

Human Factors Standardization SubTAG

Minutes

October 2010

TAG #64

The Human Factors Standardization (HFS) SubTAG met on October 28, 2010 with 20 attendees. Following the introduction of attendees, the SubTAG continued with its agenda.

Status Reports:

a. MIL-STD-1472, Human Engineering. Mr. John Lockett stated that the draft of the G revision has been completed; a few minor edits remain. It is expected that the draft will be sent to the Preparing Activity in the next few weeks; the draft will then be circulated for formal review and comment.

Mr. Lockett noted some of the challenges in preparing the update to MIL-STD-1472. Among these were that a great deal of time has passed since the last major technical revision, there were a number of provisions for which there were no sources, paragraphs were rewritten to reflect performance-based provisions, the document needed to comply with the requirements for drafting a standard (i.e., MIL-STD-962D), there were limited resources to accomplish the work within the allotted time, and the broad scope and the length (material was incorporated from MIL-HDBK-759C) of the document.

A summary of the changes in the "G" revision include modifying the document structure and grouping of related requirements; incorporating extensive material from MIL-HDBK-759C; updating figures and tables; changing soft requirements ("should") to hard requirements ("shall") where appropriate; modifying criteria wording as necessary to be more direct; splitting multiple requirements into individual statements where appropriate; correcting errors present in MIL-STD-1472F; removing obsolete content and references (e.g., old technologies); adding additional references; and hyperlinking the table of contents, tables, figures, and embedded references to sections.

There were a number of topics that were beyond the resources available for the "G" revision. These will be deferred to the "H" revision. Consistent with available funding, work will begin on the "H" revision. The target date for a final draft of the "H" revision is 2013.

b. MIL-STD-2525, Common Warfighting Symbology. Dr. Jake Wetzel was unable to attend the meeting, but indicated that the "D" revision is nearing completion; it is scheduled for publication by the end of 2011. A revised symbol ID code (SIDC) is being created along with a new hierarchical data model. The SIDC is being changed from a 15-digit character string to two 10-digit number strings; the first 10-digit string describes the symbol's frame and dimension while the second 10-digit string describes the symbol's icon and associated modifiers. MIL-STD-2525D will have appendices for Air, Space, Sea Surface, Subsurface, and Land assets. In addition, a database is being created to outline the rules for symbol creation as well as provide a means for depicting the hierarchical symbol structure.

c. NASA-STD-3001, NASA Space Flight Human System Standard. Mr. Gordon Vos provided a status update on the NASA standard. NASA-STD-3001 is intended as an agency-level standard that applies to anything that is to be integrated. The standard, and its accompanying handbook, provide both specific and general design criteria which are to be tailored for the particular program. Volume 1, Crew Health, of NASA-STD-3001 was approved in March 2007. The accompanying Human Integration Design Handbook (NASA/SP-2010-3407) was approved in January 2010. Volume 2, Human Factors, Habitability and Environmental Health, has been baselined and is in final review; approval is expected by the end of the year.

d. Federal Aviation Administration (FAA). Mr. Alan Poston indicated that the FAA is in the process of updating its Human Factors Design Standard. The goal is to have an updated version by 2013, with publication in early 2014. The FAA is currently exploring contractual mechanisms.

e. Flight Symbology Working Group (FSWG). Mr. Bob Copeland was unable to attend the meeting but indicated that a call for topics is being circulated for a potential meeting next Spring. It was noted that the integration of the peculiar military equipment of the C-27J Spartan (Joint Cargo Aircraft) is being transferred from the Army to the Air Force. This will present an opportunity for the FSWG to explore multi-service and multi-national flight symbology endorsement processes. The FSWG will attempt to capture this information.

f. MIL-STD-1787, Aircraft Display Symbology: Mr. Bob Copeland was unable to attend the meeting but indicated that the "D" revision is incorporating some minor technical edits; hopefully this will be completed by the end of the year. The document will then go out for formal coordination. Publication is planned for Spring 2011. The biggest change in the "D" revision is the inclusion of a rotary wing section based on the Apache helicopter.

g. Revision of Data Item Descriptions (DIDs): Dr. Mary Hornsby gave an update on the effort to revise DI-HFAC-81743, *Human Systems Integration Program Plan*, and a proposed new DID for a *Human Systems Integration Report*. DI-HFAC-81743 contains numerous typos and other editorial errors. Additionally, many of the provisions were rewritten to improve its clarity. The Naval Air Systems Command, the Preparing Activity, circulated both DIDs for review and comment on October 8; responses were requested by November 5. Following adjudication of comments, the documents will be posted in the Acquisition Streamlining and Standardization Information System (ASSIST) database.

The next DID to be tackled will be the DI-HFAC-81742, *Human Engineering Program Plan*. The goal is to have a draft for SubTAG review by the May 2011 TAG. Anyone interested in participating in revising this DID should contact Mr. Alan Poston.

A brief discussion took place on the tailoring of DIDs. It was noted that DIDs can only be tailored downward; provisions cannot be added. The DIDs should be tailored consistent with type of program, acquisition strategy, program milestones, data requirements, and level of human involvement in system operation, maintenance, and support. Ultimately, the tailoring will reflect the level of commitment on the part of both the contractor and the customer.

h. MIL-STD-46855A, Human Engineering Requirements for Military Systems, Equipment, and Facilities. Mr. Alan Poston reported on an effort to reinstate MIL-STD-46855; the standard was converted to a handbook during acquisition reform. A revised

standard was drafted and circulated for formal review and comment in September 2009 under project HFAC-2009-001. All comments were adjudicated and the final document was sent to the Preparing Activity in February 2010.

As MIL-STD-46855 was converted to a handbook as a result of acquisition reform, reinstatement as a standard requires approval by the Defense Standardization Council (DSC); it was noted that this will be the first document that is seeking reinstatement. A preliminary step before going to the Council is approval by the Departmental Standardization Offices (DepSOs); they were briefed on April 27, 2010. The response from the DepSOs mostly positive.

The DSC met on July 30 and gave their tentative approval. On October 8, the Army Standardization Executive drafted a memo to the DSC members seeking their written approval for reinstatement; responses were requested by November 3. Following approval by the DSC members, the Army Standardization Executive will issue a memo and the reinstatement will be complete.

Presentations:

Society Experiences in the Development of Voluntary Consensus Standards. Mr. Jeff Cerro presented some thoughts on the use of voluntary consensus standards, and participation in their development, from his perspective as a member of the Society of Allied Weight Engineers (SAWE). Mr. Cerro noted that industry is often reluctant to devote resources to an activity whose contribution to profit is not explicit. The dearth of US industry participation in standards development is a self-fulfilling prophecy. Industry is reluctant to participate because it perceives undue external influence. US industry is concerned that standards will institutionalize practices other than those prevalent in the US; a perception that becomes fact when industry shuns participation. However, the US should participate much more aggressively in international forums. The US should take advantage of opportunities to lead international standards bodies, and take advantage of various avenues to influence other countries and their industries.

Mr. Cerro continued that standards must be recognized internationally and ensure that tools and processes used define data which can easily be integrated into product definition data. In addition, US government agencies need to proactively support and participate in the development of industry standards, and utilize industry standards to the greatest extent practicable. An organization that does not participate in the development of voluntary consensus standards tends to lose credibility and influence; they no longer maintain a competitive edge, and are no longer viewed as being among the premier organizations.

The voluntary consensus standards paradox is that it takes resources (money, people, and time) to create good standards products, and it takes good standards products to obtain resources.

A Draft Air Force Human Systems Integration Standard. Dr. Bill Kosnik and Ms. Becky Singer gave an update of the Air Force's adoption of the UK Ministry of Defence (MoD) Human Factors Integration (HFI) standard, Defence Standard 00-250, *Human Factors for Designers of Systems*, published in May 2008. Defence Standard 00-250 is the major source of human factors data and guidance for the implementation of HFI within UK military acquisitions. It should be noted that human factors integration in the UK is the same as

human systems integration (HSI) in the US. A comprehensive HSI standard currently does not exist in the Air Force. Hence, HSI practitioners and policy makers lack a standard that sets uniform requirements for HSI implementation. The goal is to provide a standard to set uniform human systems integration requirements, design guidance, and associated human factors data for acquisition programs Air Force wide.

Dr. Kosnik indicated the thrust of this effort is to use the UK Defence Standard 00-250 as a prototype for rapid transition to an Air Force HSI guidance document. The overall plan is to convert UK HFI language into DoD HSI language, convert references to US standards using "pointers" to the comparable US and DoD human factors research, references, and standards, and collaborate with the other services and the international community.

The first objective is to convert DEF STAN 00-250 into an Air Force HSI reference document. The content would initially be Air Force only. Other activities are to change the "Queen's English" to "US speak", change MoD acquisition language to DoD acquisition language, change UK terms to DoD terms, change metric units to imperial units, change references to UK standards to reference US standards, ensure consistency and compatibility with DoD HSI reference material, and document gaps.

Some of the strengths and weaknesses of DEF STAN 00-250 include that HSI is explained in greater detail, with particular emphasis on integration; the document contains declarative requirements with a means of compliance; the contractor is provided guidance for finding supporting documentation and data for each requirement; there is less coverage of manpower, personnel, and training domains; the UK environment domain does not address US environmental concerns; and there is no coverage of survivability.

The initial document will come out in a two-column format; one column will reflect the provision in DEF STAN 00-250, the other column will reflect the US translation. This format was chosen to allow reviewers to track changes between the two documents. The UK labels will have to be renamed to be consistent with US policy.

Subsequent objectives include transitioning the current effort to a MIL-STD in cooperation with the other services. It was noted that DEF STAN 00-250 is textbook-like in its content; it reads similar to a tutorial. As such it is very difficult to contractually cite its provisions. Such a transition would follow the approval process outlined in DoD 4120.24-M, *The Defense Standardization Program (DSP) Policies and Procedures*, as well as the format required by MIL-STD-962D, *Defense Standards and Handbooks*.

Other Business:

MIL-STD-1472 Checklist. In 1990, Lockheed Missiles and Space Company produced a checklist for MIL-STD-1472D. Ms. Teresa Alley indicated that she has been tasked to look at the prospect of updating that checklist using MIL-STD-1472G as the basis. Ms. Alley will be provided a draft of the "G" version so she can see the document organization and structure.

Re-publishing of the Human Engineering Design Data Digest. The Human Engineering Design Data Digest, affectionately known as the Pocket Guide, was last published in 2000; funding was provided by the Federal Aviation Administration. Copies were provided to the three Services; the Defense Technical Information Center (DTIC), San

Diego, would provide copies upon request. In addition, DTIC personnel would distribute copies at conventions, technical society meetings, and trade shows.

The pocket guide is designed to slip into one's "pocket" when going to the field and provides a quick reference source of data. SubTAG attendees agreed that an update would be beneficial. Several years ago, the SubTAG considered updating the pocket guide however, cost estimates for doing so were more than the TAG could absorb.

The matter of funding the re-publishing of the pocket guide was brought to the Operating Board for consideration. Before the Operating Board could make an informed decision, current cost estimates would be needed. Several people volunteered to identify potential publication sources as well as gather cost estimates.

Election of Chair: The SubTAG Charter calls for elections at the Fall meeting of even-numbered years. In keeping with the Charter requirements, an election was held. As no other nominations were put forth, Mr. Alan Poston was elected for another two-year term.

ATTENDEES

Alley, Teresa	DTIC
Babbitt, Bettina	The Aerospace Corp.
Baroff, Lynn	NASA Engineering and Safety Center
Cerro, Jeff	NASA Langley Research Center
Cole, Shannon	U.S. Coast Guard
Cosing, Sheryl	Booz-Allen-Hamilton
Dawes, Suzanne	The Aerospace Corp.
Gibson, Ben	Army
Hardy, David	HQ AFOTEC
Hornsby, Mary	Tech America G45 Committee
Kosnik, William	Air Force, 711 th HPW/HPO
Lockett, John	ARL-HRED
Merriman, Steve	Boeing
Muse Duma, Katherine	Booz-Allen-Hamilton
Pestana, Mark	NASA DFRC
Poston, Alan	HFES Liaison
Scott, Jeff	Air Force HSI Office
Singer, Becky	Booz Allen Hamilton
Vos, Gordon	Wyle Labs
Warner, John	Army MANPRINT Office