

SPACE PROPULSION SYMPOSIUM (C4)
Propulsion System (1) (1)

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TECHNOLOGY DEMONSTRATION RESULTS OF LE-X ENGINE

Abstract

LE-X is the technology demonstration program of the large open-expander cycle LOX/LH2 engine prior to the start of the Japanese next launch vehicle's booster engine development. The program has been conducted since 2008 with three goals: (1) to establish the new development process based on quantitative reliability and risk analysis (2) to develop the up-to-date technologies for a simple, reliable, robust and low-cost engine (3) to demonstrate the technology readiness and mitigate the risk for the booster engine of the next vehicle. Finally in 2014, all the campaigns including the design, analysis, element tests, component tests and the full scale tests for the main combustion chamber and the fuel turbopump have been successfully completed. In this paper, the results of the technology demonstration for the large open-expander cycle LOX/LH2 engine (LE-X) is reported.