ORGANIZATIONAL MISSION ASSURANCE STANDARD

Reliability, Maintainability, Availability, and Dependability Program ***SET ™***

Revision: 2 **Release: 03-30-2011** **Effective: 03-30-2011**

STANDARD

OBJECTIVE

This Standard defines *SET*'s approach for implementing a Reliability, Maintainability, Availability and Dependability (RMAD) Program. Through the interpretation and implementation of this Standard, *SET* will tailor RMAD Programs to achieve all pertinent mission assurance requirements which are commensurate with the unit-value/criticality of its products. At the time this Standard was written, *SET* did not develop any very-high or ultra-high unit-value products.

Note: Guidance for product unit-value/criticality determination is found in Figure 1.

APPLICABILITY

This Standard applies to all present and future *SET* sites/facilities, programs/projects, business lines/services, functional organizations/working groups, and employees/subcontractors, regardless of whether an RMAD Program has been contractually imposed.

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Note: The terms and acronyms used in this Standard are defined in Section 3.

1. Introduction

This Standard establishes the general requirements for a Space Environment Technologies (*SET*) Reliability, Maintainability, Availability and Dependability (RMAD) Program.

1.1 Scope

This Standard applies to all present and future *SET* sites/facilities, programs/projects, business lines/services, functional organizations/working groups, and employees/subcontractors, regardless of whether an RMAD Program been contractually imposed.

1.2 Purpose

SET's RMAD Programs are authorized in accordance with this Standard, with responsibility and authority to

1) Ensure all reliability, maintainability, availability, and dependability risks are balanced within the project's objectives, constraints, and budget,

2) Evaluate potential failure modes across the product life cycle, as applicable, and

3) Quantify the inherent and operational reliability of the product.

The implementation of an RMAD Program to evaluate potential failure modes during the design, manufacture, assembly, testing, transportation, and operational phases of all high unit-value products, will be required either by contract or by this Standard. If the planning for an RMAD Program does not address all of the pertinent requirements called out in the contract or this Standard, then the Lead Reliability Engineer (LRE) will provide documented evidence that verifies only negligible or non-credible failure modes are associated with the requirements not addressed.

Through the interpretation and implementation of this Standard, *SET* will define and implement RMAD Programs that are commensurate with the unit-value/criticality and product life cycle of the products they are applied to. Figure 1 provides *SET's* product unit-value/criticality categorization.

Figure 1. SET Product Unit-Value/Criticality Categorization.

Ultra-High Unit-Value / Criticality Products	Very-High Unit-Value Criticality / Products	High Unit-Value / Criticality Products	Medium Unit-Value / Criticality Products	Low Unit-Value / Criticality Products
• Defense satellites • Launch vehicles • Long-range missiles • Nuclear weapons • Nuclear power plants	• Commercial / communications satellites • Fossil fuel / hydro-electric power plants • Oil tankers • Off shore oil rigs • Water filtration plants • Short-range missiles/rockets • Passenger aircraft / helicopters • Military aircraft / helicopters • Military drones / unmanned vehicles • Naval vessels • Passenger trains / buses • Cruise liners • Safety-critical hardware / software components • Satellite ground control stations	• Science satellites • Cargo ships • Mobil / mechanized weapons • Freight trains • Amusement park rides • Elevators / escalators • Small private aircraft / helicopters • Automobiles / trucks / motorcycles • Mission-critical hardware / software components • Construction / demolition / excavation equipment • Satellite communications relay stations	• Industrial electronics • Personal computers / peripherals • Industrial computers / peripherals • Farm equip • Medical / laboratory equip • Factory machinery • Handheld construction / demolition / excavation equip • Communications / utility equip • Explosive devices • Test / monitoring hardware/software components • Computer operating system software • Prototype systems / components	• Motorized / manual hand tools • Fire arms • Consumer electronics • Household appliances • Batteries • Battery operated toys • Infant/ children toys • Computer application program software