

**BY ORDER OF THE COMMANDER  
SPACE AND MISSILE SYSTEMS CENTER**

**SPACE AND MISSILE SYSTEMS CENTER  
INSTRUCTION 63-106**

**1 OCTOBER 2009**

***Acquisition***

***SPECIFICATIONS AND STANDARDS (S&S)***



**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

---

**ACCESSIBILITY:** Publications and forms are available on the e-Publishing website at [www.e-publishing.af.mil](http://www.e-publishing.af.mil) for downloading or ordering.

**RELEASABILITY:** There are no releasability restrictions on this publication.

---

OPR: SMC/EAE

Certified by: SMC/EA  
(Colonel David E. Swanson)  
Pages: 19

---

Compliance with this instruction is mandatory for all Air Force PEO-Space acquisitions and all SMC organizations whether planning for, acquiring, or managing Product Support for SMC-developed space and missile systems. Non-compliance with SMCI 63-106 is not punitive under Article 92, or other articles of the Uniform Code of Military Justice (UCMJ). Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Information Management Tool (IMT) 847, *Recommendation for Change of Publication*; route AF IMT 847s from the field through the appropriate functional's chain of command. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with AFMAN 33-363, *Management of Records*, and disposed of in accordance with the Air Force Records Disposition Schedule (RDS) located at <https://afrims.amc.af.mil/>. This instruction institutionalizes the SMC Commander's Policy Letter, *Initial Policy on Specifications and Standards Usage at SMC*, dated 11 July 2006. This instruction directs the development, use, and maintenance of S&S as an integral element of SMC acquisition processes. Compliance with this instruction is mandatory for programs executed by SMC Wings, SMC staff organizations and SMC/AFPEO-Space. S&S shall be included in all solicitations, placed on contract as compliance documents, and implemented through the supplier chain. The SMC Chief Engineer maintains a coordinated master list of compliance documents, entitled Compliance Documents for SMC Acquisitions. The list includes the minimum essential government, industry, professional and international S&S for SMC's total portfolio of launch vehicles, space vehicles, ground systems, user equipment, missile systems, facilities and research.

This policy applies to all new SMC/CC/AFPEO-Space development, acquisition and sustainment contracts, including new contracts for legacy programs. The necessary S&S will be placed on contract, as part of the program's baseline and the Program Office shall enforce them. Any issues on specifications, standards or implementation that arise between SMC/EA and SMC/Wings and Staff Organizations will be brought forward to SMC/CC/AFPEO-Space for resolution.

1.	Introduction. ....	2
2.	Organizational Roles and Responsibilities related to S&S. ....	4
3.	Development of SMC Compliance Standards. ....	5
Figure 1.	Summary of SMC Compliance Standards Development Process. ....	8
4.	SMC S&S Information Management. ....	10
5.	Application of SMC Compliance Standards. ....	11
Figure 2.	SMC Compliance Standards Coordination. ....	14
6.	Training On Use & Generation of S&S. ....	16
<b>Attachment 1—GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION</b>		<b>18</b>

**1. Introduction.** The use of specifications and standards (S&S) as part of the SMC acquisition process is a key element of the Systems Engineering Revitalization effort. Sources of S&S include Government, FFRDC (The Aerospace Corporation), industry, and professional societies including IEEE, ISO, and AIAA. S&S selected for the technical baseline were reviewed in light of current acquisition and program execution practices, life cycle systems engineering policies/instructions, and new technical knowledge. They will be updated, revised, and tailored as appropriate for use by SMC.

**1.1. Background.** Prior to acquisition reform, use of military S&S in Request For Proposal (RFP), contracts and program management practices was one of the primary methods/approaches used to define technical requirements, manage contractor performance, and incorporate significant lessons learned. One key element of acquisition reform was to restrict the Government from contractually dictating prescriptive “how-to” instructions or processes used by contractor(s). For a decade this restriction limited and reduced the use of S&S in RFPs, proposal evaluations, contractor performance assessments, and on contracts as compliance documents. The unintentional result was the compromise of technical baselines and established/successful processes. Reorganizations and consolidations of units, missions, and facilities, and reductions in assigned Government personnel and industry support inadvertently hampered our ability to use lessons learned to prevent repetition of past mistakes. The reintroduction of S&S is not intended to restore the very large number of standards of the past but, rather, to implement standards that are known to reduce acquisition risk and improve overall system/mission effectiveness.

**1.2. Objectives.** The timing of the insertion of S&S into an acquisition will directly affect the success of the acquisition. The early identification of appropriate S&S into the acquisition stream should assist the SMC Wings and Staff Organizations to assure mission success. Failure to implement an effective system acquisition program can range from catastrophic

failure of a system to degraded system performance and/or higher sustainment costs. Launch and satellite system failures threaten national security, decrease system operational availability and significantly increase program life cycle cost. Degraded performance of on-orbit satellites reduces in-service duration and system operational effectiveness. Similarly, ground and user platform system-level and component-level problems and design shortfalls can decrease system availability, substantially increase program maintenance costs, and can lead to failures of the military mission. Hence, the effective and efficient insertion of appropriate S&S for system acquisitions early can yield significant benefits. Toward that end, the specific objectives of the SMC S&S program include:

1.2.1. Establishment of a technical baseline for SMC acquisitions including a minimum set of compliance S&S for incorporation into SMC acquisition contracts.

1.2.2. Flexibility in SMC Wing's implementation of S&S, based on the needs of each specific contract.

1.2.3. Flexibility in SMC offeror/contractor implementation, including allowing proposal of alternative approaches to meeting the intent of the SMC Compliance S&S.

1.3. **Applicability.** This operating instruction applies to all SMC Wings and all new contracts, or modifications to existing contracts, executed by SMC/AFPEO-Space, including new contracts on heritage programs.

1.4. **SMC/CC S&S Policy.** The SMC policy mandates the use of S&S as an integral element of SMC acquisition, contracting, and program management. There is no intent to return to the pre-acquisition reform approach of using excessive S&S prescribing detailed processes. The list of high-priority critical S&S has been established for use in the acquisition process. This list includes two categories of documents:

1.4.1. Those which contribute to mission success (areas that caused failures, caused significant launch delays, shortened mission life, reduced performance, caused excessive rework, or generated important lessons learned)

1.4.2. Those needed for effective program implementation (insight into program performance or status, risk reduction, evaluations and analysis, and critical process definitions).

1.5. **SMC S&S Overview.** Specifications and standards are to be used as an integral part of the acquisition process in RFPs, contracts, management practices, and selection of compliance documents. The SMC Chief Engineer is responsible for the development, coordination, and maintenance of the master list of SMC Compliance S&Ss, which are published as the Compliance Documents for SMC Acquisitions, hereafter referred to a "SMC Compliance Standards". The SMC Compliance Standards list shall be used in all new acquisitions, including new contracts on legacy programs, and on legacy programs to modify existing contracts. SMC Wings and Staff Organizations may tailor the SMC Compliance Standards list, or the S&S themselves, in accordance with the unique characteristics/requirements of their specific acquisition. The most current SMC Compliance Standards list can be found on the SMC/EA Livelink site or can be requested from SMC/EAE. The SMC Compliance Standards list is updated periodically. Notice of update will be sent to all SMC Wing Commanders, Chief Engineers, EA/PI Division Chiefs,

applicable FFRDC and SETA/SE&I Contractors, space-related government organizations, and space-development industry.

## **2. Organizational Roles and Responsibilities related to S&S.**

### **2.1. Program Executive Officer (PEO)**

2.1.1. Approve and direct space system acquisition policy formulation and its implementation.

### **2.2. SMC Commander (CC)**

2.2.1. Provide resolution of S&S implementation disagreements, as required.

### **2.3. SMC Directorate of Engineering and Architectures (SMC/EA)**

2.3.1. Establish and maintain the master SMC Compliance Standards list.

2.3.2. Manage the configuration of approved S&S and associated SMC Commanders policies or SMC Instructions.

2.3.3. Identify the organization responsible for S&S development/revision within each S&S technical area.

2.3.4. Approve drafts of new or revised S&S.

2.3.5. Prepare processes for implementation of S&S in RFPs, source selection, and contracts.

2.3.6. Review and approve SMC Wing tailoring of S&S for new acquisition contracts. This is a subset of the functions included in the overall technical review of RFPs that are performed by the SMC/EA Engineering Acquisition Support Team (EAST).

2.3.7. Maintain database of S&S in use on all SMC contracts.

2.3.8. Interface with other space system developing agencies and the contractor community for coordination and continuous improvement of S&S programs.

### **2.4. Acquisition Center of Excellence (SMC/PI ACE)**

2.4.1. Provide advice and expertise to the Center's Acquisition personnel. ACE provides the wings with the initial set of SMC Compliance S&S at the inception of a new acquisition preparation activity and assures proper integration of the tailored and approved list of SMC Compliance S&S into the acquisition package and contract.

### **2.5. SMC Wings.**

2.5.1. Implement S&S in accordance with this instruction and the Commanders Policy letter.

2.5.2. Provide access to program acquisition documents to staff organizations executing the SMC S&S program.

2.5.3. Prepare recommended selection and tailoring of S&S for each new acquisition contract, or major re-baseline of existing contracts.

2.5.4. Participate actively in the SMC/EA S&S review and approval process for acquisition contracts.

2.5.5. Conduct reviews of heritage programs and existing contracts to assess the benefits of adding S&S, upon mutual agreement of Wing and SMC/EA.

2.5.6. Upon request of SMC/EA or EAE, review and comment on S&S being newly developed or revised.

## **2.6. SMC Staff Organizations (e.g. SMC/PI, SE).**

2.6.1. Participate actively in the SMC Compliance Standards list review and approval process.

2.6.2. Support impact studies, coordination, resolution, and approval actions involving S&S.

2.6.3. Provide leadership in the development and revision of S&S within the technical area of each staff organization.

2.6.4. Upon request of SMC/EA or EAE, review and comment other S&S being newly developed or revised that may not be directly within the staff organization's technical area.

## **2.7. Other National Security Agencies (e.g., NRO, MDA, NASA).**

2.7.1. Support the development of compliance and reference documents, discussions of status, technical reviews of documents, and other related activities of mutual benefit.

2.7.2. Support efforts to coordinate and/or normalize the S&S used across the breadth of space system procurements.

## **2.8. Development Contractors.**

2.8.1. May be requested to participate in and support review(s) of proposed S&S for the SMC Compliance Standards list.

2.8.2. May be requested to provide responses to SMC/EA regarding content of proposed S&S used in the RFP process.

# **3. Development of SMC Compliance Standards.**

**3.1. S&S Working Group (S&SWG).** The SMC S&S program is executed by the SMC/EA S&S Working Group (S&SWG). The SMC S&SWG is chaired by the SMC Engineering and Architectures Division Engineering Branch Chief (SMC/EAE). The Executive Committee, comprised of the SMC/EAE Branch Chief and senior members of The Aerospace Corporation Corporate Chief Architect/Engineer Division, closely coordinates with the SMC Chief Engineers Council to assure proper implementation of current SMC management objectives. SMC/EAE support personnel, executes the SMC S&S program with the support of SMEs, as required.

3.1.1. Charter/Purpose. The S&SWG ensures the development, use, and maintenance of S&S as an integral element of SMC acquisition processes. The S&SWG will define, coordinate, and maintain the SMC Compliance Standards.

3.1.2. Executive Committee Functions and Responsibilities.

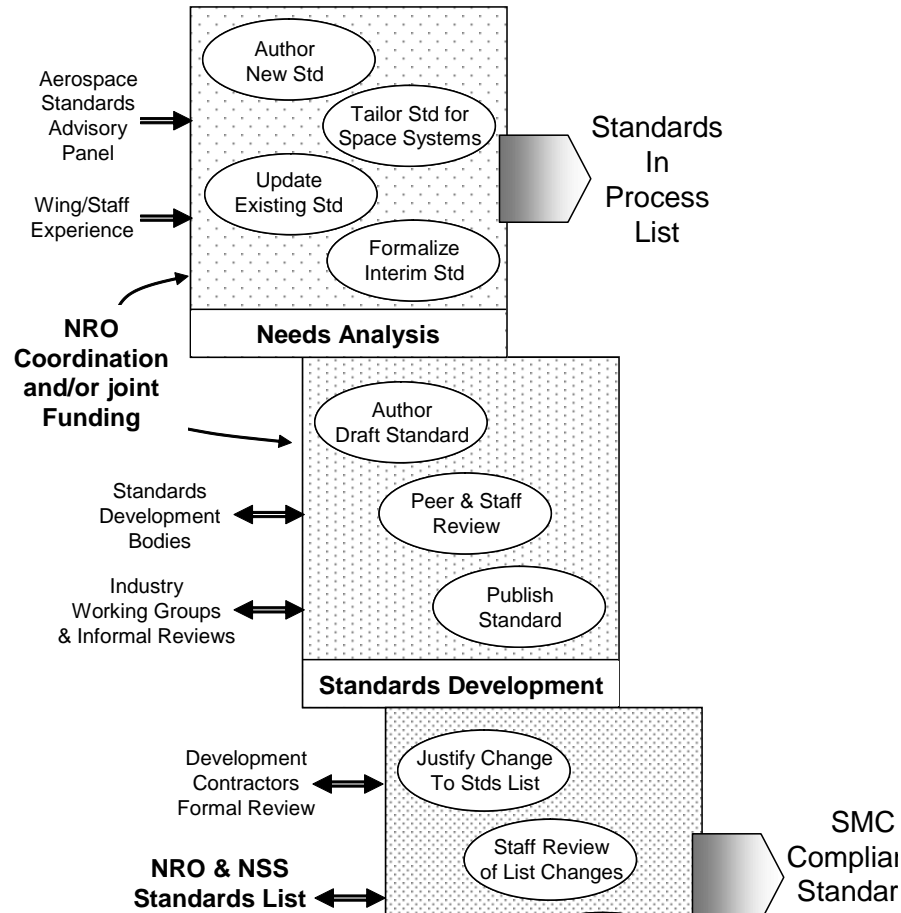
3.1.2.1. Coordinate S&S Activities and Team Responsibilities.

3.1.2.2. Identify a pool of SMEs for each technical and program management area.

- 3.1.2.3. Identify team leads and members for specific S&S activities.
- 3.1.2.4. Establish S&SWG process(es).
- 3.1.2.5. Review S&S activities (current and proposed) for applicability, prioritization and funding.
- 3.1.3. S&SWG Membership. Core membership will be approved by SMC/EAE and may be augmented as required from resources available to SMC, including members of SMC Wings and Staff Organizations, the Aerospace Corporation, and SMC SETA/SE&I contractors. Responsibilities include, but are not limited to, management and assistance in the preparation of new/revised S&S and recommended tailoring. Sources include Military Standards (including cancelled standards), government standards, industry standards, technical society standards, international standards, etc.
- 3.1.4. Subject Matter Experts (SMEs). SMEs are highly-experienced specialists in specific technical disciplines who can render authoritative and definitive judgment on technical processes and criteria. SMEs will be identified from resources available to SMC, including The Aerospace Corporation ETG or SPO-support personnel, SETA/SE&I contractors, or other government personnel. In Integrated Project Team S&S efforts, SMEs can also be solicited from the contractor community. SMEs are tasked to conduct the following types of activities:
  - 3.1.4.1. Analyzing failures, major anomalies, major delays for use in prioritization and correlation with S&S.
  - 3.1.4.2. Providing lessons learned data and implications for center-wide S&S.
  - 3.1.4.3. Support SMC/EA (and other space-related agency) processes for prioritizing and approving S&S and policies.
  - 3.1.4.4. Author and/or review draft and final S&S.
  - 3.1.4.5. Support acquisition teams in specific areas of technical expertise.
- 3.1.5. S&SWG Interfaces. S&SWG Members will interface with a variety of SMC acquisition-related activities in the course of their responsibilities, including:
  - 3.1.5.1. SMC Chief Engineer's Council – senior advisory panel for S&S issues.
  - 3.1.5.2. SMC/Wings and Staff Organizations.
  - 3.1.5.3. The Aerospace Corporation and technical experts from the SETA/SE&I and development contractor communities.
  - 3.1.5.4. Acquisition Center of Excellence (SMC/ACE).
  - 3.1.5.5. SMC/EA Engineering Acquisition Support Team (EAST).
  - 3.1.5.6. Aerospace Standards Advisory Panel (ASAP) and S&S Community of Practice (CoP).
  - 3.1.5.7. Space Quality Improvement Council (SQIC), Space Parts Working Group, and other industry forums or associations.
  - 3.1.5.8. Other National Security Agencies, e.g., NRO, MDA, NASA, etc.



**3.2. SMC Compliance Standards List Development Process.** Section 3.2 provides elements, i.e., criteria, for consideration in the process for nominating and approving S&S for development and inclusion in the SMC technical baseline, formally published as the *Compliance Documents for SMC Acquisitions* (Also known as SMC Compliance Standards). SMC standards provide contractor requirements; government requirements are to be documented in SMC Instructions. Each standard will include appropriate contractual language, i.e., “shall,” and should concentrate on the inclusion of requirements rather than philosophy or prescriptive processes. Development of S&S for the SMC Compliance Standards began from an initial listing for an ongoing SMC acquisition program. Development has evolved into a continuing process. Figure 1, Summary of SMC Compliance Standards List Development Process, depicts the overall SMC Compliance Standards list development process. There are two published products generated by this process: Approved SMC Compliance Standards and a Standards-in-Process list. The Standards-in-Process list is coordinated with NRO since most standards development is either jointly funded, or performed by SMEs who serve both communities. The process depicted to the left of the Standards-in-Process list box is a generic depiction of the review and approval of standards funded by SMC/NRO. The process depicted above the Standards-in-Process list box shows the internal (SMC) coordination process by which new/modified standards are formally approved for integration into the SMC Compliance Standards list. The Core membership of the SMC S&SWG facilitates and manages the process. It includes participation and coordination of SMC Wings, SMC Staff Organizations, elements of the NRO, Aerospace Corporation, industry activities, and professional societies. The process begins with the current approved SMC Compliance Standards list, progresses through the development of standards in the process list, culminating in coordination and concurrence, SMC Chief Engineer approval and publication as a revision to the approved SMC Compliance Standards list.

**Figure 1. Summary of SMC Compliance Standards Development Process.**

3.2.1. Analysis of Critical Functional/Technical Areas. Identification of Critical Functional and Technical Areas and disciplines is central to effective and efficient progress toward mission success. Documents to be considered for nomination and approval for inclusion in the SMC Compliance Standards list must include elements of critical functional and technical disciplines which:

3.2.1.1. Contribute to Mission Success (technical).

3.2.1.1.1. Areas that caused failures or anomalies.

3.2.1.1.2. Caused launch delays.

3.2.1.1.3. Limited system life expectancy.

3.2.1.1.4. Reduced system performance.

3.2.1.1.5. . Caused excessive rework.

3.2.1.1.6. Generated important lessons learned.



- 3.2.1.2. Contribute to Program Execution Success (program and technical management).
  - 3.2.1.2.1. Demonstrate effective and successful implementation.
  - 3.2.1.2.2. Are required for Government insight into program performance and status.
  - 3.2.1.2.3. Improve risk reduction.
  - 3.2.1.2.4. Are critical for performing proper analysis and evaluation.
  - 3.2.1.2.5. Define industry accepted critical processes, procedures, or methods.
  - 3.2.1.2.6. Are necessary to properly execute a program.
- 3.2.2. Perform Critical Needs Analysis
  - 3.2.2.1. SMC/EA will review the current SMC Compliance Standards list twice a year and reconcile that list with a needs analysis.
  - 3.2.2.2. Needs analysis may be a formal, independent analysis or may result from other sources of knowledge, including inter-agency standardization efforts, input from SMEs, or recommendations from industry.
  - 3.2.2.3. Upon determination of a need that should be filled, SMC/EA will determine an estimate of the updating effort prior to committing to any significant review or revision efforts.
  - 3.2.2.4. Specifications or standards on the SMC Compliance Standards list that no longer meet the critical needs criteria will be nominated and considered for deletion. Any critical needs area not currently included, or determined to be inadequate, will require nomination of existing or new standard(s) to fill that need.
- 3.2.3. Generating the SMC Compliance Standards list
  - 3.2.3.1. SMC/EA will periodically review and/or issue the SMC Compliance Standards list as significant changes to S&S occur, or at a minimum of once a year.
  - 3.2.3.2. All specifications or standards nominated for, or included in, the SMC Compliance Standards list must be supported by the critical needs criteria delineated above.
  - 3.2.3.3. Document types eligible for inclusion in the SMC Compliance Standards list include:
    - 3.2.3.3.1. Military S&S (active or cancelled)
    - 3.2.3.3.2. Industry standards documents, e.g. ISO, GEIA, AIAA
    - 3.2.3.3.3. Space and Missile Systems Center Standards
    - 3.2.3.3.4. The Aerospace Corporation publications written as standards, e.g. Technical Operating Reports (TORs) or Technical Reports (TRs)
  - 3.2.3.4. The impact of additions, equivalent/replacement, or deleted standards to the SMC Compliance Standards list will be subjected to the scrutiny of the appropriate technical or acquisition SMEs.

3.2.3.5. SMC/EA will coordinate proposed changes to the SMC Compliance Standards list with the 2-letter staff organizations that may be adversely impacted by changes, including SMC/PIL (Logistics), SMC/SES (Safety) and SMC/PIP (Program Protection). Each organization with whom this list is coordinated will be solicited for a coordination signature indicating concurrence, concurrence with comments, or non-concurrence.

3.2.3.6. Resolution to any coordination resulting in either concurrence with comments or non-concurrence will be moderated by SMC/EAE. Any issues that cannot be resolved to the satisfaction of all parties will be elevated to SMC/EA for presentation of the technical issues and a binding resolution by the SMC Chief Engineer.

3.2.4. SMC Approval of SMC Compliance Standards list. The signature authority for the SMC Compliance Standards list is the SMC Chief Engineer (SMC/EA). SMC/EA will sign the initial SMC Compliance Standards list, and each update of that list.

**3.3. Interface with National Security & Other Government Agencies.** The SMC Core team, supported by SMEs, will coordinate with other National Security Space acquisition agencies, as well as other related agencies with interest in Space System S&S. on a regular basis. Coordination will include determination of need/priority for development/update of specific S&S, joint funding of S&S development and comparative analysis of specific S&S or organizational S&S compliance lists.

#### **4. SMC S&S Information Management.**

**4.1. Compliance Documents Archive.** SMC/EAE will archive the SMC Compliance S&S and provide access to these archives to all SMC Wings and Staff organizations. The S&S archive will include:

- 4.1.1. SMC Compliance Standards, and Standards in Process List
- 4.1.2. Approved SMC compliance documents, present and past, including Aerospace TORs
- 4.1.3. Status of SMC Compliance Standards program
- 4.1.4. SMC S&S program governance documents
- 4.1.5. SMC S&S program process and support tools

**4.2. S&S Document Distribution.** The approved SMC Compliance Standards list will be disseminated on the widest possible basis. SMC/EA's primary method of S&S documentation distribution is USAF LiveLink in a repository established and maintained by SMC/EAE. Access will be provided to all SMC Wings and Staff organizations. An informational message will be provided to all SMC/Wings and Staff Organizations (Executive Officers, Chief Engineers, and the SMC Chief Engineers' Council). The Aerospace Corporation will publish a Technical Operating Report (TOR) documenting the signed SMC Compliance Standards list, S&S program status, summary of changes from the prior version, and list of standards-in-process that may result in a future update to the SMC Compliance Standards list. An additional Aerospace TOR, in the form of a compact disc (CD), will be published containing the distributable S&S documents comprising the SMC Compliance Standards list. The Aerospace TORs will be distributed to:

4.2.1. The Aerospace Corporation management and MTS supporting SMC Staff and Wings or standards development

4.2.2. SMC EA personnel

4.2.3. SMC/Aerospace Chief Engineers

4.2.4. SMC SETA/SE&I contractor support community

4.2.5. Other National Security Space agencies, and

4.2.6. Contractors/Industry including SMC prime contractors, subcontractors and vendors. Each organization receiving a copy of the SMC Compliance Standards list, notification of update, or Aerospace TOR documenting the SMC S&S Program shall disseminate the list throughout their respective organization. SMC Wings may request a licensed copy of AIAA standards for exclusive use by the Wing from SMC/EAE. Copies will be provided if SMC/EAE has licensed copies available, otherwise the SMC Wings will need to obtain a licensed copy from the appropriate source (e.g. industry association or document clearinghouse). SMC-licensed copies of commercial standards cannot be provided to contractors or placed in a bidder's library for open use.

4.3. **RFP/Contract S&S Profile Repository.** The approved SMC Compliance Standards list that has been jointly approved by Wing Commander and SMC/EA for each RFP will be maintained in an on-line repository by SMC/EA. These lists shall include all tailoring and waivers or changes made during negotiations for the initial contract award.

**5. Application of SMC Compliance Standards.** The application of S&S to acquisitions begins with the approved set of compliance standards (SMC Compliance Standards) which are customized to match the acquisition program's objectives, taking into account cost, schedule and any other constraints. This involves SMC/EA working with each SMC program chief engineer. The SMC/EA (Chief Engineer) will review and sign off on the final negotiated S&S list which will establish the S&S baseline for the acquisition contract. SMC Wings shall coordinate S&S tailoring activities for each RFP with SMC/EA and PI, beginning early in the RFP development and continue through issuance of the contract. The tailoring process includes selection of applicable standards from the SMC Compliance Standards list as well as detailed tailoring of the individual standards. The SMC Compliance Standards list in effect at the time of the contracts' final two-letter Acquisition Strategy Panel shall be used. Additional compliance standards may be proposed by the Wing to meet program-peculiar requirements. Tailored S&S by SMC Wings must maintain the intent and spirit of the SMC S&S program in terms of both relevancy and sufficiency. This including tailoring of the SMC Compliance Standards list and additional program-peculiar standards, tailoring of the requirements within individual S&S, or inclusion of contractor-proposed additional tailoring or alternatives identified during the draft RFP process or industry days. The specific tailoring of the SMC Compliance Standards list and individual S&S to be invoked in each particular acquisition is subject to the review and approval of the SMC Chief Engineer.

5.1. **Specifications and Standards in RFP Development Process.** SMC/EA will facilitate and coordinate the SMC Wing application of SMC Compliance Standards list to SMC acquisitions. SMC/EA will work in cooperation with the Wings and staff organizations with acquisition and/or contracting responsibilities. SMC/EA support activities include:

5.1.1. Recommending SMC technical baseline compliance documents for use in specific acquisitions.

5.1.2. Reviewing and evaluating acquisition program documents relative to specific SMC acquisition contracts.

5.1.3. Reviewing and evaluating recommended tailoring of SMC Compliance Standards list documents.

5.1.4. Approving SMC Compliance Standards list documents for use in specific acquisition contracts.

5.1.1.1. Scope of RFP Discussions. The following support products and activities will be provided by SMC/EA to SMC Wings and/or ACE to facilitate the development of acquisition packages:

5.1.1.1.1. SMC Compliance Standards list.

5.1.1.1.2. SMC Compliance Standards documents from the SMC Compliance Standards list and sources for copyrighted or limited distribution documents.

5.1.1.1.3. References for SMC/EA recommended SMEs.

5.1.1.1.4. SMC/EA and/or SME review/comment on program-specific selection/tailoring of standards from the SMC Compliance Standards list, including additional standards proposed to be added by the Wing.

5.1.1.1.5. SMC/EA review/comment on proposed standards tailoring for RFPs.

5.1.1.1.6. SMC/EA facilitation (as required) of SME assessments and reviews.

5.1.1.1.7. SMC/EA approval of the completed standards selection/tailoring for specific SMC acquisition contracts.

5.1.2.1. Wing/EA Discussion of Acquisition Details. SMC Wings will provide program documentation and briefings/discussion With SMC/EA and other involved staff organizations to establish the necessary technical foundations for successful execution of this process, including discussions of:

5.1.2.1.1. Acquisition and anticipated project schedule.

5.1.2.1.2. Proposed acquisition strategy.

5.1.2.1.3. System architecture description.

5.1.2.1.4. Interfaces.

5.1.2.1.5. Project technical requirements.

5.1.2.1.6. Any other pertinent acquisition details.

5.1.3.1. Preparation of Compliance Standards and Tailoring for RFPs.

5.1.3.1.1. SMC/EA prepares a recommended compliance standards list for the acquisition program by selecting from the SMC Compliance Standards list and assisting SMC Wings and SMC Staff Organizations in tailoring to meet program objectives .

5.1.3.1.2. SMEs support SMC Wings and Staff Organizations through assisting in tailoring proposed compliance standards.

5.1.3.1.3. SMC Wings and Staff Organizations provide justification of S&S selection from the SMC Compliance S&S List, any additional standards added by the Wing, tailoring of standards, and selection of any reference documents.

5.1.3.1.4. SMC/EA reviews SMC Wings and Staff Organizations recommended Compliance Standards and any associated tailoring

5.1.4.1. Coordination/Review of Proposed Compliance Standards for RFPs. Coordination of S&S and tailoring begins with selection of compliance standards from the current approved SMC Compliance Standards list. This coordination process continues throughout the development of the RFP. Figure 3, SMC Compliance Standards Coordination, depicts the overall SMC/EA coordination process. The SMC S&SWG facilitates and manages the process. It includes participation and coordination of SMC Wings, SMC Staff Organizations, and assistance by Aerospace Corporation, and responses to draft RFPs by industry activities. The process progresses through SME review and comment, approval of selected standards and tailoring, culminating in coordination and concurrence by the SMC Chief Engineer, ACE, and Acquisition Strategy Panel (ASP) and publication of the final RFP.

5.1.4.1.1. SMC/EA supports SME and Wing reviews/comments on proposed compliance standards.

5.1.4.1.2. SMC Wings and Staff Organizations /EA jointly agree/approve Proposed Compliance Standards and tailoring for RFPs.

5.1.4.1.3. SMC Wings and Staff Organizations /EA jointly review and respond to questions, findings and comments from contractors/offerors resulting from draft RFP releases or source selection clarification requests.

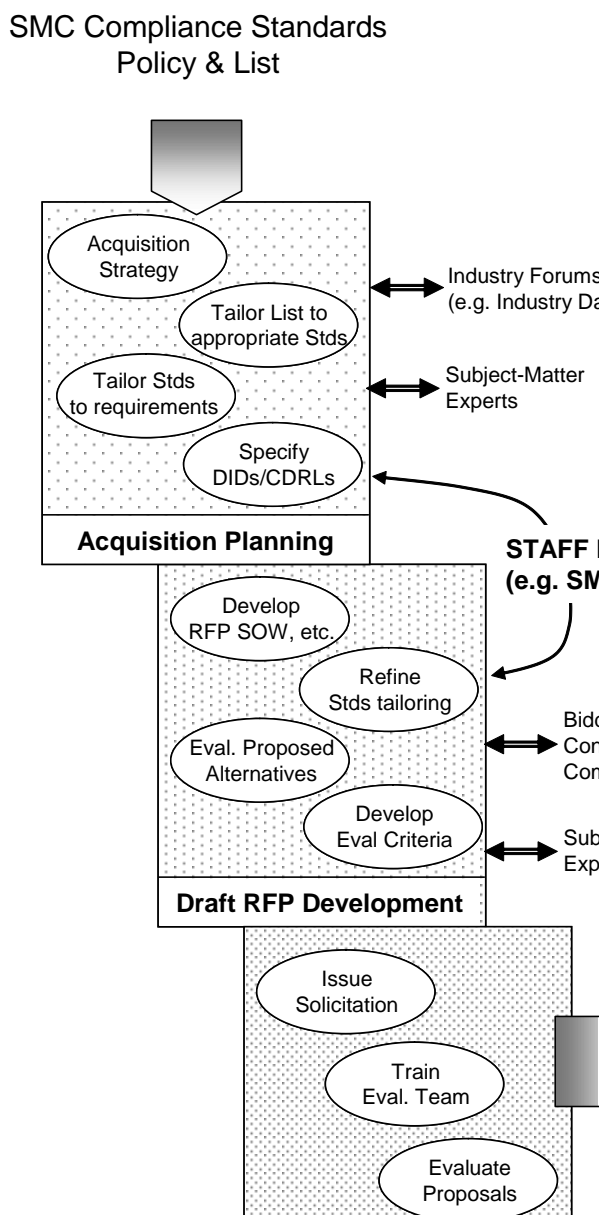
5.1.4.1.4. SMC/EA maintains repository of formally approved S&S list and associated tailoring for each SMC RFP.

5.1.4.1.5. SMC/EA and Wing Commander jointly formally approves S&S in final RFP package and contract.

5.1.4.1.6. During source selection, Wing Commander provides SMC/EA with any deviations from the formally agreed S&S list in the RFP; resolution to deviations must be approved by SMC/EA prior to contract award.

5.1.4.1.7. Upon contract award, Wing Commander submits copy of contract to SMC/EA prove compliance with agreed-upon S&S.

5.1.4.1.8. At contract award and during contract execution, any deviations from the agreed-upon S&S must be coordinated with SMC/EA. Any changes during contract execution will be documented in the conformed contract.

**Figure 2. SMC Compliance Standards Coordination.****5.2. Source Selection Support.**

5.2.1. SMC/EA will support source selection as an as needed, as requested basis. This support will include, but is not limited to:

- 5.2.1.1. Reference to, or supply of, SMEs to review S&S section of Offeror(s) proposal.
- 5.2.1.2. SMC/EA review of S&S section of Offeror(s) proposal.
- 5.2.1.3. Development of clarification questions for contractors based on S&S section of Offeror(s) proposal.



5.2.1.4. Source selection evaluation criteria score advise based on Offeror(s) proposal

5.2.2. Further tailoring of S&S during the proposal submittal/evaluation phase, such as contractor-specific implementation approaches (internal command media) can be proposed to satisfy the intent of the specification/standard specified in the RFP. Contractor-proposed tailoring or alternatives must be carefully evaluated by the Source Selection Authority to ensure the Government-industrial partnership is appropriately accountable to sound technical disciplines and the intent of the SMC S&S program. Proof of equivalency provided by the Offeror(s) shall be evaluated to ensure that the intent and technical rigor of the SMC Compliance standard is maintained (See Figure 2).

5.2.3. If Offeror proposed alternatives/implementations are found to be stable and the technical equivalent to the respective SMC Compliance Standard, the Offeror(s) proposed alternative must be formally incorporated into the contract as the SMC-approved equivalent compliance document.

5.2.4. All S&S included in the contract shall be monitored and evaluated by the SMC Wing throughout the acquisition to assure proper implementation.

### **5.3. Assessment of SMC Compliance Standards on Existing Contracts.**

5.3.1. SMC Wings and Staff Organizations should assess the impacts and cost/performance benefits of implementing the SMC compliance S&S on existing contracts, or changes to existing contracts. The assessment shall be conducted in conjunction with program re-baselining of requirements/funding, or ECPs occurring prior to CDR and above the limit set in the contract's changes or swing clause. This assessment should be completed as soon as practical and coordinated with the SMC Chief Engineer.

5.3.2. A S&S assessment will be conducted for each legacy acquisition contract but may be waived by mutual consent of Wing Commander and SMC Chief Engineer. The following criteria should be considered:

5.3.2.1. Class of program (per Mil-Handbook 1833).

5.3.2.2. Probability of acquiring required funding.

5.3.2.3. Number of remaining launches.

5.3.2.4. Criticality of launches.

5.3.2.5. Ground system operating life.

5.3.2.6. Probability of improving program execution success.

5.3.3. Documentation of the S&S assessment performed should include:

5.3.3.1. Assessment methodology.

5.3.3.2. List of S&S evaluated (SMC compliance and alternatives)

5.3.3.3. S&S evaluations, including

5.3.3.3.1. Technical requirements/merit assessment of each S&S or alternative

5.3.3.3.2. Basis of S&S selection (e.g. cost, schedule, performance, and contract

executability impacts) and

5.3.3.3.3. Required tailoring of selected S&S.

5.3.3.4. List of selected S&S, including specific tailoring language

5.3.3.5. Responses to SMC/EA review comments.

5.3.3.6. Action plan for implementation of S&S.

5.3.4. SMC Wings conducting S&S assessments will provide assessment results to SMC/EA for review and approval.

**5.4. Monitoring S&S Execution During Contract.** SMC/EA shall support the SMC Commander and/or Vice-Commander (SMC/CC/CV) Program Management Reviews (PMRs) to review all technical issues, including assessing the execution of S&S on each program. The Wing Commander will inform SMC/EA of any technical issues related to the execution of the contractual S&S for a joint resolution or plan of action. The Wing Commander will inform SMC/EA of any S&S issues to be discussed at formal technical reviews (e.g. SRR, SDR, PDR, CDR). SMC/EA will support these reviews to independently assess and facilitate resolution of the S&S-related issues. SMC/EA shall, as appropriate, conduct random or periodic monitoring of any SMC contract to assess implantation of the contractually-required S&S.

**5.5. Resolution of Disagreements.** As specified in Section 3.2 of this document, the SMC Chief Engineer (SMC/EA) is the principal decision authority for the SMC Compliance S&S program. Should irresolvable differences of opinion occur, elevation of the issue to SMC/CC/AFPEO-Space may be required.

5.5.1. Presentation to SMC/CC/AFPEO-Space. Presentations by SMC Wings and Staff Organizations must include concise statements of:

5.5.1.1. The issue to be resolved.

5.5.1.2. Reason(s) for which the issue could not be resolved at the Chief Engineer level.

5.5.1.3. Supporting data or study findings, including documentation of impact on the SMC Wing/Staff organizations and/or contract execution funding and schedule.

5.5.1.4. Recommended resolution.

5.5.2. SMC/CC/AFPEO-Space Resolution of Disagreements. The decision of SMC/CC/PEO-Space will be final and binding.

## **6. Training On Use & Generation of S&S.**

**6.1. Training courses.** SMC/EAE will prepare and deliver training courses on the SMC S&S program implementation. Course attendance shall be mandatory for SMC and support personnel involved in preparation/revision of standards or the planning, processing, or preparing elements of RFPs. Training course content will include discussions and descriptions of the following:

6.1.1. Standards: Use & Value in Acquisition – How definition of technical requirements helps manage contractor performance.

6.1.2. Incorporating S&S into solicitations (e.g., RFI, RFQ, RFP) for new contracts and modifications to existing contracts – How use of significant lessons learned prevents repetition of past mistakes.

6.1.3. Guidance for Tailoring S&S – How standards are customized to support program requirements and objectives.

6.1.4. Evaluating During Source Selection – How to confirm program requirements and objectives are in RFPs.

6.1.5. Preparing New or Revised Standards – How to assure standards are technically comprehensive and current state of the art.

JAMES R. HOREJSI, Col, USAF  
SMC Chief Engineer

**Attachment 1****GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****Abbreviations and Acronyms***

**ACE**—Acquisition Center of Excellence

**AF**—Air Force

**AIAA**—American Institute of Aeronautics and Astronautics

**ASAP**—Aerospace Standards Advisory Panel

**ASP**—Acquisition Strategy Panel;

**CC**—SMC Commander

**CV**—SMC Vice Commander

**DSAB**—Defense Space Acquisition Board

**EAST**—Engineering Acquisition Support Team

**EIA**—Electronics Industries Alliance

**ETTA**—Engineering, Technical, Test/Evaluation, and Architecting

**FFRDC**—Federally Funded Research and Development Centers

**IEEE**—Institute of Electrical and Electronics Engineers

**IPA**—Program Assessments

**ISO**—International Organization for Standardization

**MDA**—Missile Defense Agency

**Mil-Standards**—Military standards

**NASA**—National Aeronautics and Space Administration

**NRO**—National Reconnaissance Office

**NSS**—National Security Space

**OSS&E**—Operational Safety, Suitability, and Effectiveness

**PEO**—Program Executive Officer

**PSAB**—PEO Space Acquisition Board

**RFP**—Request for Proposal

**SER**—System Engineering Revitalization

**SETA**—System Engineering and Technical Assistance

**SMC**—Space and Missile Systems Center

**SMC OI**—SMC Office Instruction

**SMC/EA**—SMC Directorate of Engineering and Architectures

**SMCI**—SMC Instruction

**SME**—Subject Matter Expert

**S&S**—Specifications and Standards

**SPO**—System Program Office

**SQIC**—Space Quality Improvement Council

**TOR**—Technical Operating Report

**TR**—Technical Report

**UCMJ**—Uniform Code of Military Justice

**USAF**—United States Air Force

### *Terms*

**Specification**—<sup>1</sup> A document that prescribes, in a complete, precise, verifiable manner, the requirements, design, behavior, or characteristics of a system or system component. [IEEE 93b]

**Standard**—<sup>2</sup>(a) A document, established by consensus and approved by an accredited standards development organization, that provides for common and repeated use, rules, guidelines, or characteristics for activities or their results, aimed at the achievement of the optimum degree of order and consistency in a given context. [IEEE 91]

(b) Something set up and established by authority, custom, or general consent as a rule for the measure of quantity, weight, extent, value, or quality as a model or example.

**Technical Area**—The taxonomy of technical disciplines use as an organization method in the Compliance Documents for SMC Acquisition list (column 1)

---

<sup>1</sup> Software Engineering Institute (SEI). SEI Open Systems Glossary.  
<http://www.sei.cmu.edu/opensystems/glossary.html>

<sup>2</sup> Software Engineering Institute (SEI). SEI Open Systems Glossary.  
<http://www.sei.cmu.edu/opensystems/glossary.html>