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Testing The LightSail Program: Advancing Solar Sailing Technology Using a CubeSat Platform

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Abstract

The LightSail program encompasses the development, launch, and operation of two privately funded 3U CubeSats designed to advance solar sailing technology state of the art. The first LightSail spacecraft—dedicated primarily to demonstrating the solar sail deployment process—successfully completed its mission in low Earth orbit during spring 2015. The principal objective of the second LightSail mission, scheduled for launch in 2017, is to demonstrate sail control in Earth orbit and to increase apogee. Managed by The Planetary Society and funded by members and private donors worldwide, LightSail represents the most ambitious privately funded solar sailing program ever launched. By demonstrating the capability to deploy and control a solar sail from a 3U CubeSat platform, the LightSail program advances solar sailing as a viable technology for in-space propulsion of small satellites. This article provides an overview of the LightSail program, describes the spacecraft design, and discusses results from the initial test flight of LightSail 1.

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