

## CONTACT INFORMATION

### VEOWARE SRL

Jan Smolders  
Commercial Director  
+32 475 29 44 28  
jan.smolders@veowarespace.com



Figure 1: microCMG IOD mission patch

## PRESS RELEASE

### VEOWARE successfully tests first microCMG in space.

**VEOWARE** has successfully tested its first micro **Control Moment Gyroscope (microCMG)** in space, which was launched as a hosted payload on **D-Orbit**'s orbital transfer vehicle (OTV) **ION Satellite Carrier (ION)** on **April 14<sup>th</sup> 2023** aboard a **SpaceX Falcon 9** rocket.

VEOWARE developed a unique **scalable-by-design micro-Control Moment Gyroscope (microCMG)**, miniaturizing technology that has traditionally been adopted for larger satellites, reducing maneuvering time for small satellites, therefore improving **productivity in space** for any missions in Earth Observation, Communication, Space Situational Awareness, and In-Orbit Servicing.



Figure 2: VEOWARE microCMG

After a **successful commissioning** of the microCMG in space, the next step was to run the following test:

1. Power on the microCMG.
2. Start gimbal calibration process.
3. Once the gimbal calibration process is finished, a gimbal maneuver of 360° in both direction is made while the flywheel is not yet spinning.
4. After the gimbal maneuver is completed, the flywheel is started and flywheel speed ramp-up.
5. Finally, a new gimbal manoeuver of 360° in both direction is made while the flywheel is spinning.
6. Power off the microCMG.

Several tests in space were done over the last few months. After each test the VEOWARE team took the opportunity to review the results, optimize the firmware, execute a firmware upgrade in space and run a new test. Every iteration took about 3-4 weeks, including the allocation of a new test slot in agreement with the satellite operator. A **special thanks to the team of D-Orbit** for their flexibility and cooperation to support VEOWARE making this In-Orbit Demonstration mission a success!

A full report on our in-orbit data is available [upon request](#).

Yet, VEOWARE is pleased to already share the following graphs on successful Gimbal calibration, Gimbal maneuver and Flywheel ramp-up:

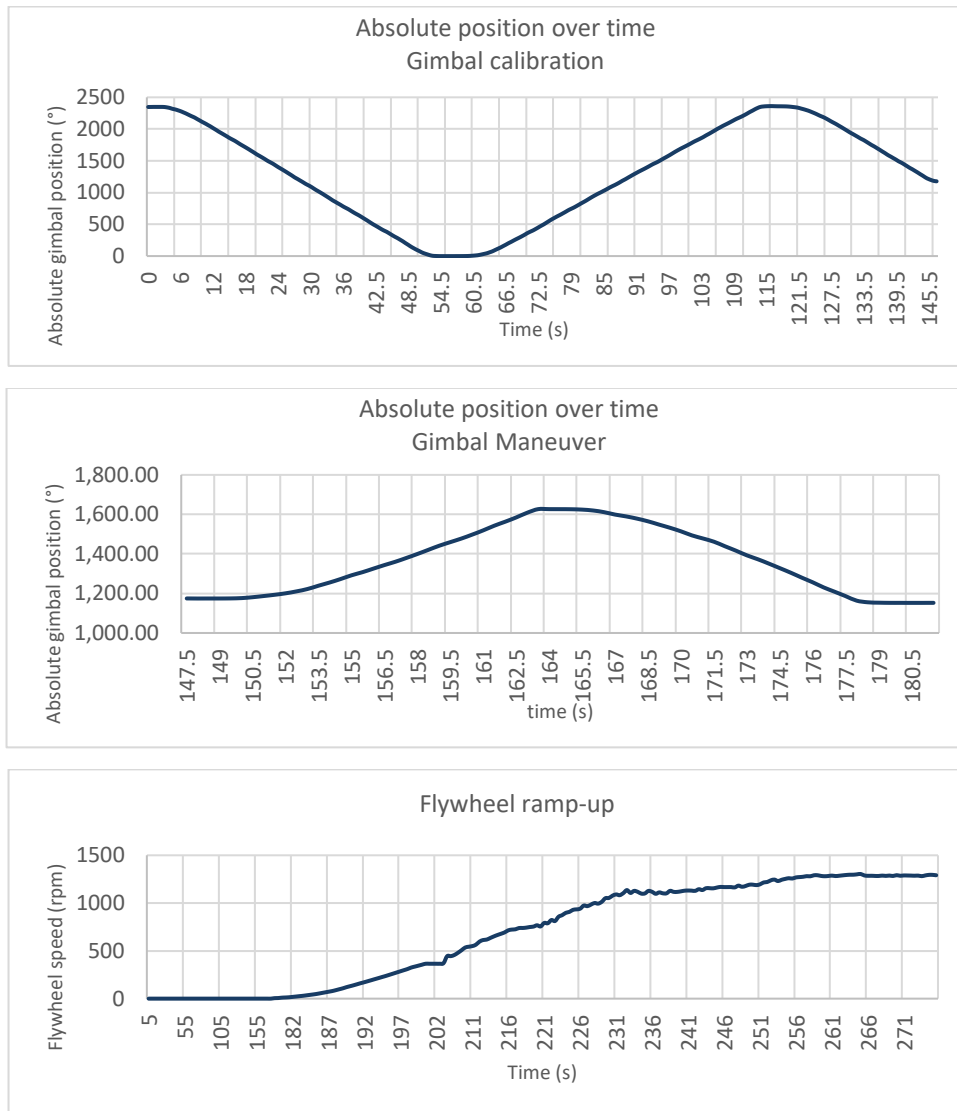


Figure 3: Gimbal calibration (top), Gimbal maneuver (middle) and Flywheel ramp-up (bottom)

**Space is hard, but not impossible. Our team at VEOWARE worked hard making it possible.** A truly innovative technology has been successfully tested in the harsh conditions of outer space. This test in space is part of the microCMG’s first **In-Orbit-Demonstration** mission, which is a key milestone in the development and commercialization of VEOWARE’s **high-agility Attitude Control technology**.

**Stay tuned** to learn more about our **second microCMG In-Orbit Demonstration** mission and [reach out](#) to get access to our **CMG qualification reports** (Structural, TVAC, micro-vibration, and more).

**About VEOWARE:**

Headquartered in Brussels, and founded in 2016, VEOWARE SPACE develops and commercializes Attitude Control Systems improving **10X the agility of any spacecraft**. VEOWARE’s next-gen technologies include high-torque Reaction Wheels and ultra-high-torque Control Moment Gyroscopes. The VEOWARE team can also provide mission analysis support, define ACS requirements, simulate required attitude, and **propose a suitable ACS solution to achieve mission success**.