

# Space Technology Experiment Satellite Completes Mission

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The National Reconnaissance Office's Space Technology Experiment Satellite, known as STEX, successfully tested over two dozen advanced technology subsystems for satellite before being turned off in early June.

The STEX satellite was launched from a Taurus rocket in October 1998 from Vandenberg AFB, Calif. It successfully tested 28 advanced technologies that offer potential for future satellite systems to operate more effectively and cost less.

Some of the advanced technology subsystems successfully tested on STEX include:

- Shockless separation mechanisms that will pave the way for future satellites to be designed for extremely low shock levels, saving cost and weight.
- Lightweight, high accuracy autonomous star trackers provided valuable data on their operation in low earth orbit and how to mitigate radiation effects.
- A 20 MHz RAD 6000 processor, the fastest in space, performed flawlessly and required no reboots.
- The largest solid state recorder in space (51 Gbits) was fully checked out and also performed perfectly.
- An electric propulsion engine from the Naval Research Laboratory was the first use of a Hall Effect thruster on a U.S. spacecraft.
- The advanced lightweight batteries had a 35% greater capacity than conventional batteries.
- High efficiency solar array concentrators focused 70% more light on the arrays than standard systems.
- Advanced dual junction solar cells provided 23% more power than standard solar cells.

The STEX spacecraft was turned off in early June due to degradation of its conventional solar arrays.

"STEX provided a number of valuable lessons to the space community," said Capt. Trey Spetch, the STEX program director for the NRO. "Future NRO, civil and commercial spacecraft will use many of the systems tested on STEX. And they'll do so with confidence that those systems will work because of what we learned from the STEX mission."