



AAR-100

Human Factors Newsletter # 02-11

June 8, 2002 – June 21, 2002

Research Report - *Human Factors Design Guide for Acquisition of Commercial Off-the-Shelf Subsystems, Non-Developmental Items, and Developmental Systems* (HFDG). The HFDG is an important work in the field of human factors. It is a comprehensive compilation of human factors standards, principles, and guidelines integral to the procurement, design, development, and testing of FAA systems, facilities, and equipment. It was sponsored by the US Department of Transportation, Federal Aviation Administration, and the [Office of the Chief Scientific and Technical Advisor for Human Factors AAR-100](#), funded by the Research, Development, and Engineering Human Factors Program, and developed by the William J. Hughes Technical Center Human Factors Laboratory. As an indispensable reference tool in research or engineering development, the HFDG is available for free at <http://www.tc.faa.gov/act-500/hfl/hfdg/index.html>

Soon to be released as a design “standard,” the purpose of the HFDG is to provide a single easy-to-use source of human factors design criteria oriented to the needs of the FAA mission and FAA systems. An additional goal is to facilitate use of appropriate design criteria by organizing the document so that users can easily locate the needed information. Changes to the document will incorporate major revisions including the following two chapter updates:

Chapter 5 Update - This report contains an updated and expanded version of the Automation Chapter of the HFDG. A research team of human factors experts evaluated the existing guidelines for relevance, clarity, and usability. The team acquired new guidelines based on an expanded list of sources and reorganized the document to increase usability. This resulted in extensive change to the original HFDG, including the addition of more than 100 new guidelines and 102 new sources. Like the original HFDG, the Chapter 5 update is available free at [download](#).

Chapter 8 Update - This 2001 report contains an updated and expanded version of the Human-Computer Interface chapter of the HFDG. It includes more than 500 new guidelines and 22 new sources. The Chapter 8 update is available free at [download](#).

The HFDG presents human factors design standards that are to be applied to new, modified, or updated facilities, systems, and equipment that will be managed, operated, or maintained by the FAA. It covers a broad range of human factors topics that pertain to input devices, automation,

maintenance, controls, computer-human interface, workplace design, documentation, system security, safety, the environment, anthropometry, alarms and audio displays.

The document is relevant to all phases of the FAA development process, from the mission-need determination phase through production and deployment phases. It is to be considered for any engineering changes or modifications that affect human interaction with the operational system. This document provides information that can be used in the evaluation and selection of COTS or NDI equipment. Similarly, it may be applied to advanced research programs transitioning to new FAA systems.

The new document revises and expands upon the previously published material. It broadens the focus to include both AT and AF systems and has been modified into a set of standards instead of a set of guidelines, providing a common source of FAA-specific design requirements. The resulting set of standards can then be tailored to meet the needs of Air Traffic (AT) and Airways Facilities (AF) systems, as not all requirements are applicable to all systems.

NSTS - Research psychologists from the William J. Hughes Technical Center/ACB-200 worked with Flight Service Specialists to develop a design for presentation of NOTAM information on the NOTAMS Short Term Solution (NSTS) system. The group made recommendations for background color, font style and color, and order and format for NOTAM presentation. The NSTS addresses the capacity limit of the existing Model 1 system, and provides users with a display that is easier to read. (T. Yuditsky, ACB-220)

HFACS - A CAMI scientist presented military, commercial and general aviation data analyzed using the Human Factors Analysis and Classification System (HFACS) to invited participants of the NASA Accident Investigation Workshop on June 4th in Washington, DC. The workshop was designed to assist NASA quality assurance personnel in the development of a comprehensive accident investigation system, including human factors accident investigation. The workshop was organized by Ms. Faith Chandler (NASA Headquarters) and included participants from each of the NASA centers, NTSB, FAA, US Navy, US Army, US Air Force, DoD, and several contractors with expertise in accident investigation. (S. Shappell, CAMI).

AT-SAT – CAMI researchers visited Keesler Air Force Base (KAFB), MS to complete the first of two pre-tests designed to make sure the Air Traffic and Selection and Training test battery (AT-SAT) software is compatible with the computers before the parallel form project begins. The parallel form will enable ATS to have a second version of AT-SAT available as needed. The 334th Training Squadron was very cooperative and provided additional computer support for the testing. A few problems were discovered that were easily corrected. While at KAFB, a meeting was held with the contractor and details of the data collection for the AT-SAT parallel form pilot testing were reviewed. Representatives from CAMI will return to KAFB on July 10th for a second and final pre-test of the software before data collection begins July 12th. CAMI continues to provide regular briefings to the AHR and ATS POCs for the AT-SAT project. (E. Fiedler, CAMI)

NEXCOM Latency Study: Human factors researchers at the William J. Hughes Technical Center (ACB-220) presented the results of the Very High Frequency Digital Link Mode 3

(VDL3) Latency Study to the NEXCOM Human Factors Working Group, the Air/Ground Voice Communications Product Team (AND-360), and the Communications Integrated Product Team (AND-300) on June 19th. The results of the study will be used to establish NEXCOM VDL3 delay performance requirements. The research team completed a Quick Look Report and is currently writing a formal Technical Report. (R. Sollenberger, WJHTC/ACB-220).

ATC - Researchers at the William J. Hughes Technical Center's Research, Development, and Human Factors Laboratory completed the first week of departure simulations for the New York Integrated Control Complex concept. Four controllers from New York Center and 12 controllers from New York TRACON participated in the three-day simulation. They operated five radar sectors and five handoff positions under three conditions. The first condition represented current operations. The second condition represented operations in a collocated facility, where the terminal and en route controllers could interact directly with each other rather than just by landline. The third condition was also collocated, but the two en route sectors were allowed to use less restrictive terminal separation minima and procedures. The controllers ran a total of 12 50-minute scenarios. The laboratory is scheduled to conduct one additional set of simulation scenarios June 25th-27th. (Mike McNulty, WJHTC/ACB-220)

More information on human factors research can be found at the FAA Human Factors (AAR-100) web site: <http://www.hf.faa.gov>

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FAA (AAR-100)



July 7-12, 2002 – 25th International Congress of Applied Psychology, Singapore
<http://www.icap2002.org/>

August 5-8, 2002 – AIAA Guidance, Navigation and Control Conference and Exhibit, Hyatt Regency Monterey, Monterey, CA <http://www.aiaa.org/>

August 22-25, 2002 – 110th Convention of the American Psychological Association, Hilton Chicago Hotel/Hyatt Regency McCormick Place Hotel, Chicago, IL
<http://www.apa.org/convention>

August 27-29, 2002 – 4th Workshop on Risk Analysis and Safety Performance, Atlantic City, NJ
<http://aar400.tc.faa.gov/aar424/workshop2002>

August 27-30, 2002 – Measuring Behavior 2002, 4th International Conference on Methods and Techniques in Behavioral Research, University of Amsterdam, Amsterdam, The Netherlands
<http://www.noldus.com/events/mb2002/index.html>

September 16-18, 2002 – Conference on Aerospace Materials, Processes and Environmental Technology, Huntsville, AL <http://ampet.msfc.nasa.gov/>

September 17-18, 2002 – FAA R,E&D Advisory Committee, Holiday Inn Rosslyn Westpark Hotel, Arlington, VA <mailto:gloria.ctr.dunderman@faa.gov>

September 17-20, 2002 – International Air Cargo Forum, Hong Kong <http://tiaca.org/>

September 30- October 4, 2002 – Human Factors and Ergonomics Society 46th Annual Meeting, Baltimore Waterfront Marriott Hotel, Baltimore, MD <http://www.hfes.org/>

September 30 – October 1, 2002- FAA R,E&D Advisory Committee (REDAC) Meeting, Holiday Inn Westpark, Rosslyn, VA http://research.faa.gov/aar/redac_meetings.asp

October 10-19, 2002 – The World Space Conference, Houston, TX www.aiaa.org/wsc2002

October 14-16, 2002 – Third LOSA Week, Dubai, United Arab Emirates
<mailto:dmaurino@icao.int>

*October 21-24, 2002 – 2nd Annual FAA Centers of Excellence Meeting, Wichita, KS
<http://www.niar.twsu.edu/faacoe>*

October 23-25, 2002 – International Conference on Human-Computer Interaction in Aeronautics, Massachusetts Institute of Technology, Cambridge, MA [http://www-eurisco.onecert.fr/events/hci-aero2002.html/](http://www-eurisco.onecert.fr/events/hci-aero2002.html)

October 27-31, 2002 – 21st Digital Avionics Systems Conference, Hyatt Regency Hotel, Irvine, CA <http://www.dasconline.org/>

April 7-27, 2003 – Aviation World's Fair, Newport News/Williamsburg, VA
<http://www.worlds-fair.com/> or <http://aviation-worlds-fair.com/>

May 4-9, 2003 – 74th Annual Scientific Meeting of the Aerospace Medical Association, Convention Center, San Antonio, TX <http://www.asma.org/>

July 14-17, 2003 – AIAA/ICAS International Air & Space Symposium and Exposition, Dayton Convention Center, Dayton, OH <http://www.flight100.org/>

August 7-10, 2003 – 111th Convention of the American Psychological Association, Toronto, Ontario, Canada <http://www.apa.org/convention>

October 13-17, 2003 – Human Factors and Ergonomics Society 47th Annual Meeting, Adams Mark Denver Hotel, Denver, CO <http://www.hfes.org/>

May 2-7, 2004 – 75th Annual Scientific Meeting of the Aerospace Medical Association, Egan Convention Center, Anchorage, AK <http://www.asma.org/>

September 20-24, 2004 – Human Factors and Ergonomics Society 48th Annual Meeting,
Sheraton New Orleans Hotel, New Orleans, LA <http://www.hfes.org/>

Note: Calendar events in Italics are new since the last Newsletter



Comments or questions regarding this newsletter?
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