NASA SBIR/STTR Technologies

Long-Range Non-Destructive Testing System

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Identification and Significance of Innovation

This proposal addresses an innovative method to improve the test capabilities of NASA's ground facilities, specifically the Flight Loads Laboratory (FLL). The opportunity is for a long-range, multi-beam, vibration measurement system to conduct modal surveys, vibration tests and non-destructive testing (NDT) on aircraft and components of interest to NASA.

Estimated TRL at End of Contract: 5

Technical Objectives and Work Plan

The Phase I objectives are 1) to demonstrate experimentally the ability to create a multi-beam laser pattern of arbitrary shape and resolution that conforms to target requirements, 2) to show the path to develop the multi-beam system at the eye-safe wavelength of 1550 nm, and 3) to demonstrate capability of detecting internal flaws on test samples.

The Work Plan will consist of modeling at the component and system level, developing breadboard for laboratory testing, and data analysis.

NASA and Non-NASA Applications

NASA applications include structural dynamic studies of aircraft and components, structural evaluation of heat protective shields of re-entry vehicles, and health monitoring of wind tunnel compressors.
Other applications include noise and vibration testing in automobiles, modal testing of airplane components, testing of civil and mechanical engineering structures (e.g. bridges), and numerous defense applications.

Firm Contacts

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NON-PROPRIETARY DATA