OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING

OFFICE OF THE DEPUTY ASSISTANT SECRETARY OF DEFENSE FOR *SYSTEMS ENGINEERING*

Defense Acquisition Guidebook (DAG) Chapter 3 Design Considerations Standards

Version 1.0, August 2017

The following table provides a partial list of government and Department of Defense (DoD) adopted non-government standards relevant to the design considerations discussed in the Defense Acquisition Guidebook (DAG) Chapter 3, Systems Engineering. Program Managers and Systems Engineers can incorporate these standards into acquisition contracts to support delivery of required operational capability. Some standards are mandatory for all programs, as noted. Design considerations for which there are no relevant Government or DoD adopted standards are designated not applicable (NA).

The titles as shown exclude revision suffixes, consistent with Defense Standardization Program practice for citing standardization documents within other documents. However, programs should always include the specific revision suffix when incorporating a standardization document into a contract and should review the standard to ensure the appropriate revision is used. Programs should also follow applicable policy with respect to using a particular standard or standardization document.

In addition to the mandatory standards indicated, according to DoD Instruction (DoDI) 8330.01, "Information Technology [IT] Standards in the DoD," program offices must consider the use of information technology specifications and standards identified by the DoD Information Technology Standards Registry (DISR), as applicable, for the development and acquisition of new or modified fielded IT systems throughout the DoD. The DISR is available at https://gtg.csd.disa.mil. Individual standards listed in the DISR are grouped into Service Areas such as Web Services, Military Messaging, Document Interchange, Network Technology, and so on, to aid Program Managers and Systems Engineers in finding the standards relevant for their programs.

Also, according to DoD Manual (DoDM) 4120.24, "Defense Standardization Program (DSP) Procedures," in order to achieve interoperability with the North Atlantic Treaty Organization (NATO) and coalition forces, program offices should, to the maximum extent feasible, comply with U.S.-ratified materiel International Standard Agreements applicable to their acquisitions by citing their implementing documents in solicitations and contracts.

Program Managers and Systems Engineers should consult with applicable subject matter experts to determine whether other standards, or other versions of standards, are required and/or relevant and consistent with program objectives.

Table 1. Design Considerations and Corresponding Standards

Design Considerations	Standards
Accessibility (Section 508 Compliance)	• FED-STD-795, Uniform Federal Accessibility Standards [Mandatory]
Affordability – Systems Engineering Trade-Off Analyses	NA
Anti-Counterfeiting	• SAE-AS5553, Counterfeit Electrical, Electronic, and Electromechanical (EEE) Parts; Avoidance, Detection, Mitigation, and Disposition • SAE-AS6081, Fraudulent/Counterfeit Electronic Parts: Avoidance, Detection, Mitigation, and Disposition – Distributors • SAE-AS6174, Counterfeit Materiel; Assuring Acquisition of Authentic and Conforming Materiel • SAE-AS6462, AS5553A, Fraudulent/Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition Verification Criteria
Commercial-Off-the-Shelf	NA
Corrosion Prevention and Control	• MIL-STD-810, Environmental Engineering Considerations and Laboratory Tests • MIL-STD-889, Dissimilar Metals • MIL-STD-1568, Materials and Processes for Corrosion Prevention and Control in Aerospace Weapons Systems
Critical Safety Item	NA
Demilitarization and Disposal	• MIL-STD-882, System Safety [Mandatory]
Diminishing Manufacturing Sources and Material Shortages	• MIL-STD-3018, Parts Management [Mandatory] • SAE STD-0016, Standard for Preparing a DMSMS Management Plan
Environment, Safety, and Occupational Health	• MIL-STD-882, System Safety [Mandatory] • MIL-STD-1425, Safety Design Requirements for Military Lasers and Associated Support Equipment • NASA-STD-8719.14, Process for Limiting Orbital Debris • NAS 411, Hazardous Materials Management Program • NAS 411-1, Hazardous Materials Target List
Human Systems Integration	• MIL-STD-1472, Human Engineering • MIL-STD-46855, Human Engineering Requirements for Military Systems, Equipment, and Facilities • ASTM-F1166, Marine Systems, Equipment and Facilities, Human Engineering Design for
Insensitive Munitions	• MIL-STD-2105, Hazard Assessment Tests for Non-Nuclear Munitions

Table 1. Design Considerations and Corresponding Standards *continued*

Design Considerations	Standards
Intelligence (Life-Cycle Mission Data Plan)	NA
Interoperability and Dependencies	• [MIL-STD-1760, Aircraft/Store Electrical Interconnection System](#)
Item Unique Identification	• [MIL-STD-130, Identification Marking of U.S. Military Property](#) [Mandatory]
Modular Design	• [MIL-STD-1553, Digital Time Division Command/Response Multiplex Data Bus](#) • [MIL-STD-1760, Aircraft/Store Electrical Interconnection System](#) • [MIL-STD-6017, Variable Message Format (VMF) Main](#) • [MIL-STD-6040, U.S. Message Text Format (USMTF) Description](#)
Operational Energy	NA
Packaging, Handling, Storage, and Transportation	• [MIL-STD-129, Military Marking for Shipment and Storage](#) [Mandatory] • [MIL-STD-2073-1, Standard Practice for Military Packaging](#) [Mandatory] • [ASTM-D3951, Standard Practice for Commercial Packaging](#) [Mandatory] • [MIL-STD-648, Specialized Shipping Containers](#) • [MIL-STD-1366, Transportability Criteria](#) • [MIL-STD-3037, Inspection Criteria for International Organization for Standardization (ISO) Containers and Department of Defense Standard Family of ISO Shelters AMSC](#)
Producibility, Quality and Manufacturing Readiness	• [MIL-STD-3018, Parts Management](#) [Mandatory] • [MIL-STD-31000, Technical Data Packages](#) • [ISO9001, Quality Management Systems - Requirements](#) • [SAE-AS9100, Quality Management Systems - Requirements for Aviation, Space, and Defense Organizations](#) • [SAE-AS9003, Inspection and Test Quality Systems Requirements for Aviation, Space, and Defense Organizations](#) • [SAE-AS6500, Manufacturing Management Program](#)
Reliability and Maintainability Engineering	NA
Spectrum Management	• [MIL-STD-461, Requirements for the Control of Electromagnetic Interference Characteristics of Subsystems and Equipment](#) • [MIL-STD-464, Electromagnetic Environmental Effects Requirements for Systems](#)
Standardization	• [MIL-STD-3018, Parts Management](#) [Mandatory]

Table 1. Design Considerations and Corresponding Standards *continued*

Design Considerations	Standards
Supportability	• [MIL-STD-3018, Parts Management](#) [Mandatory] • [SAE-GEIA-STD-0007, Logistics Product Data](#) • [SAE-TA-STD-0017, Product Support Analysis](#)
Survivability and Susceptibility	• [STANAG-4521, Chemical, Biological, Radiological and Nuclear (CBRN) Contamination Survivability Factors in the Design, Testing and Acceptance of Military Equipment - AEP-7](#) [Mandatory] • [MIL-STD-461, Requirements for the Control of Electromagnetic Interference Characteristics of Subsystems and Equipment](#) • [MIL-STD-464, Electromagnetic Environmental Effects Requirements for Systems](#) • [MIL-STD-810, Environmental Engineering Considerations and Laboratory Tests](#) • [MIL-STD-1766, Nuclear Hardness and Survivability Program Requirements for ICBM Weapon Systems](#) • [MIL-STD-3023, High-Altitude Electromagnetic Pulse (HEMP) Protection for Military Aircraft](#) • [MIL-STD-3056, Chemical, Biological, and Radiological System Contamination Survivability Design Criteria for](#) • [MIL-STD-4023, High-Altitude Electromagnetic Pulse (HEMP) Protection for Military Surface Ships](#)
System Security Engineering	NA

[Mandatory] = Mandatory standards, as identified in [SD-21 "Listing of Specifications and Standards Mandated for use by the Department of Defense by Public Laws or Government Regulations"](#)

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