

AIAA/ANSI
R-100-1997

Recommended Practice

Recommended Practice for Parts Management

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American National Standard

Recommended Practice for Parts Management

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Abstract

This AIAA standard establishes a parts management approach that is consistent with the new acquisition reform business environment. Acquisition reform, as viewed by industry and government, is a shift in business philosophy from a control paradigm to a performance-based process. The explosive growth of the commercial market for electronic components and corresponding decrease in aerospace and defense industry market share, have caused the government and industry to seek alternative methods for managing parts for aerospace and defense products. To develop a solution to this complex problem, industry and government teamed to develop strategies for mitigating potential risks. The result of this team effort is a non government standard on parts management. The strategy is to manage risk up front by selecting the right part for the intended application. This approach is far more important than attempting to control all individual piece parts, especially in light of issues such as parts obsolescence, diminishing sources, and technology insertion. Ten key elements which need to be considered when selecting a part should be incorporated into a parts management plan. In addition, knowing suppliers and sharing data with them encourages best value on performance, cost, and schedule.

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Foreword

The Department of Defense (DOD) decision to reform its acquisition policies and encourage the use of commercial components and a Recommended Practice presents a challenge and an opportunity to the Aerospace and Defense industry. The DOD's blueprint for change, as mandated by the Secretary of Defense, calls for the use of performance and commercial specifications in Defense Industry and requires a baseline in a form of a Recommended Practice that ensures the performance, reliability, cost competitiveness, life-cycle projections, on-time delivery, manufacturing process controls, and long-term viability of parts and materials.

The industry/government Part Acquisition Reform Team (PART) was formed to develop and maintain this performance-based Recommended Practice to replace military specifications for parts and materials management. This initiative is a phased approach focused on an economic solution to manage the future direction of parts and materials acquisition.

During the second half of 1995, several prime aerospace contractors, subcontractors, and suppliers joined in a consolidated team effort to evaluate parts issues such as deletion of specifications and standards, parts obsolescence, and off-shore manufacturing. Additional emphasis was placed on the development of criteria for proposal evaluation in a "spec-less" environment.

Senior members of the DOD and NASA recommended that industry be responsible for the development of this Recommended Practice approach for parts and materials management. In the Spring of 1996, AIAA agreed to provide a consensus body for completion of the project. It was assigned to the existing Reliability Committee on Standards, and the PART committee was recognized as the consensus body.

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Comments and suggestions on the elements contained in this Recommended Practice should be forwarded to the PART Executive Committee c/o:

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At the time of approval, the AIAA Reliability Committee on Standards consisted of the following members:

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it for publication on May 9, 1997.

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ADOPTION NOTICE

AIAA R-100-1996, "Recommended Practice for Parts Management," was adopted on May 7, 1997, for use by the Department of Defense (DoD). This document contains industry-identified best practices. It is cited in Section 2.6.G of the DoD Acquisition Deskbook as a "Discretionary Practice." DoD activities may use this document when evaluating parts management strategies proposed by offerors.

Proposed changes by DoD activities must be submitted to the Space and Missile Systems Center, SMC/SDFP, 160 Skynet Street, Suite 2315, Los Angeles AFB, CA 90245-4683. DoD activities may obtain copies of this standard from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094. The private sector and other Government agencies may purchase copies from the American Institute of Aeronautics and Astronautics, 1801 Alexander Bell Drive, Suite 500, Reston, VA 20191-4344.

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1.0 Introduction

1.1 Scope

This Recommended Practice addresses the preferred program elements adopted by the aerospace industry (military, space, and commercial) for parts management. It is written in general terms as a baseline for implementing a parts management program. It may be cited as a baseline within a statement of work and/or for assessing proposals and contractor performance. All levels of contractual relationships (acquiring activities, primes, subcontractors, and suppliers) may use this document. The approaches cover electrical, electronic, and electro-mechanical (EEE) and mechanical parts. The user is responsible for integrating the various elements of this Recommended Practice as appropriate to the program.

1.2 Purpose

The purpose of this Recommended Practice is to assist contractors in the development of a parts management plan.

1.3 Background

Diminishing sources of military and space parts, are leading to the use of commercial parts which will result in substantial nonrecurring engineering (NRE) cost increases in current and future programs. The cost increases are incurred due to the need to establish a new reliability baseline through design, redesign, or modification of current systems, as well as analysis, and test of systems and subsystems utilizing these commercial parts. The availability of radiation tolerant/hardened parts is most at risk.

The trend of technology obsolescence and diminishing manufacturing sources of military and radiation-hardened parts, materials, and equipment has been rapidly escalating due to a relative decline in the defense market coupled with the explosive growth of the commercial marketplace. Within the microcircuit industry, for example, military sales have declined from 16 percent to less than 1 percent of the total market (Figure 1). This shrinking market has prompted an increase in the number of products discontinued each year (Figure 2). As a result, industry has increasingly

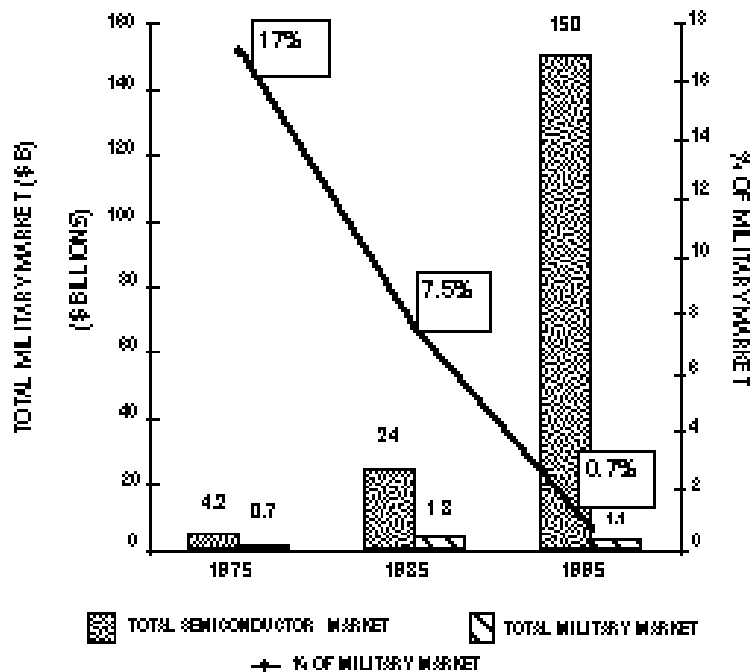


Figure 1. Declining Military Market Share