

Aircraft Wiring

The Aircraft Wiring Support Equipment Commodity (AWSEC) integration facility provides technical, logistic, production, procurement, and in-service support for NAVAIR aircraft wiring support equipment (SE). Partnering with government agencies and commercial industries, the laboratory is developing and maturing technologies to improve the testability, repairability, reliability, and maintainability of wiring systems for new and legacy applications.

New technologies are continuously being researched and developed to further integrate information technologies, integrated diagnostics, and improved SE life-cycle sustainment into the working environment. Leading the information technology initiatives is the Just-In-Time Wiring Information System (JITWIS) eSuite, sponsored by the Department of the Navy and managed by the AWSEC team. The JITWIS eSuite is a NAVAIR coordinated approach dedicated to consolidating and standardizing wiring system components, tooling, and maintenance procedures regardless of the application. It integrates the intelligent functionality of three unique software programs using browser based user-friendly interfaces to provide accurate wiring system data to users around the world.

The Aircraft Wiring Laboratory integrates new or modified technologies in components and equipment to identify and provide common wiring and fiber optic support solutions. Areas of expertise include:

- Off-board diagnostic wiring test systems
- Standardized fiber optic testing and support
- Cable harness repair and manufacturing capabilities
- MIL-STD-1553 and MIL-STD-1760 data bus testing and integration
- Improved micro-miniature techniques and technologies
- Comprehensive, up-to-date relational database of aircraft wiring components and related data



Virtual instrumentation



Cable harness repair or manufacturing equivalence (CHROME) equipment



MIL-STD-1553 and MIL-STD-1760 data bus testers



Platform wire repair tool sets



Battery powered heat gun

In the area of integrated diagnostics, the AWSEC team and the Aircraft Wiring Laboratory are working with industry to provide support solutions for wiring systems that are strong enough to sustain the rigors of a combat deployment yet flexible enough to adapt to the changes in technology. Several efforts are ongoing to enhance existing harness testing equipment with the most current technology, resulting in improved testability at a fraction of the cost of new equipment. Additionally, the AWSEC team and the Aircraft Wiring Laboratory are an instrumental element of the Enhanced Characterization and Diagnostic (ECAD) joint industry and NAVAIR initiative designed to provide a new off-board wiring system test technology for the identification of insulation chaffing.

Partnering Opportunities

Several mechanisms exist for partnering with NAVAIR Lakehurst. These include cooperative research and development agreements (CRADAs), commercial services agreements (CSAs), and education partnership agreements (EPAs). Under a CRADA, Lakehurst engineers and scientists work cooperatively with their peers in industry or academia on mutually beneficial research and development. The Navy has been given statutory authorization, via CSAs, to use Navy facilities to perform specific types of work for private parties. EPAs allow collaboration between NAVAIR Lakehurst and educational institutions.

Potential Applications

Although the current focus of this laboratory is aircraft wiring for the Navy, the entire aviation community – military, commercial, U.S. and international – can benefit from the common wiring system support solutions such as standardized equipment, repair policies, and training developed by this laboratory. Technologies and solutions developed in the Aircraft Wiring Laboratory are also useful for non-aircraft wiring systems used in tanks, trains, automobiles and industrial applications.

For More Information

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NAVAIR Lakehurst's Aircraft Platform Interface Facility was opened in August 2002.

This 66,000-square-foot research and development facility supports the Navy's aircraft launch and recovery and support equipment missions. The technical capabilities covered by the 14 laboratories in this facility include power control systems; modeling, simulation, and data analysis/management; optical and lighting systems; integrated diagnostics; component evaluation; and applied technology. The synergism provided by collocating these teams of engineers, scientists, and technicians in one building further enhances this state-of-the-art facility.

NAVAIR Lakehurst researches, develops, tests, and procures aircraft launch and recovery systems and support equipment for Navy and Marine Corps aviation.