bench together with three star tracker (STR) optical heads, which allow to transferring the attitude of the magnetic measurements. Both the VFM and STRs have been designed, developed, qualified and calibrated by DTU Space in Denmark.

During the pre-flight activities, the VFM instruments were fully characterized as to ensure high stable magnetic vector measurements throughout the mission lifetime.

In this paper we will present the in-flight performance of the three VFMs, which have been continuously operating since the beginning of the mission. The performance will be discussed with respect to the stability of the calibration parameters and the expected behavior for the extended mission until 2021.