AIAA Standards Newsletter

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American Institute of Aeronautics and Astronautics

The Collection of Preferred Space-Related Standards

CPSRS
Simplify the Search.

Work on the Collection of Preferred Space-Related Standards (CPSRS) continues. We are actively seeking volunteers who can lend their expertise and experience with standards to this ambitious project. Please take a moment to visit our website at http://www.aiaa.org/cpsrs for more information.

The CPSRS Prototype is currently under development. The prototype will allow us to evaluate where the project is and give us a better idea of what the final product will look like. The alpha test is scheduled for the end of July.

This issue of the newsletter features Category 6: Structures/Mechanical Systems, Fluid, Thermal, Propulsion, Aerodynamics.

Category 6 is a broad collection of standards related to the mechanical engineering arts. Complex Mechanical Systems and the specialized fields of mechanical design and structural sufficiency; thermodynamics and heat transfer; and fluid statics, dynamics, and application are included. We have recently appointed a new Team Leader for this important category. Rick Stiles of Lockheed Martin Space Systems has volunteered his time to take on this assignment. Rick has been very involved with AIAA in the past and we look forward to working with him again.

Although we are making progress on this project, we still need your help! If you would like more information or to volunteer to review standards in Category 6 or any of the other CPSRS categories, please visit the CPSRS webpage at http://www.aiaa.org/cpsrs and fill out the Volunteer Reviewer Form.

AIAA Standards: Newly Published Standards

AIAA Standard: Aerodynamic Decelerator and Parachute Drawings (S-017A-2000) - Revision

AIAA Member / Non-Member Price: $34.95 / 49.95
48 pages; PDF available now / Softcover available July 2001

Abstract:
This AIAA Standard establishes terminology for 260 terms critical to communication about the design and function of parachutes. It further sets requirements for the graphic description of materials, stitching, seams, view, and projections, with related dimensions and tolerances, all of which are consistent with current procurement practice. Many figures are included to illustrate the requirements. Additional illustrations of several types of parachutes are provided in an appendix. This drawing standard refers to federal and military specifications which, as of the time of this revision, are either equivalent to existing commercial specifications or are in the process of being converted to commercial specifications. The federal or military specification should be considered a reference only.

Strategic Standardization Workshop

The AIAA Standards Executive Council recently held its third Strategic Standardization Workshop in Colorado Springs. The goal of these workshops is to steer the AIAA Standards Program into new and relevant directions. A previous workshop resulted in the CPSRS project. Attendees of this year's meeting were divided into three working groups to discuss the most important issues identified by the steering committee. The key areas were Standardization in a Global Space Sector, Interfaces with Government, and AIAA's response to ANSI's National Standards Strategy. Many significant recommendations came out of the meeting. Look for the full report on the AIAA Standards website in August.

AIAA Standards Project Status

Human Factors Taxonomy (AIAA G-048)

This taxonomy provides a structure for identifying human factors for the purpose of scientific research and system test and evaluation. The information contained in this document is provided as guidance, not mandated as direction. This taxonomy can be considered during the planning, conduct, and analysis of human factors. The objectives of this document are to: (1) identify an extensive list of human factors, (2) promote commonality in nomenclature and units of measurement, and (3) enable the development and use of a common human-factors taxonomy for data collection and data processing.

This project began several years ago, but was not completed. It is being reactivated, and individuals interested in collaborating should contact the chair, Dr. Valerie Gawron, Veridian Calspan Operations gawron@veridian.com.

Astrodynamics – Methods, Models, and Data Formats (R-064-2)

This Recommended Practice constitutes Part II of Recommended Practice for Astrodynamics. Written for professionals in the field of astrodynamics, it presents

information on astrodynamic considerations in space mission analysis, orbit determination, neutral density atmospheric models, trajectory propagation methods, and common formats for astrodynamics data exchange.

This project will be ready for public review in August. Watch the AIAA Web site for further information.

Guide to the Preparation of Operational Concept Documents (AIAA G-043A)

The purpose of this document is to describe a technique called the Operational Concept which is to be used to support the definition, development, and maintenance of a system. It is also to provide practical guidelines regarding how to apply this technique and recommends how to package the results of this work into an Operational Concept Document (OCD).

This Guide is being revised under the supervision of the AIAA Systems Engineering TC. It is being coordinated with an ISO project of similar scope. Individuals interested in collaborating should contact Jim van Gaasbeek, Northrup Grumman vangaja@mail.northgrum.com.

Guide to Design for On-orbit spacecraft Servicing (G-042A)

This document is to be a comprehensive overview that provides up-to-date guidelines for designers of space systems. It will incorporate the work of the late 1980's Satellite Servicing Working Group, the Space Automation and Robotics Center, experience on servicing the Hubble Space Telescope and the International Space Station, and ongoing work on robotic servicing.

This Guide is being revised by a newly reconstituted Spacecraft Servicing CoS under the leadership of Steven Leete, NASA Goddard Space Flight Center; individuals interested in participating should contact him at sleete@hst.nasa.gov.

ISO TC20/SC14 Meets in Brazil

The Eleventh Plenary Meeting of the ISO committee for Space systems and Operations was held in São Jose dos Campos, Brazil from May 13-18. The city is the home of the Brazilian Center for Space Research, which was the principal host. The Brazilian Space Agency, based in Brasilia, was a co-host. All events were held in a new convention hotel, the Enterprise Suites, which has state-of-the-art facilities including Internet access in all meeting rooms. The total attendance was a near record at 140 with delegates and experts from nine member countries and the European Space Agency. This was the first full meeting in which Gael F. Squibb of JPL served as Chairman of SC14.

The major accomplishments included announcement of a new approach for handling the difficult problem of translating finished documents into French, as required by ISO. The French National Space Agency, CNES, is now funded to perform this role and plans to provide most needed translations of technical documents within a two-month period. The committee voted to work with the International Aerospace Quality Group (IAQG), a multinational consortium, to distinguish and integrate quality management practices specific to the space sector. The committee also resolved to cooperate with the Interagency space Debris Coordination Committee (IADC), an intergovernmental body, to provide assistance in technical standards preparation when policy development is ready for that step. The next plenary meeting will be held in Noordwijk, Netherlands in May 2002.

New ISO Projects

Four New Work Items were approved at the recent plenary meeting of ISO TC20/SC14. International standards will be developed for mass properties control, flight safety systems, and a model for the Earth's magnetosphere. The first project will be based on a recently revised AIAA Recommended Practice (R-020A-1999) and will be led by William Griffiths of Boeing Satellite Systems. The second one will be an extension of the existing two ISO standards on launch safety and will be led by Henri Baccini of CNES. The third one is led by Igor Alexeev of Moscow State University and is based on material that is already recognized internationally.

Four other topics are still in the approval process, but interest is growing in each. These are oxygen safety, calibration of multi-junction solar cells, solar irradiation tests for space solar cells, and electromagnetic interference test methods for spacecraft equipment.

Status of ISO Work Program

Out of an overall activity of some 80 projects, 18 have been published and one more is close to release. Three more are in second stage voting (FDIS); two of these are being voted in parallel with the European Committee for Standardization (CEN). Twenty-six more are being readied for full international voting (DIS), a five-month process that is the most important step in the lengthy development of an international standard. The following document is now in the DIS stage until October:

Space systems – Electromagnetic compatibility requirements (ISO DIS 14302)

Individuals interested in contributing to the U.S. voting process should contact Elizabeth Carter, TAG Administrator, elizabethc@aiaa.org.

The most recently published ISO International Standards for Space Systems available from AIAA are:

Space systems – Flight to ground umbilicals (ISO 15389:2001)

AIAA Member / Non-Member Price: $14.95 / 19.95
11 pages, Available in Softcover and PDF

Abstract
This International Standard defines the general criteria for the development of flight-to-ground umbilical systems used by a space system. The criteria specified herein is limited to the service arms or equivalent mechanisms, umbilical carriers

and plates, couplings, connectors, withdrawal and retract devices, handling mechanisms and control systems for mechanisms.

Space systems – Program management – Part 1: Structuring a program (ISO 14300-1:2001)

AIAA Member / Non-Member Price: $31.95 / 39.95
31 pages, Available in Softcover and PDF

Abstract
This part of ISO 14300 addresses the space program management requirements, applicable through a top-down approach in a contractual relationship between customers and suppliers. The applicable requirements for product assurance are given in ISO 14300-2. This part of ISO 14300 is intended to be used as a basis when establishing and negotiating customer program management requirements, and guiding the supplier's responses. It permits: a clear definition for the roles, responsibilities and authorities of the different customers and suppliers; coherence between their activities; communication capability between them; stable and rigorous program organization; and, as far as possible, standardization of the rules applicable to various programs. It still allows for supplier flexibility in its implementation and tailoring.

U.S. Technical Advisory Group for ISO TC20/SC14

The U.S. TAG for ISO TC20/SC14 had a very successful representation in the Brazil meetings - sending a group of over twenty delegates and experts who provided proactive participation at the five Working Group and Plenary meetings. Renewing alliances with the Japanese and Russians and exercising past personal relationships with the other member body nation's representatives, they provided and excellent balance to the potential European Union (E.U.) block. The depth and agility of the TAG was emphasized when two of the U.S. Working Group Leads were not able to participate due to illness and family crises and replacements stepped in at the last minute and carried it off.

Internationally the U.S. continues to deal with the issue of ECSS regional and international standards being introduced into the process with emphasis on rapid converison. In such cases, the content is more prescriptive than is desirable in an International Standard.

Domestically the U.S. TAG is facing funding problems within major participating companies and government agencies as well as a reluctance to participate due to the still existing ITAR constraints.

Information concerning participation may be found on the revised website
http://www.aiaa.org/Publications/index.hfm?pub=6

Upcoming AIAA Standards Meetings

Liquid Propellants CoS
July 9, 2001 – 2:00 pm to 5:00 pm
Salt Palace Convention Center, Salt Lake City, UT

Hydrogen Propellants CoS
July 10, 2001 – 1:00 pm to 4:00 pm
Salt Palace Convention Center, Salt Lake City, UT

Lighter-than-Air Standards Workshop
July 18, 2001 – 10:00 am to 12:00 pm
Radisson Hotel, Akron, OH

Purchase AIAA and ISO Standards

All published AIAA standards and the ISO International Standards for space systems can be purchased in either print form or pdf from the AIAA Store. There is a total of 101 products in this collection. Please access them at http://store.aiaa.org. Select AIAA Standards from the drop-down menu, then search for a topic or see the entire list using no specific search term.

Have a suggestion for a new standard?

If you know of a standard that needs to be revised or an application where a standard is needed that does not yet exist, send an email to craigd@aiaa.org with your suggestion.

Need to Contact the AIAA Standards Team?

For ISO related questions, contact Jim French at jimf@aiaa.org

For info on the U.S. TAG for ISO TC20/SC14, contact Elizabeth Carter at elizabethc@aiaa.org

For questions regarding the AIAA Domestic Standards Program or CPSRS, contact Craig Day at craigd@aiaa.org