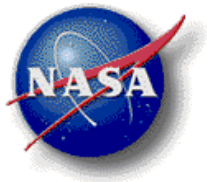


Standard for JSC Lead-Free Control Plans (LFCP)

Engineering Directorate
Avionic Systems Division

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July 2013
Baseline

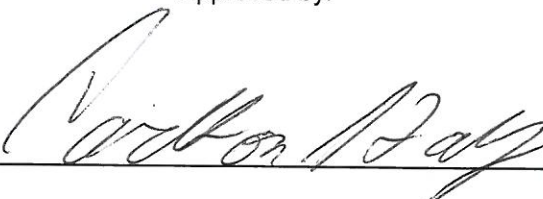


National Aeronautics and Space Administration
Lyndon B. Johnson Space Center
Houston, Texas 77058-3696

STANDARD FOR JSC LEAD FREE CONTROL PLANS (LFCP)

July 2013

Approved by:

 8/21/13

Chair, EEE Parts Control Board

 8/22/13

for Chief, Avionic Systems Division

 9/23/13

Chair, JSC Technical Standards Control Board

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Change Record

Rev.	Date	Originator	Approvals	Description
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TABLE OF CONTENTS

1	GENERAL REQUIREMENTS	5
1.1	SCOPE	5
1.1.1	AUTHORITY	5
1.2	PURPOSE	5
1.3	APPLICABILITY	5
1.4	ORDER OF PRECEDENCE.....	5
1.5	APPROVAL OF DEPARTURES FROM THIS DOCUMENT	5
1.6	ROLES AND RESPONSIBILITIES.....	6
2	APPLICABLE DOCUMENTS	8
2.1	JSC DOCUMENTS	8
2.2	NASA STANDARDS AND DIRECTIVES.....	8
2.3	MILITARY STANDARDS	8
2.4	INDUSTRIAL STANDARDS	8
2.5	REFERENCE DOCUMENTS	9
3	LEAD-FREE CONTROL PLAN (LFCP)	10
3.1	PROJECT LEAD FREE CONTROL PLAN (LFCP) REQUIREMENTS	10
3.1.1	LEAD-FREE CONTROL LEVEL DESIGNATION.....	11
3.1.2	LEAD-FREE TIN IDENTIFICATION AND REPORTING	11
3.1.3	TIN WHISKER RISK DOCUMENTATION.....	11
3.1.4	TIN WHISKER MITIGATION	11
3.1.4.1	DESIGN.....	11
3.1.4.2	HOT SOLDER DIP (HSD)	11
3.1.4.2.1.	PRETINNING (PARTIAL HSD MITIGATION)	12
3.1.4.3	CONFORMAL COATING	12
3.1.4.4	EMBEDMENT / ENCAPSULATION.....	13
3.1.5	SURVEILLANCE (INSPECTION & FUNCTIONAL TEST).....	15
3.1.6	TIN PEST (TIN DISEASE) MITIGATION	15
4	ACRONYMS AND ABBREVIATIONS AND GLOSSARY OF TERMS	16
4.1	ACRONYMS AND ABBREVIATIONS.....	16
4.2	GLOSSARY OF TERMS.....	16

1. GENERAL REQUIREMENTS

1.1 SCOPE

This document prescribes requirements for the control and mitigation of performance and reliability risks associated with the use of Lead-free Tin (Sn) and Lead-free Tin (Sn) technology in flight hardware, mission essential support equipment, and elements thereof.

1.1.1 AUTHORITY

The authority for this document derives from requirement 5.f.5 of NASA Policy Directive 8730.2C (NPD-8730.2c) "NASA Parts Policy".

1.2 PURPOSE

This standard imposes a Lead-Free Control Plan (LFCP) to reduce the harmful effects of tin whiskers or tin pest in JSC-certified spaceflight hardware.

1.3 APPLICABILITY

This document is applicable to JSC projects and programs, including JSC onsite and offsite contractors, developing and producing flight hardware, mission essential support equipment, and elements thereof.

1.3.1 Commercial Off-The-Shelf (COTS). The requirements of this document **shall not** apply to suppliers of commercial off-the-shelf (COTS) items. Projects which use COTS hardware for applications described above shall be responsible for identifying and managing risks associated with hardware that was built without a control plan to reduce the harmful effects of tin whiskers. The International Space Station (ISS) program document, SSP 50835, provides guidance on how a Program may address the impact of utilizing COTS hardware that was built without a control plan.

1.3.2 Existing or Previously Approved Designs. The requirements of this document **shall not** constitute the sole cause for the redesign of previously approved designs. When drawings for existing or previously approved designs undergo revision, they should be reviewed and changes made that allow for compliance with the requirements of this document.

1.4 ORDER OF PRECEDENCE

The following **shall** be applicable in the resolution of conflict between the requirements or the text of this document; and, applicable documents, and approved / unapproved engineering documentation in the order indicated:

- a. Program Requirements
- b. This Document
- c. Engineering Documentation (i.e. : Approved Drawing)

1.5 APPROVAL OF DEPARTURES FROM THIS DOCUMENT

Any changes, revisions, or deviations to the requirements of this document **shall** require technical evaluation and approval by the JSC Lead Free Control Board (LFCB) with the programs having waiver authority.

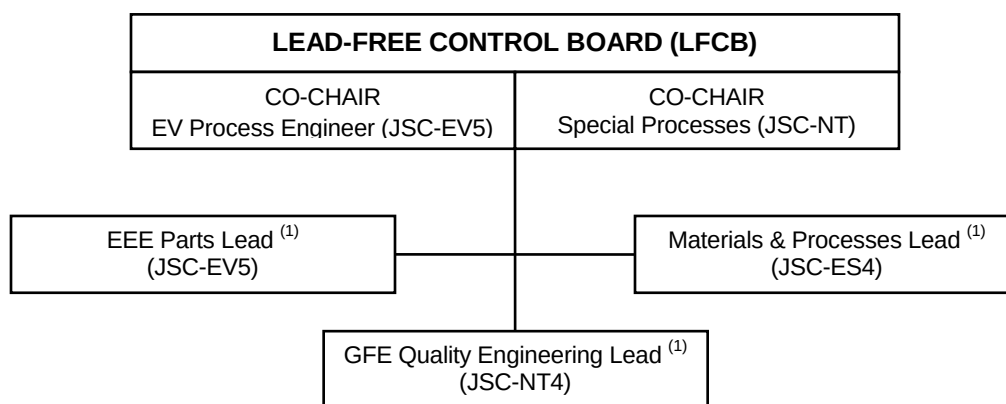
- a. Use of alternate control plans, documents, or processes **shall** require review and approval of the JSC Lead Free Control Board (LFCB)
- b. Less stringent control plans, documents, or processes meeting Level "2B" are allowed in exceptional cases with the review and recommendation of the EEE Parts Control Board (EEE-PCB) and approval of the Lead Free Control Board (LFCB).
- c. Requests for relief from requirements in this document **shall** be documented and adjudicated in accordance with NASA-STD-8709.20, Management of Safety and Mission Assurance Technical Authority (SMATA) Requirements as implemented by the programs.

1.6 ROLES AND RESPONSIBILITIES

- a. Project Function. Project **shall** generate a Lead-Free Control Plan (LFCP) in compliance with the requirements of this document. Reference Appendix A, *Project LFCP Template*, as the minimum content required for a Lead-Free Control Plan (LFCP).
- b. Lead-Free Control Board (LFCB). The Lead-Free Control Board (LFCB) outlined in Figure 1 and co-chaired by Avionic Systems Division (JSC-EV) Process Engineering (JSC-EV5) and Special Processes (JSC-NT), **shall** be convened on an as needed basis as a decision-making forum for the technical review and approval of requests for:
 - (1) changes, revisions, or deviations to the requirements of this document
 - (2) use of alternate control plans, documents, or processes

The LFCB is the controlling authority for establishing the configuration baseline for all Lead-Free Control Plans (LFCPs). The co-chairs of the LFCB are permanent members of the EEE Parts Control Board (EEE-PCB) and the LFCB is part of the EEE-PCB.

- c. EEE Parts Control Board (EEE-PCB). Reference JSC 64182 for the Charter for the Avionic Systems Division Government Furnished Equipment (GFE) Electrical, Electronic and Electromechanical (EEE) Parts Control Board (PCB).



(1): Or designated alternate

Figure 1: Lead-Free Control Board (LFCB)