

# ***Headquarters U.S. Air Force***

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## **Standardization in Support of Systems Engineering**

**Standardization Executives Panel  
2008 DSP Standardization Conference  
4 March 2008**



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**Division (SAF/AQRE)**  
**for Mr. Terry J. Jagers**  
**AF Standardization Executive**

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# Topics

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- **Life Cycle Systems Engineering (SE)  
Introduction**
  
- **SE-Related Standardization Activities**
  - **Document Development**
  - **Policy Development**
  - **Document Management**
  - **Standardization Activity Management**



# Life Cycle Systems Engineering- Introduction

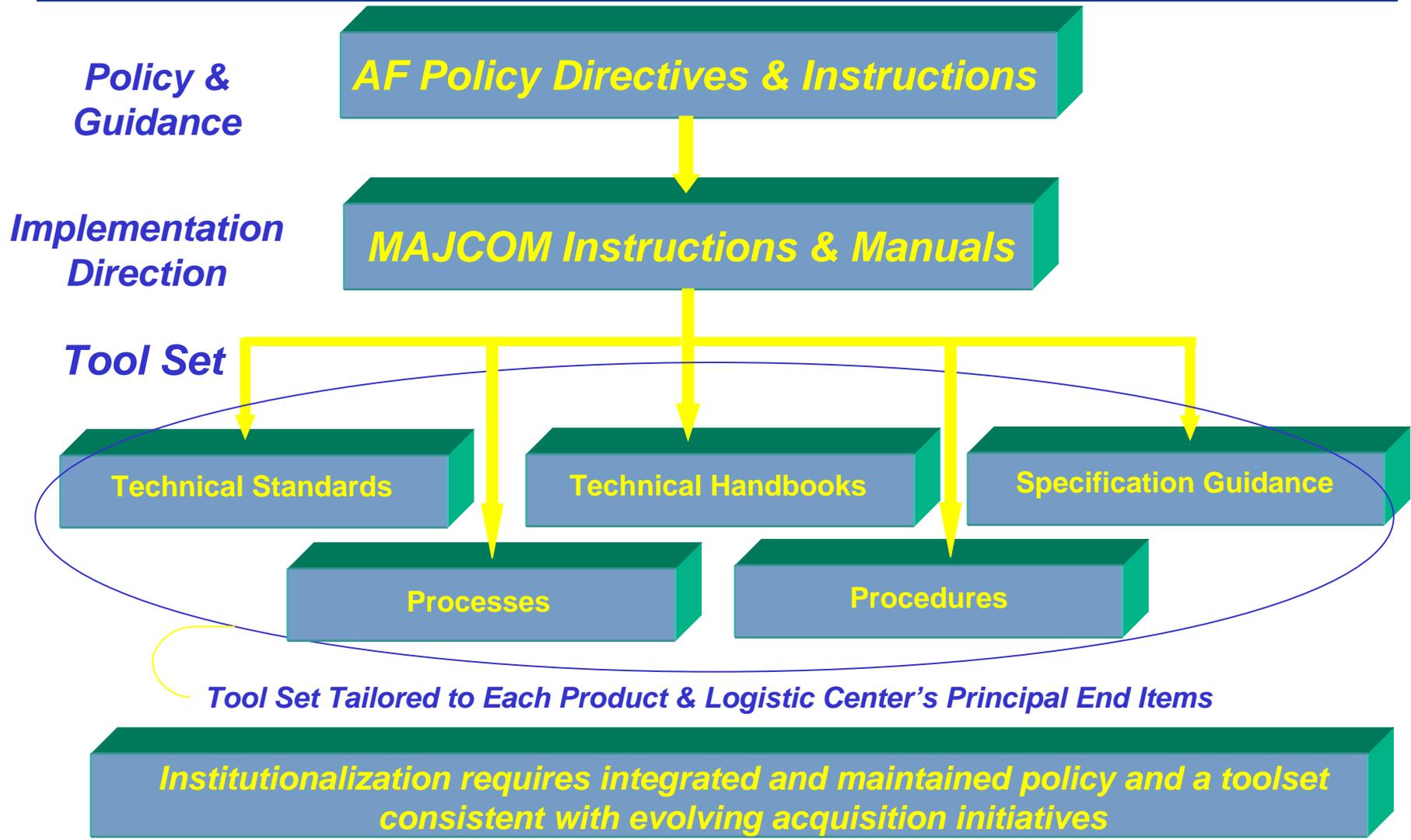
- **“Life Cycle SE”** encompasses the entire set of scientific, technical, and managerial efforts needed to conceive, evolve, produce, verify, deploy, and support a system

■ Architectures	■ System Safety and ESOH
■ System-of-Systems (SoS)	■ Security and Program Protection
■ Core SE Characteristics and Technical Processes	■ Maintenance Engineering / Sustaining Engineering
■ Technical Management Processes	■ Human Systems Integration
■ Software	■ Integrity Programs
■ Specs and Standards	■ ... numerous others ...

***STANDARDIZATION GOAL – Ensure AF Standardization Program integrates with and fully supports Life Cycle Systems Engineering***



# Institutionalizing Life Cycle SE- Regulatory & DSP Products

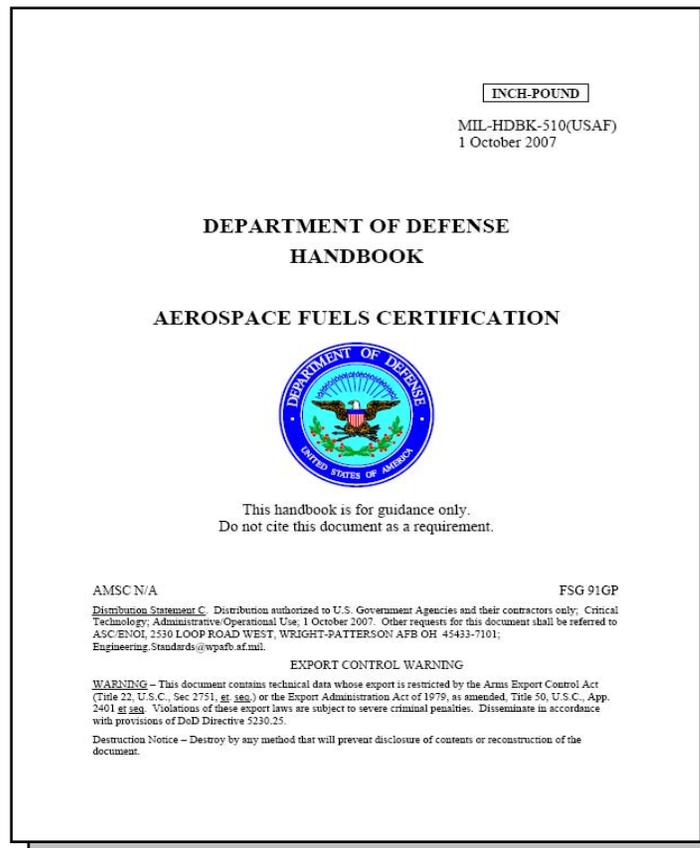


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# Life Cycle SE Standardization Activities- Document Development

## AF 2007 DSP Achievement Award Winner

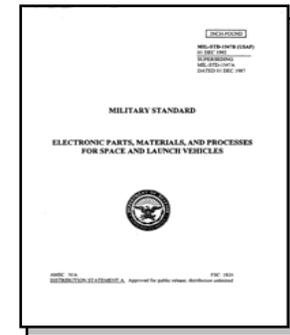


- **New MIL-HDBK-510, Aerospace Fuels Certification**
  - **Implements SECDEF and SECAF guidance – Standardize process for certifying new fuel types**
  - **Retains AF Single Manager authority for Airworthiness Certification of individual systems**
  - **Issued Oct 07 - AF only document**



# Life Cycle SE Standardization Activities- Document Development

- Reinstate three MIL-STDs
  - MIL-STD-1546\* (AF only)
  - MIL-STD-1547\*\* (Full Coord)
  - MIL-STD-1798\*\*\* (AF only)

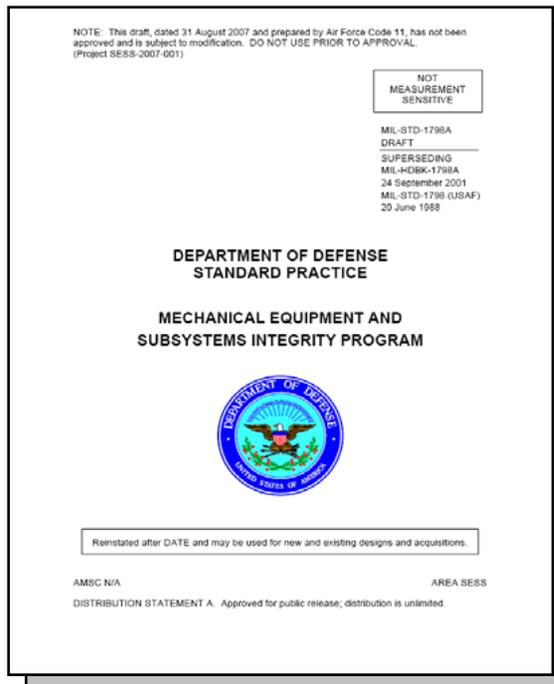


- Standard Practices needed for effective program execution

- \* *Parts, Materials and Processes Engineering, Management and Control Program for Space and Launch Vehicles* [Requested by SMC/CC and DNRO; mandated use]
- \*\* *Electronic Parts, Materials and Processes for Space and Launch Vehicles* [Requested by SMC/CC and D/NRO; approved by Defense Standardization Council; mandated use]
- \*\*\* *Mechanical Equipment & Subsystems Integrity Program (MECSIP)* [Requested by ASC/EN]



# Life Cycle SE Standardization Activities- Document Development



- New standard practice MIL-STD, “*Propulsion System Integrity Program*”
  - Engine, subsystems, controls, accessories, and externals.
  - Response to AFIA report findings & recommendations
    - Roles & responsibilities; guidance; training; metrics
- Tailored for direct contract use

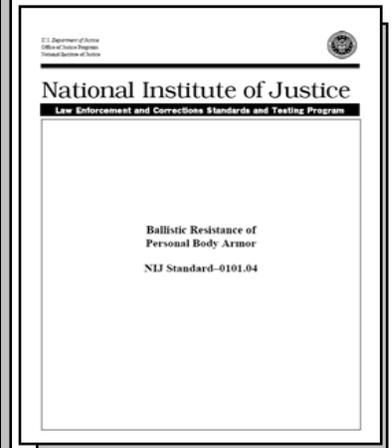
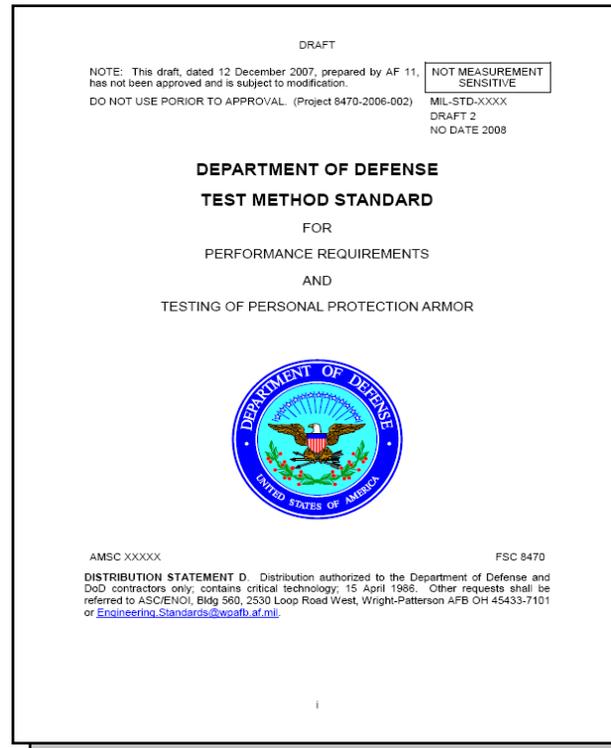
AFIA - AF Inspection Agency

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# Life Cycle SE Standardization Activities- Document Development

- **New MIL-STD, “Performance Requirements and Testing of Personal Protection Armor”**
  - Military-unique threats, requirements, and test methods for body armor
  - MIL requirements vs NIJ Standard 0101.04A and Appendix B for law enforcement armor
- **Intended Use: procurement & qualification of commercial & developmental armor for military use**
- **AF & USMC use**

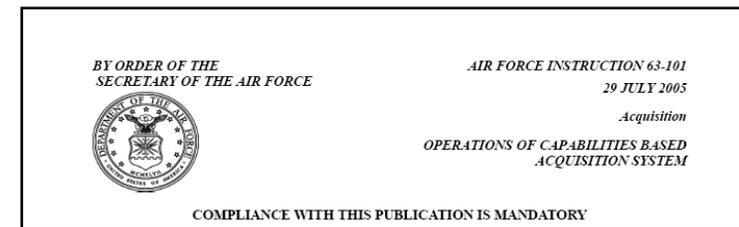
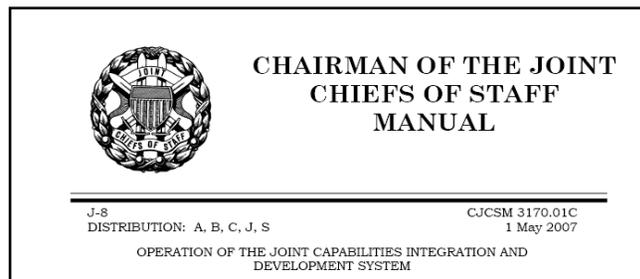
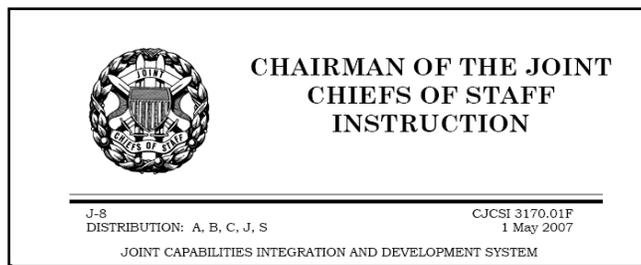




# Life Cycle SE Standardization Activities- Policy Development

## ***Link Warfighter requirements to materiel International Standardization Agreements (ISA)***

- **Multinational interoperability & logistic supportability**
- **JCIDS documents: consider US-ratified materiel ISAs in AOA, ICDs, and CDDs**
- **AF acquisition policy: find & address applicable ISAs via PMT; report applicable ISAs not used**



**AOA – Analysis of Alternatives**  
**ICD – Initial Capabilities Doc**  
**CDD – Capabilities Development Doc**  
**PMT – Program Managers Tool**

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# Life Cycle SE Standardization Activities- Policy Development

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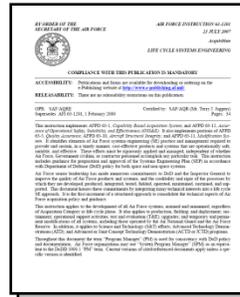
## AF Guidance Memo - Use & Reinstatement of Canceled DSP Documents

- Waiver procedures for 1-time program use
- Reinstatement procedures for recurring use
- Key Points
  - Acquisition need for military requirements & standard practices
  - SMA visibility and response to program needs
  - Justification criteria: commercial availability, military uniqueness, or cost benefit
  - Decision authority to lowest AF Standardization Management Executive level
- In SAF/AQ for signature

SMA – Standardization Management Activity



# Life Cycle SE Standardization Activities- Policy Development



## ■ Revise AF Instructions

- AFI 60-101
- AFI 60-106
- AFI 63-101
- AFI 63-1201

## ■ Policy, fact-of-life, and mission changes

- AFGM1 – Canceled Documents
- Chap 6, DOD 4120.24-M (DSP)
- NATO NSA transformation
- Impact of PMT stand-down (TBD)

**AFI 60-101 Materiel Standardization**

**AFI 60-106 USAF International Military Standardization Program**

**AFI 63-101 Operations of Capabilities Based Acquisition System**

**AFI 63-1201 Life Cycle Systems Engineering**



# Life Cycle SE Standardization Activities- Document Management

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- **Aeronautical Systems Center (ASC) (Code 11)**
  - **Reduced number of overage documents\* by 40% in 2007 (from 67% to 40% of ASC total\*\*)**
  - **Performance due to Director of Engineering leadership**

**Overage metric included in  
2007 Organizational Objectives**

**2008 commitment:  
Reduce overage from 40% to 25% of total**

\* Overage metric – more than 5 yrs since document last reviewed

\*\* Total Preparing Activity documents - 157

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# Life Cycle SE Standardization Activities- Standardization & Document Management

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- **Space and Missile Systems Center (Code 19)**
  - **AFSO 21 Specs & Standards initiatives**
    - **Completed with Northrop Grumman Space Technology**
    - **Boeing ongoing**
    - **Lockheed Martin and others planned**
  - **SMC/AIAA partnership**
    - **10 AIAA standards**
    - **7 published in last two years**
    - **3 - 5 additional standards planned**



AFSO - AF Smart Operations



# AF Standardization Activities in 2008 - Standardization Activity Management

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- Reassignment of AF SMAs for IT documents
  - Initiated in 2006 by AFCA mission change to support IT standardization management process
    - Standards application/architectures vs content
  - A goal from 2007; delayed due to major ongoing AF IT reorganization
    - SAF/XC realignment
    - AF Cyber Command (Provisional)\*
    - Global Cyberspace Integration Center (GCIC)\*\*
- Re-establishes AF OPRs for DISA LSA Areas

SMA: Standardization Management Activity

AFCA: AF Communications Agency

\* Established Nov 06

\*\* Established 2 Apr 07; formerly AF Command, Control, Intelligence, Surveillance & Reconnaissance Center (AFC2ISRC)

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# AF Standardization Activities in 2008 - Standardization Activity Management

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***Implement transfer of NATO MCASB Air Operations  
Technical Working Group (AOTWG) to CNAD NAFAG***

- AF US Lead Agent for both international bodies
- Shifts mgmt of NATO materiel Air Standardization work from MC (Opnl) to CNAD (Matl/Acq)
  - 1 WG – 6 Panels; ~ 130 STANAGs
- AF current OPRs
  - Lead Agent - Operational: AF/A5X
  - Lead Agent - Materiel: SAF/AQI
  - Cognizant Standardization Executive – SAF/AQR

MCASB – Military Committee Air Standardization Board

CNAD – Conference of National Armaments Directors

NAFAG – NATO Air Force Armaments Group

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# Summary

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- **DSP documents**
  - **Enabler of AF Life Cycle SE efforts**
  - **Use mandated by Space and IT/NSS acquisition policy**
- **AF Life Cycle SE and Standardization Programs Focus**
  - **Policy and process integration with capability requirements, acquisition, and sustainment**
  - **Toolset enhancement and maintenance for Life Cycle SE practitioners; implement canceled documents policy**