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THE EUROPEAN COMMERCIAL LUNAR SURFACE ACCESS SERVICE (LSAS)

Abstract

The Lunar Surface Access Service (LSAS) is a commercial service proposed by OHB System that offers institutional and private customers a first flight opportunity to the lunar surface already three years from now.

It is the only planned service worldwide with actual flight heritage because it is a design evolution of the Israeli Beresheet lunar lander that flew in 2019 as the first ever privately funded lunar orbital and landing mission.

OHB and IAI signed an industrial teaming agreement in 2019 and since then have been working on the delta design of the lander to accommodate up to 85kg payload capacity and introducing specific capabilities such as precision landing. In addition, in 2020, OHB and ESA signed a MoU to start working on a Pilot Phase towards establishing a commercial partnership.

LSAS has its first flight planned for 2025 with two more flights intended within this decade. The first mission, LSAS-1, will be targeting one of the so-called “highly illuminated sites” mapped close to the lunar South Pole, where darkness durations during a lunar rotation cycle only measure 2-4 Earth days. The S/C design is such that the LSAS-1 mission will survive these darkness periods repeatedly, without the need of unusual heat sources, thus achieving a long-lived surface mission. LSAS can accommodate payloads from a variety of customers, and most importantly is proposing itself as the perfect candidate to de-risk the upcoming EL3 mission, and to serve closer to the European community.

In this paper we give an overview of the LSAS-1 preparation efforts: from the delta engineering approach, selection of the landing site, lander capabilities and overview of the business plan.