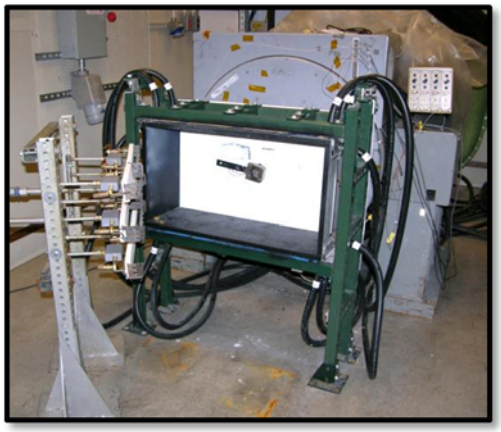
Facility Factsheet

Aerospace Structures Test Complex

Extreme Environment Vibration Facility



Purpose: The Extreme Environment Vibration Facility can combine vibration and thermal loads on aerospace structural components to evaluate the structural response and/or determine high cycle fatigue strength of structural components. The facility is used to validate advanced technologies for hypersonic, space access, and exhaust-washed vehicle structures. The shakers have also been used to evaluate other components, such as black boxes and connectors for durability in vibrational environments.

Capabilities: Four shakers with over 1,000 lb_f capability listed below. Several smaller shakers (<50 lb_f) are available for modal testing.

Shaker	Force Max Sine	Force Max Random	Frequency Range	Power for Lamps
24K	24,000 lb_f	20,000 lb_f	2-2,000 Hz	432 KW
12K	12,000 lb_f	7,500 lb_f	2-2,000 Hz	144 KW
6.6K	6,600 lb_f	5,000 lb_f	2-2,000 Hz	-
4K	4,000 lb_f	3,300 lb_f	5-3,000 Hz	77 KW

- Quartz lamps can impose 120 BTU/ft^2sec of heat flux and have heated specimens to 2,200°F.
- The 4K shaker has gaseous nitrogen supply for testing in an inert (<0.5% oxygen) environment.
- The 24K shaker has a 4 ft X 4 ft magnesium slip table. The 6.6K shaker has a 3 ft X 3 ft magnesium slip table.
- Data Physics SignalStar Vector/Matrix Vibration Controller and Spectral Dynamics PUMA Vibration Control system are employed.
- Tower water cooling available

Contact: The Structural Validation Branch at 937-656-8827