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A STRATEGIC LAUNCH PARTNERSHIPS: SPACE SYSTEMS LORAL AND NASA'S JET
PROPULSION LABORATORY**Abstract**

NASA's Jet Propulsion Laboratory continues to push boundaries of space launch technology partnering with Space Systems Loral's highly reliable satellite platforms to accommodate hosted and dispensed systems. This partnership magnifies the capabilities of the FS 1300 as a platform for direct orbit delivery. The launch vehicle injects the SSL FS1300 and accompanying PODS (Payload Orbital Delivery System) to a geosynchronous transfer orbit. From there the primary spacecraft acts as an upper stage, carrying the satellite to its intended orbit before separating it and assuming its own operational location. This partnership offers JPL a low cost, highly reliable delivery system to help fill the vacuum left by the decommissioned Delta 2 and Falcon 1 launch vehicles.

The 1300 bus series is highly reliable space platform capable of accommodating a wide variety of hosted payloads on its rectangular mainbody. This mature service has been successfully flown for both military and commercial customers. Manufactured over 120 times with a .998 reliability within the first 2 months of operation the FS1300 is a proven standard in satellite design and operability. This robust platform is compatible with every major launch vehicle available to the commercial satellite industry insuring unparalleled manifest flexibility for JPL. The primary provides power, data and positional data prior to separation, as well as collision avoidance maneuvers preventing re-contact. The integrated "launch system" will undergo a series of structural and thermal/vacuum testing simulating launch conditions for the primary and the secondary if required. Environmental testing of the SSL system begins roughly a year before launch. This PODS service offers greater flexibility, shorter schedules, and economies of scale that support sustainable delivery of small missions into high orbits at lower costs. An overview of the NASA market space are discussed, in addition to key trends in small satellites at NASA. An outlook for future small spacecraft demand from the JPL perspective is presented. The Ultrasat mission proposal is a recent example of this evolving partnership. Ultrasat will investigate the death of massive stars, supernova explosions, as well as study the masses and environment of super-massive black holes in the centers of galaxies. Wide-field UV spectra observations from GSO provides an exciting advantages at an extremely competitive launch price. JPL will be able to execute numerous other missions from similar orbits such as studying the surface of moon, magnetic field belts, ultraviolet rays and exo-planet phenomena.