



NASA SBIR 2008 Phase I Solicitation

A4.01 Ground Test Techniques and Measurement Technology

Lead Center: GRC

Participating Center(s): ARC, LaRC

NASA is concerned with operating its ground test facilities with new and innovative methods for test measurement technology and with continually improving on the efficiency and effectiveness of operation of its ground test facilities. NASA's aeronautics and space research and development pushes the limits of technology, including the ground test facilities that are used to confirm theory and provide validation and verification of new technologies. By using state-of-the-art test measurement technologies, novel means of acquiring test data, test techniques and creative facility performance capability enhancements, NASA will be able to operate its facilities more efficiently and effectively and also be able to meet the challenges presented by NASA's cutting edge research and development programs. Therefore, NASA is seeking highly innovative and commercially viable test measurement technologies, test techniques, and facility performance technologies that would increase efficiency or overcome research and development technology barriers for ground test facilities.

The emphasis for this subtopic is in the area of test measurement technology. Examples of the types of technology solutions sought, but not limited to, are: skin friction experimental measurement techniques; improved flow transition detection methodologies; new or novel, non-intrusive measurement technologies for pressure, temperature, and force measurements; force measurement (balance) technology development; and improvement of current cutting edge technologies, such as particle imaging velocimetry (PIV), that allow the technology to be used more reliably in a production wind tunnel environment. Solutions are also sought with regards to the instrumentation used to characterize ground test facility performance. This could be in the area of aerodynamics performance characterization (flow quality, turbulence intensity, etc.) or, for example, in the case of specialty facilities, the measurement of liquid water content, ice water content, and cloud droplet size conditions in an icing wind tunnel.

Proposals that lead to products or processes that are applicable specifically to the ATP facilities (see <http://www.aeronautics.nasa.gov/atp>) and across multiple facility classes are especially important. The proposals will also be assessed for their ability to develop products that can be used in government-owned, industry and academic institution aerospace ground test facilities.