TECHNICAL REPORT

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(R) Requirements for an Electronic Components Management Plan

RATIONALE

This standard was created to define consistent electronic components management requirements for developing electronic component management plans. This revision clarifies and updates these requirements to better address current electronic components issues.

FOREWORD

This document defines the requirements for developing an Electronic Components Management Plan (ECMP), hereinafter also called the Plan, to assure customers and regulatory agencies that all of the electronic components in the equipment of the Plan owner are selected and applied using controlled processes compatible with the end application: aerospace, defense, and high performance (ADHP) equipment. This is accomplished by documenting and implementing the processes required in Clause 3 of this document.

In this document, electronic components are defined as "electrical or electronic devices that are not subject to disassembly without destruction or impairment of design use. They are sometimes called electronic parts, or piece parts."

Electronic components may be either commercial-off-the-shelf (COTS) or custom-designed for the application. A COTS electronic component is defined as "*An electronic component developed by a supplier for multiple customers, whose design and configuration are controlled by the supplier's or an industry specification.*" While there are still some electronic components that are custom-designed for ADHP applications, the vast majority of electronic components used in ADHP applications are COTS components[1]. Thus, for the majority of ADHP applications, it will be impossible for the organization that integrates the electronic component into the application to flow down the requirements of Clause 3 to the component manufacturer, and they must be accomplished by the integrator. In the minority of cases where the requirements of Clause 3 can be flowed down to the component manufacturer, the integrator has the choice of either accomplishing the requirements for those components, or flowing them down.

The Plan documents the processes that the Plan owner has available to address the requirements of this document. For each instance of electronic component integration into ADHP equipment, the Plan owner selects which of the documented processes will be used, based on the application requirements.

NOTE: Appendices A and B are not subject to copyright restrictions.

[1] COTS components are not to be confused with COTS assemblies, which are defined as: *"An assembly developed by a supplier for multiple customers, whose design and configuration is controlled by the supplier's or an industry specification."* COTS assemblies are further described in Reference 1.

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1. SCOPE

This document applies to the development of Plans for integrating and managing electronic components in equipment for the military and commercial aerospace markets; as well as other ADHP markets that wish to use this document.

Examples of electronic components, as described in this document, include resistors, capacitors, diodes, integrated circuits, hybrids, application specific integrated circuits, wound components, and relays.

It is critical for the Plan owner to review and understand the design, materials, configuration control, and qualification methods of all “as-received” electronic components, and their capabilities with respect to the application; identify risks, and where necessary, take additional action to mitigate the risks.

The technical requirements are in Clause 3 of this standard, and the administrative requirements are in Clause 4.

2. REFERENCES

For dated references, only the revision cited applies. For undated references, the latest revision of the referenced document (including any amendments) applies.

1. Standard for Preparing a COTS Assembly Management Plan, TechAmerica EIA-933.
2. Process management for avionics – Electronic components capability in operation – Part 1: Temperature uprating, IEC TR 62240-1.
3. Long-term Storage of Electronic Devices, TechAmerica GEIA-STD-0003.
4. Environmental Conditions and Test Procedures for Airborne Equipment, RTCA DO-160, Radio Technical Corporation of America.
5. High Temperature Storage Life, JESD22-A103, JEDEC©.
6. Temperature, Bias, and Operating Life, JESD22-A108, JEDEC©.
7. Low Temperature Storage Life, JESD22-A119, JEDEC©.
8. Temperature Cycling, JESD22-A104, JEDEC©.
9. Process management for avionics- Atmospheric radiation effects, IEC 62396, Parts 1-5, International Electrotechnical Commission.
10. Measurement and Reporting of Alpha Particles and Terrestrial Cosmic Ray-Induced Soft Errors in Semiconductor Devices, JESD89, JEDEC©.
11. Cycled Temperature-Humidity-Bias Life Test, JESD22-A100, JEDEC©.
12. Accelerated Moisture Resistance-Unbiased HAST, JESD22-A120, JEDEC©.
13. Moisture/Reflow Sensitivity Classification for Nonhermetic Solid State Surface Mount Devices, J-STD-020, JEDEC©.