



FACT SHEET

Space and Missiles Combined Test Force (CTF)

Space Threat Assessment Testbed (STAT)

STAT is a ground test facility for evaluating the performance of materials, components, subsystems, and small satellites in a test environment capable of providing conditions from low Earth orbit to geosynchronous operations.

STAT simulates natural orbital environment conditions ranging from quiet to various geomagnetic effects generated as a result of solar activity that can impact space assets. Self-induced environmental conditions associated with space systems may also be simulated during testing to investigate potential system-level interactions.

Test chamber conditions and test article observables may be accessible to program sponsors for test article monitoring and control under varying simulated space conditions. Local support is available at Arnold Engineering Development Complex for classified test planning and execution, and to conduct analysis of test results.



STAT Chamber and Control Room

Using the STAT test cell for Research, Development, Test & Evaluation (RDT&E) of materials, components, subsystems, and evolving technologies in a representative space environment can lower development costs and reduce the risk of failure of mission-critical assets. The ability to simulate multiple environmental effects under controlled conditions in a single instrumented chamber provides significant flexibility to support customer requirements. Rapid reconfiguration of test articles and adjustments in test chamber conditions further contribute to a cost-effective test regimen.

SPECIFICATIONS

Test Section: 75cm x 75cm x 75cm (2.5 ft x 2.5ft x 2.5ft), 100 kg (220 lb_m) maximum mass

Chamber: 1×10^{-7} kPa (1×10^{-6} Torr) base pressure, 100 K temperature, housed in ISO Class 7 (Class 10,000) cleanroom

Natural Environment	Induced Environment
<p>Protons: 30 to 150 keV, 1×10^2 to 1×10^8 p⁺/cm²/sec</p> <p>Electrons: 20 to 100 keV, 5×10^2 to 5×10^8 e⁻/cm²/sec</p> <p>Solar: 120 to 2,500 nm photons at 1 sun (±20%)</p> <p>Atomic Oxygen: 1×10^{10} to 2×10^{12} O/cm²/sec at 5eV</p>	<p>Outgassing: up to 500 g space material</p> <p>EP Backflux: 50 to 1,000 eV, 1×10^3 to 1×10^8 Xe⁺/cm²/sec</p> <p>Charging: induce and measure up to ±140 V</p>

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