

Airway Facilities Human Factors Research and Development Human Factors Laboratory

Overview: The Airway Facilities (AF) organization is responsible for maintaining all FAA navigation and surveillance equipment to ensure the efficient and safe operation of the traffic control system.

The role of the AF Human Factors (AFHF) program is to consider AF human factors in a well planned, coordinated manner. The objectives are to ensure that equipment, systems procedures, and organizational concepts maximize human productivity; improve training concepts and methods; reduce stressful work environments; and minimize errors. The following are descriptions of some current AF projects.

Human Factors Design Guide

The AFHF program produced a comprehensive set of human factors guidelines for AF applications. The AF Human Factors Design Guide provides an exhaustive compilation of human factors design practices and principles integral to the procurement, design, development, and testing of FAA systems, facilities, and equipment. The Human Factors Design Guide primarily focuses on FAA ground systems, such as those that are managed by AF, as well as having a general applicability. A compact disk version has just been published and the Design Guide is available on the Internet.

Symbology

The AFHF program is conducting several studies on symbols and icons representing AF facilities and equipment. The goal is to develop a standard set of visual symbols and color codes that will be used on new AF displays. This is particularly important given the trend to consolidate the monitoring of AF systems into centralized locations where several displays may be combined. The AFHF program is also managing an auditory symbology study to review alerting and status sounds now used in AF equipment. Human factors recommendations will be developed for the use of sound in new systems.

Error Mitigation

Reducing the risk of operator errors in new AF systems is important. Human factors researchers are trying to anticipate sources of errors in integrated, centralized AF monitoring systems. Recently, an AF Error Mitigation Working Group generated an initial working paper. Further efforts will focus on validating the possible sources of risk in new AF systems through analysis and simulation.

System



System Efficiency

Voice Technology

The AFHF program is involved in several projects using voice recognition and production technologies in the AF environment. AF Specialists recently viewed demonstrations of a voice-controlled oscilloscope, electronic mail, and a weather program. A study evaluated a voice-controlled laptop computer that guided technicians through an AF maintenance procedure using synthesized voice. Laboratory personnel are evaluating further applications of voice technology in the AF and AT environments.

Computer-Human Interface Evaluations

Human factors experts from the AFHF program conducted a review of the Standard Terminal Automation System (STARS) Maintenance Control Workstation. They analyzed the user interface for its suitability to support AF maintenance tasks and referencing relevant human factors standards and guidelines. Investigators provided recommendations for CHI improvements to the STARS program office.

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