Paper ID: 59314
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27th IAA SYMPOSIUM ON SMALL SATELLITE MISSIONS (B4)
Access to Space for Small Satellite Missions (5)

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DESIGN OF A 98U CUBESAT DEPLOYER OPTIMIZED FOR DEDICATED RIDESHARE MISSIONS: REDUCING THE COSTS OF LAUNCHING A CUBESAT BY 4X

Abstract

The advent of dedicated rideshare missions, pioneered by Spaceflight Industries and picked up by SpaceX, Arianespace, and others, has altered the equation of launching a small satellite into orbit. Multiple launch companies have recently announced the sale of fixed-price launch slots directly to customers. However, these launch slots are in the minisatellite range of 100-200 kg, and thus unsuitable for smaller payloads such as CubeSats and PocketQubes.

We present a CubeSat deployer, the Skyliner, optimized for 200 kg 15" ESPA-class launch slots. Rather than an aggregation of smaller deployers in tandem, this dispenser is produced as a unified structure, designed to maximize the reduction of marginal cost per CubeSat to orbit. Our architecture allows up to 98Us of CubeSat to be launched together, in a design capable of accommodating multiple extended 12U and 16U CubeSats in a single slot, while maintaining panel access for each satellite.

The Skyliner deployer is designed to enable routine, airline-like fixed-price access for CubeSats, as opposed to the current broker model. With the pricing of SpaceX dedicated launch opportunities, Skyliner can reduce marginal costs of launching a CubeSat to under $15,000$, $openinguppotentiallyrevolutionaryopportunitiesinspac$