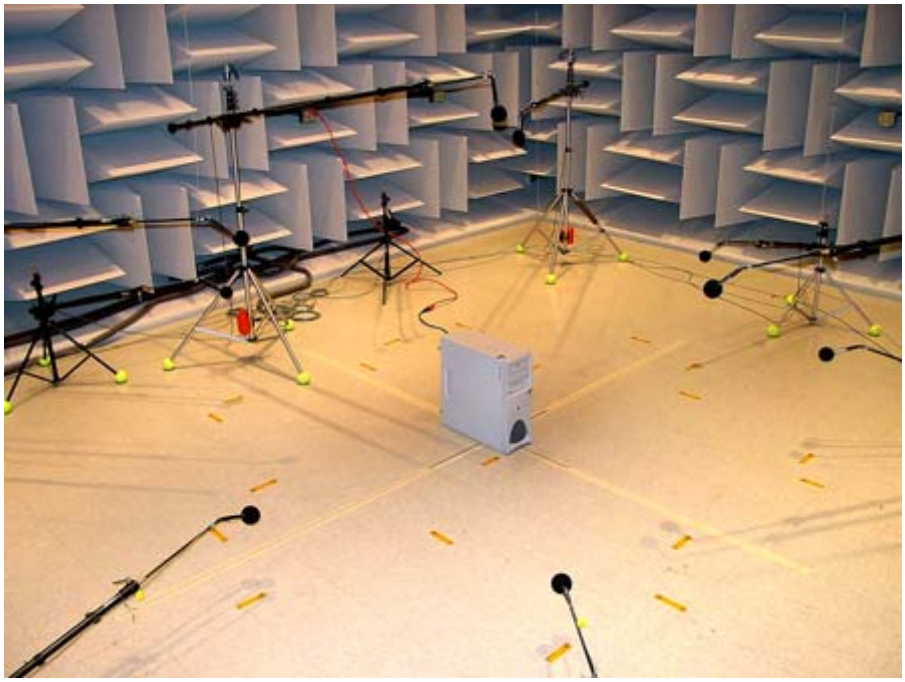
NASA Glenn's Acoustical Testing Laboratory Awarded Accreditation by the National Voluntary Laboratory Accreditation Program

NASA Glenn Research Center's Acoustical Testing Laboratory (ATL) provides a comprehensive array of acoustical testing services, including sound pressure level, sound intensity level, and sound-power-level testing per International Standards Organization (ISO)[1] 3744 (ref. 1). Since its establishment in September 2000, the ATL has provided acoustic emission testing and noise control services for a variety of customers, particularly microgravity space flight hardware that must meet International Space Station acoustic emission requirements (ref. 2).

The ATL consists of a 23- by 27- by 20-ft (height) convertible hemi/anechoic test chamber and a separate sound-attenuating test support enclosure (ref. 3). The ATL employs a personal-computer-based data acquisition system that provides up to 26 channels of simultaneous data acquisition with real-time analysis (ref. 4). Specialized diagnostic tools, including a scanning sound-intensity system, allow the ATL's technical staff to support its clients' aggressive low-noise design efforts to meet the space station's acoustic emission requirement.

From its inception, the ATL has pursued the goal of developing a comprehensive ISO 17025-compliant quality program that would incorporate Glenn's existing ISO 9000 quality system policies as well as ATL-specific technical policies and procedures. In March 2003, the ATL quality program was awarded accreditation by the National Voluntary Laboratory Accreditation Program (NVLAP) for sound-power-level testing in accordance with ISO 3744 (ref. 5). The NVLAP program is administered by the National Institutes of Standards and Technology (NIST) of the U.S. Department of Commerce and provides third-party accreditation for testing and calibration laboratories. There are currently 24 NVLAP-accredited acoustical testing laboratories in the United States. NVLAP accreditation covering one or more specific testing procedures conducted in accordance with established test standards is awarded upon successful completion of an intensive onsite assessment that includes proficiency testing and documentation review.

The ATL NVLAP accreditation currently applies specifically to its ISO 3744 sound-power-level determination procedure (see the photograph) and supporting ISO 17025 quality system, although all ATL operations are conducted in accordance with its quality system. The ATL staff is currently developing additional procedures to adapt this quality system to the testing of space flight hardware in accordance with International Space Station acoustic emission requirements.<



A hemispherical surface defines the microphone array required for sound power level testing in accordance with ISO 3744 (shown here for a computer hard drive).

Find out more about this research at
http://www.grc.nasa.gov/WWW/AcousticalTest/

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[1]International Standards Organization.

References

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