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Standard for Preparing a DMSMS Management Plan

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Standard for Preparing a DMSMS Management Plan

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August 2011



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(Formulated under the cognizance of the TechAmerica Avionics Process Management Committee.)

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Standard for Preparing a DMSMS Management Plan

STD-0016

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ADOPTION NOTICE

TechAmerica-STD-0016, “Standard for Preparing a Diminishing Manufacturing Sources and Material Shortages (DMSMS) Management Plan,” was adopted on February 14, 2012, for use by the Department of Defense (DoD). Proposed changes by DoD activities must be submitted to the DoD Adopting Activity at DSPO@dla.mil, or Defense Standardization Program Office, 8725 John J. Kingman Road, STOP 5100, Attn: DMSMS Program Manager, Fort Belvoir, Virginia 22060. Copies of this document are available online at <http://www.techamerica.org/standards> (Online Standards Store).

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Purpose

The purpose of this document is to define the requirements for developing a Diminishing Manufacturing Sources and Materials Shortages (DMSMS) Management Plan. It is intended for use by system integrators, original equipment manufacturers (OEM), and logistic support providers of aerospace, defense and high reliability equipment to help develop their own DMSMS Management Plan, hereinafter also called the Plan, to document the processes used to meet the Technical Requirements detailed in [clause 5](#) which will minimize the impact that obsolete parts and materials have on equipment life cycle costs. It is not intended for use by suppliers of parts or materials.

This document states objectives to be accomplished; it does not specify how tasks are to be performed, specific data to be collected or reports to be issued. Those who prepare Plans in compliance with this document are encouraged to document processes that are the most effective and efficient for them in accomplishing the requirements stated in this document. In order to allow flexibility in implementing and updating the documented processes, Plan authors are encouraged to refer to their own internal process documents instead of including detailed process documentation within their Plans.

Organizations that prepare such Plans may prepare a single Plan, and use it for all relevant products supplied by the organization, or may prepare a separate Plan for each relevant product or customer.

Acknowledgements

This document was developed by a joint team consisting of members of the TechAmerica Avionics Process Management Committee, the Parts Standardization and Management Committee, and DoD representatives coordinated by the Defense Standardization Program Office. We would like to thank these individuals for their dedication to this effort. While the principal contributors are shown below, it is not possible to include all of those who assisted in the development of this Industry Standard. To each of them, members of the TechAmerica Avionics Process Management Committee extend their gratitude.

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1. Scope

This document defines the requirements for developing a DMSMS Management Plan, hereinafter also called the Plan, to assure customers that the Plan owner is using a proactive DMSMS process for minimizing the cost and impact that part and material obsolescence will have on equipment delivered by the Plan owner. The technical requirements detailed in [clause 5](#) ensure that the Plan owner can meet the requirement of having a process to address obsolescence as required by Industry Standards such as EIA-4899 “Standard for Preparing an Electronic Components Management Plan” and DoD Programs as required by MIL-STD-3018 “Parts Management”.

Owners of DMSMS Management Plans include System Integrators, Original Equipment Manufacturers (OEM), and logistics support providers.

2. Normative References

The following normative documents contain provisions that, through reference in this text, constitute provisions of this standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent additions of the normative documents indicated below. For updated references, the latest edition of the normative document referred to applies.

3. Informative References

The following is a listing of informative references.

EIA-STD-4899, Standard for Preparing an Electronic Components Management Plan

IEC TS 62239, Process Management for Avionics – Preparation of an electronic components management plan

EIA GEB1, Diminishing Manufacturing Sources and Material Shortages (DMSMS) Management Practices

ISO 9001:2000, Quality Management Systems - Requirements

SAE AS9100, Quality Systems – Aerospace – Model for Quality Assurance in Design, Development, Production, Installation and Servicing

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SAE AS9110, Quality Management Systems – Requirements for Aviation Maintenance Organizations

EIA-933, Standard for Preparing a COTS Assembly Management Plan

AS5553, Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition

MIL-STD-3018, Parts Management

SD-22, Diminishing Manufacturing Sources and Materials Shortages, A Guidebook of Best Practices and Tools for Implementing a DMSMS Management Program

VITA 53.0, Standard for Commercial Technology Market Surveillance

Defense Acquisition University, Performance Based Logistics: A Program Manager's Product Support Guide, March 2005

Office of the Secretary of Defense, Designing and Assessing Supportability in DoD Weapon Systems: A Guide to Increased Reliability and Reduced Logistics Footprint, October 2003.

Federal Aviation Administration COTS Risk Mitigation Guide: Practical Methods for Effective COTS Acquisition and Life Cycle Support, July 2003

DI-SESS-81656, Data Item Description Source Data for Forecasting DMSMS

4. Acronyms and Terms and Definitions

4.1 Acronyms

ASIC	Application Specific Integrated Circuit
BOM	Bill of Material
CAMP	COTS Assembly Management Plan
COTS	Commercial off-the-shelf
DMSMS	Diminishing Manufacturing Sources and Material Shortages
DoD	Department of Defense
EOL	End-of-Life
EOP	End of Production
F ³ I	Form-Fit-Function Interface
GIDEP	Government Data Industry Exchange Program
LRU	Line Replaceable Unit
NHA	Next Higher Assembly
NPV	Net Present Value
OCM	Original Component Manufacturer
ODR	Obsolescence Data Repository
OEM	Original Equipment Manufacturer
OIA	Operations Impact Assessment
PBL	Performance Based Logistics
PL	Parts List
RFI	Request for Information
SOS	Source of Supply
SOW	Statement of Work
SRA	Shop Replaceable Assembly
SRU	Shop Replaceable Unit
TDP	Technical Data Package
TOC	Total Ownership Costs
WRA	Weapon Replaceable Assembly

4.2 Terms and Definitions

For the purpose of this Standard, the following definitions apply. Plan owners may use alternative terms consistent with convention within their company in their plan if those terms are defined as required by clause 4.2.

After-Market Manufacturing – A business that obtains or develops and maintains the design, equipment and process rights to manufacture the component after the original manufacturer ceases production.

Alternate Source – A source of supply not designated in the part specification but is capable of providing the part.

Bill of Material (BOM) – A listing of parts and required quantities; electronic, electrical, mechanical and materials, used to identify repair parts or parts needed to fabricate (produce) a system or assembly. A BOM may include indenturing which depicts the top-down breakout relationship of parts to the next higher assembly.

Bridge Buy – Procurement of a sufficient number of parts to allow time to develop another DMSMS solution.

Certified – Indicates assessment and compliance to a standard and maintenance of a certificate and registration [i.e., JAN, SAE, etc.]. Certification is usually accomplished by a third party auditor.

Commercial-Off-The-Shelf (COTS) Assembly – An assembly developed by a supplier for multiple customers, whose design and configuration is controlled by the supplier's or an industry specification.

Diminishing Manufacturing Sources and Material Shortages – The loss or impending loss of manufacturers of items or suppliers of items or raw materials.

Distributor - An organization which buys parts with the intention to sell and distribute them in the market. Distributors are further classified as follows (see also AS5553):

- Broker Distributor: A type of independent distributor that works in a “just in time” environment. Customers contact the broker distributor with requirements identifying the part number, quantity, target price and date required. The broker distributor searches the industry and locates parts that meet the target price and other customer requirements.
- Franchised (Authorized) Distributor: A distributor with which the Original Component Manufacturer (OCM) has a contractual agreement to buy, stock, re-package, sell and distribute its product lines. When a distributor does not provide products in this manner, then for the purpose of this document, the distributor is considered an independent distributor for those products. Franchised distributors normally offer the product for sale with full manufacturing flow-through warranty. Franchising contracts may include clauses that provide for the OCM's marketing and technical support inclusive of, but not limited to, failure analysis and corrective action, exclusivity of inventory, and competitive limiters.
- Independent Distributor: A distributor that purchases new parts with the intention to sell and redistribute them back into the market. Purchased parts may be obtained from original equipment manufacturers (OEMs) or contract manufacturers (typically from excess inventories), or from other independent distributors. Re-sale of the purchased parts (re-distribution) may be to OEMs, contract manufacturers, or other independent distributors. Independent distributors do not have contractual agreements or obligations with OCMs.

Electronic Component - Electrical or electronic devices that are not subject to disassembly without destruction or impairment of design use. These are sometimes called parts, or piece parts. Examples are resistors, capacitors, diodes, integrated circuits, etc. Electronic components include electro/optical devices.

Electronic Equipment – An item produced by a supplier that incorporates electronic components. Examples are end items, sub-assemblies, shop-replaceable units (SRU) and line-replaceable units (LRU).

Emulation – Contracting with an emulation supplier to develop a form-fit-function-Interface (F³I) microcircuit replacement device from a mask configurable gate array. The internal configuration of the part is different, but the part is designed to meet all of the performance requirements of the original part specification.

End-of-Life (EOL) Date – The last date in which a manufacturer is willing to accept orders for an item.

Life Time Buy – Procurement of a sufficient quantity of a DMSMS part to meet full Production plus Sustainment requirements for the expected life cycle of the equipment.

Life Cycle – A generic term relating to the entire period of concept, definition, build, distribution, operation, sustainment and disposal of a product.

May - Indicates a course of action which is permissible within the limits of this document.

Obsolescence Data Repository (ODR) – A database containing information records concerning items that have past their end-of-life date and can no longer be procured, with possible solutions for future procurement needs

Open Systems Architecture – Design approach that uses publically available documents defining specification for interfaces, services, protocols, or data formats established by consensus and widely used in the marketplace.

Original Component Manufacturer (OCM) – The organization responsible for the component design, specification and its production.

Original Equipment Manufacturer (OEM) – The organization responsible for the equipment design, specification and its production.

Performance Based Logistics (PBL) – Programmatic system management strategy, particularly at the system and platform levels, in which responsibility for DMSMS and obsolescence planning, as well as continuous modernization and technology insertion is normally placed upon the System Integrator or Product Support Integrator.

Plan owner - The original design authority responsible for all aspects of the delivered equipment's design, functionality and reliability in the intended application and is responsible for writing and maintaining the DMSMS Management Plan.

Reclamation – Salvaging obsolete parts from unserviceable or surplus equipment.

Reverse Engineering – The process of developing an exact replica of an item by using technical data, disassembled and analyzed copies of the original part and test data.

Risk - A measure of the potential inability to achieve overall program objectives within defined cost, schedule, and technical constraints.

Risk Management - The act or practice of dealing with risk. It includes planning for risk, assessing (identifying and analyzing) risk areas, developing risk-handling options, monitoring risks to determine how risks have changed, and documenting the overall risk management program.

Shall - Indicates a requirement.

Should - Offers a guideline or recommendation that might be used or helpful to assure compliance to an objective.

Specification – A document that explicitly states essential technical attributes/requirements for a product and procedures to determine that the product's performance meets its requirements/attributes.

Subcontractor - A person or entity to which the holder of obligations under a contract has delegated part or all of such obligations.

Substitute Part – A part used as a replacement in equipment after the equipment design has been approved that has an acceptable degree of interchangeability.

Technology Refresh – Programmatic system management strategy to replace the electronics in a system over a specific period of time, usually with the goal of improved performance, reliability, and supportability.

Traceability – An identifiable association between items or processes, such as between a requirement and the source of the requirement or between a validation method and its base requirement.

Validation - The evaluation of an implementation of requirements to determine that they have been met.

Will - Expresses a declaration of intent when used in the context of being compliant to this document.

5. Technical Requirements

The Plan shall document the processes used by the Plan owner to meet each of the requirements in this clause. These requirements comprise the primary elements needed to implement a proactive DMSMS Management Process throughout the life cycle of the equipment and include:

- DMSMS Program Infrastructure
- Subcontractor DMSMS Management Strategy
- Sustainment DMSMS Strategy
- Design Concepts to Minimize DMSMS Risk and Impact
- DMSMS Monitoring and Surveillance
- Resolving DMSMS Issues
- DMSMS Risk Assessments

Figure 1 illustrates how these elements fit within the context of a Process flow.

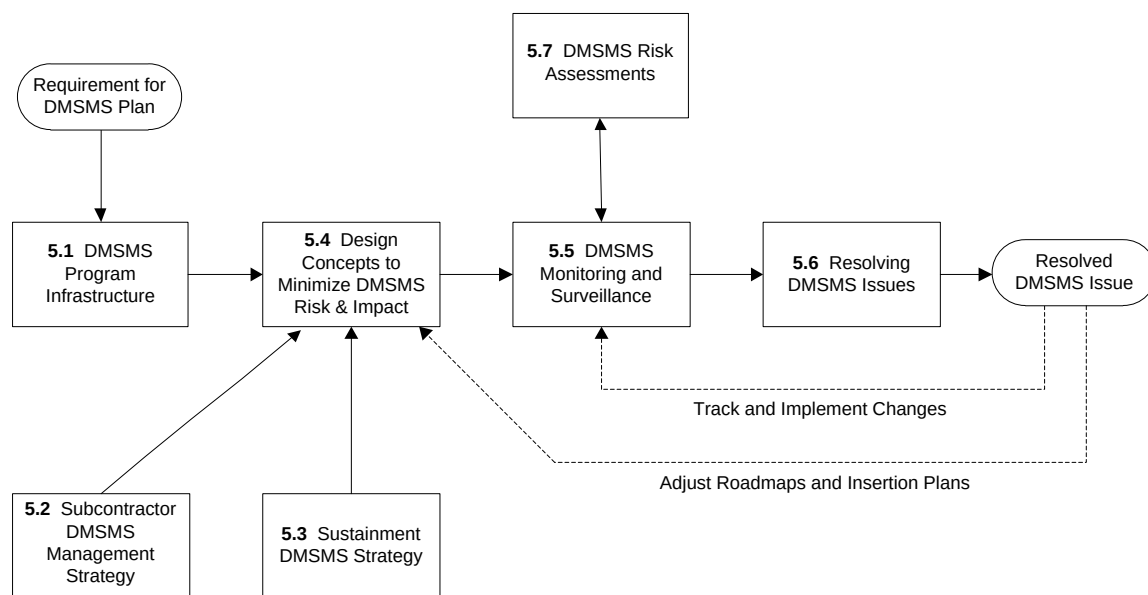


Figure 1 – Elements of the DMSMS Management Plan

In developing the Plan, the Plan owner may also need to scale the level of DMSMS management practices based on the life cycle phase of the equipment and customer/contract requirements. The DoD has recognized four different DMSMS “intensity” levels that Programs can implement. [Annex A](#) provides more details on how these different intensity levels are defined.

Where specific requirements do not apply the Plan owner may, with appropriate justification, amend the requirements by adding, deleting or modifying them. If this is done, the Plan shall be assessed according to the amended requirements as stated in the Plan. The processes documented in the Plan shall be in accordance with all relevant clauses of SAE AS9100 or equivalent.

The Plan owner shall also work with the customer to identify and document any special requirements that drive deviations to the Plan owner's standard process(es) and require tailoring of the Plan.

All requirements in clause 5 apply to deliverable equipment provided by the Plan owner who has responsibility for ensuring the requirements are met. This can be accomplished by the Plan owner or may be subcontracted. In either case the Plan owner has the responsibility for ensuring all requirements are met.

5.1 DMSMS Program Infrastructure

The Plan shall document the key elements created by the Plan owner to ensure that the DMSMS Management Program defined in the Plan is successfully implemented. These key elements shall include:

- Organizational Structure (see clause 5.1.1)
- Data Management System (see [clause 5.1.2](#))

A successful DMSMS Management Program requires that the Plan owner has sufficient financial resources available to implement the requirements in Clause 5.0. This is important because the proactive elements described in [clause 5.4](#) must be implemented at the beginning stages of the equipment's lifecycle. The Plan shall include a plan for funding the DMSMS management program including the implementation of solutions to identified DMSMS issues ([clause 5.6](#)). This is important for solutions that are time sensitive or are beyond what the Plan owner is contractually required by the customer to support. The Plan owner may wish to develop internal policies and/or work with the customer to address these situations.

5.1.1 Organizational Structure and Interfaces

The Plan shall document the organization used by the Plan owner to manage DMSMS. The Plan owner shall establish a DMSMS Team to perform this function and identify the primary DMSMS point of contact or focal. The DMSMS Team should have the support of individuals in the following functions as needed to execute the DMSMS management process:

- Engineering
- Supplier Management and Procurement
- Product Support or Logistics
- Manufacturing or Operations
- Contracts and Legal

- Finance
- Quality Assurance
- Configuration Management
- Program Management

The roles and responsibilities of the DMSMS Team shall be documented in the Plan.

The Plan shall also address the level of customer participation on the Team. This could include direct participation by customer representative(s) on the DMSMS Team or the formation of a joint Plan owner-Customer Team to address issues such as establishing DMSMS priorities and approving DMSMS solutions that require customer funding. The DMSMS Team shall also identify and establish the necessary interfaces to ensure the clear communication of data and information between the Plan owner, customer, and subcontractor(s).

5.1.2 Data Management System

The Plan shall also describe the Data Management System used by the Plan owner to manage DMSMS related information during the execution of the DMSMS Management process documented in the Plan. Tools and databases play a key role in the overall process and effective tool usage provides a high level of confidence that DMSMS issues are being addressed and tracked.

Program data management capabilities that should be addressed include:

- Proactive BOM Monitoring to cover all parts and materials required by the SOW.
- Timely DMSMS notification of issues to support the process defined in [clause 5.5](#).
- Performing DMSMS Risk Assessments/Predictions to provide Plan owner insight on potential risk areas requiring risk mitigation activity.
- Part Selection and Replacement Identification for evaluating the suitability of potential alternate or substitute parts for a known DMSMS part.
- Supporting Business Case Analysis for evaluating DMSMS solutions per the process defined in [clause 5.6](#).
- A database or electronic repository for tracking status on DMSMS issues until approved resolutions are implemented and holding these case histories.
- Providing inventory, demand and field reliability information to assess the potential impact of a DMSMS issue to the Plan owner including tracking consumption of last time buy inventory.
- Access to Maintenance and Support Data for assessing the potential impact of a DMSMS issue on Depot and Product Support and for performing trade studies to determine the potential sustainment impact of each DMSMS solution being considered.
- Calculating Cost Avoidance Metrics to help measure the effectiveness of the DMSMS Management Process using Plan owner methodology or the cost avoidance metrics defined in SD-22 “Diminishing Manufacturing Sources and Materials Shortages, A Guidebook of Best Practices and Tools for Implementing a DMSMS Management Program”.