

Space Environmental Propulsion Complex (Area 1-42)



Description:

Area 1-42 is comprised of five test pads, a control blockhouse, a steam generation plant, a 1.4M gallon cooling water tower, a shop area and office trailers. The area has the capacity to store and transfer liquids and gases used in rocket motor research including LN₂, LOX, LF₂, MMH, N₂O₂, LH₂, GHe, H₂O, GN₂ and propane. The steam generation plant has two banks of steam bottles and

three sets of ejectors to provide altitude simulation to 100,000 ft.

The Vertical Test Cell (1-42B) is designed for testing bipropellant liquid rocket engines with up to 50,000 lbs of thrust at simulated altitude to 100,000 ft. Overall size of the chamber is 16 ft in diameter by 28 ft high with a 16 ft diameter removable top cover.

The Space Environment Simulation Facility (1-42C) can perform static tests simulating space altitudes of up to 650,000 ft. The chamber is a 30 ft diameter sphere is capable of achieving 1×10^{-6} Torr at temperatures of -300F or +400F.

Horizontal Cell 1-42D can test solid rocket motors of up to 20,000 lbs thrust fired in a horizontal position at simulated altitude of 100,000 ft. Overall size of the chamber is 10-1/2 ft in diameter by 25 ft in length.

The Exhaust Containment Facility (1-42E) is designed to provide an area capable of handling the build-up and testing of environmentally sensitive solid rocket motors at simulated altitudes up to 110,000 ft and 100,000 lbs of thrust. The motor cell is 40 ft long by 16 ft wider and can accommodate motors up to 30 inches in diameter by up to 84 inches long.

Purpose:

Research and development on next generation rocket motor and engine components, propellant formulations, and subsystems; and high vacuum research on satellite components, subsystems, and systems. Research includes storable and cryogenic systems and solid rocket motor testing at simulated altitudes up to 120,000 ft; and thermal vacuum testing of satellite systems up to simulated altitudes of 650,000 feet.

Products:

Test evaluation and simulation of spacecraft system component environmental performance up to 650,000 ft.

Test evaluation and simulation of propulsion system component performance up to 100,000 ft.

Availability:

U.S. Government agency use, DoD contractors and dual use/defense conversion use-limited on an as available basis.

Contact POC for additional information.

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