

LEAD Free Language For Statement of Work

LEAD FREE LANGUAGE
for
STATEMENT OF WORK

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1. Applicable Documents

The following documents, of the issue indicated, form a part of this Statement of Work to the extent specified herein; including all applicable terms, conditions, clauses, Attachments and Exhibits.

Standards

IPC A-610	Acceptability for Electronic Assemblies
IPC J-STD-001	Requirements for Soldered Electrical and Electronic Assemblies
IPC-J-STD-609	Marking and Labeling of Components, PCBs and PCBAs to Identify Lead (Pb), Pb-Free and other Attributes
GEIA-STD-0005-1	Performance Standard for Aerospace and High Performance Electronic Systems Containing Lead-Free Solder
GEIA-STD-0005-2	Standard for Mitigating the Effects of Tin Whiskers in Aerospace and High Performance Electronic Systems

Other Documentation

NPD 8730.2c	Parts Policy NASA Policy Directive
DoD LSA_SOLD 08_01 to 08_07	DoD Documents – Policy and Guidance on Lead Free

2. Requirements

2.1 Program Management

2.1.1 Staffing

The Contractor's staffing shall give evidence of adequacy to support the planning for, and execution of production contracts for XXX equipment. The Contractor shall train purchasing, receiving and assembly personnel on handling procedures to distinguish and control components and assemblies that contain Lead (Pb) and those that are Lead free (Pb-free). The Contractor shall ensure that all personnel are trained in the awareness of Pb-free issues and effects.

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2.1.2 Program Reviews

The Contractor shall hold Quarterly reviews as necessary and in agreement with the Technical Design Agent and Program Manager, to discuss Lead Free issues. The Contractor shall communicate fulfillment of requirements with a customer briefing which shall include; the schedule of program implementation of the SOW, a Lead Free Control Plan (LFCP), updated program risk management plan, configuration control plan, recommended rework/repair procedures, mitigation procedures, cost impact analysis, performance and reliability impact. The Government shall retain and exercise the right to hold additional informal reviews at mutually convenient times to follow progress and problems which may exist.

2.1.3 Lead Free Control Plan

The Contractor shall have an approved Lead-Free Control Plan (LFCP) that meets the requirements as outlined in GEIA-STD-0005-1, section 5 and GEIA-STD-0005-2 Section 3. The Contractor shall comply with GEIA-STD-0005-1 to assure the performance, compatibility, reliability, safety and verifiability of Pb-free product(s). This includes special design considerations, manufacturing process controls, test and qualification requirements, quality inspection and screening, marking and identification, maintenance and repair processes, and other steps taken to mitigate risks to ensure the reliability of hardware for the intended application.

Control Level(s)

2.1.3.1 Contractor shall develop and deliver a control plan to reduce the harmful effects of tin whiskers that meets “**LEVEL 2C**” requirements set forth in section 3.2.4 of GEIA-STD-0005-2 for ***(List Specific Weapons Systems) Critical electronics.***

2.1.3.2 The Contractor LFCP shall be managed to Control **Level 2A** requirements set forth in section 3.2.2 of GEIA-STD-0005-2 for **Test equipment and any other non-critical electronics (List Specific Equipment).**

(List any other specific control level requirements in this section using same format.)

2.1.3.3 The Contractor shall implement at least **2** mitigation measures in Control Level 2C electronics in accordance with section(s) 3.2.4.3 of GEIA-STD-0005-2 with criteria approved by appropriate Program Technical Authority.

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2.1.3.4 The Contractor shall implement appropriate Mitigation measures chosen from section 3.3.3 of GEIA-STD-0005-2 or supply alternative measures with equal or better reliability. Measures are to be approved by Program Technical Authority.

2.1.4 Lead Free Monitoring and Conformance

2.1.4.1 Contractor

The use of lead-free (Pb-free) solders or Pb-free Tin (Sn) based part surface finishes may be allowed when justified by technical need, but only by exception and with the approval of Program Technical Authority or Program Manager. The Contractor shall submit a Class II ECP to obtain approval.

The Contractor shall provide a plan for monitoring materials in their product in accordance with section 3.3.2.1 of GEIA-STD-0005-2. The Contractor and Customer shall reach an agreement regarding this plan for Level 2C products. This plan will include a level of active inspection techniques such as XRF or EDS outlined in Annex C, section C1 of GEIA-STD-0005-2.

2.1.4.2 Sub Contractors and Suppliers

The Contractor shall flow down applicable requirement of this SOW to contractors, sub-contractors, suppliers and grantees as outlined in section 3.3.1.4 of GEIA-STD-0005-2.

2.1.4.2.1 The Contractor shall implement a plan to assure that sub-tier suppliers are identifying, controlling and mitigating the risks of Pb-free materials including the effects of tin-whiskers in their products as outlined in section 5.3, 5.4 and 6.4 of GEIA-STD-0005-1.

2.1.4.2.2 The Contractor shall have available for review by the program manager or designee, a procurement assessment of their suppliers that are transitioning to Pb-free. All risks from sub-tier suppliers concerning the Pb-free transition shall be included in the contractor's subcontractor control plan.

2.1.4.2.3 The Contractor shall assure that elements of the subcontractor control plan include piece parts, procured printed wiring boards, procured assemblies and peripheral hardware (including cables, wiring, etc.). The subcontractor control plan should include piece parts that are transitioning to Pb-free.

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2.1.4.2.4 The Contractor shall require a Certificate of Conformance (CoC) with all purchases.

2.1.4.2.5 The Contractor shall verify and confirm CoC in Quarterly report.

2.1.4.3 Government

The Government will perform surveys, audits, product inspections, qualification testing, risk assessments, and production line certifications to verify the capability and qualification of supply sources. The results of surveys, audits and product inspections performed by other centers, other Government agencies, accredited third-party organizations, or the private sector may be utilized on a risk-informed basis as supplement to, or a substitute for direct surveillance.

2.2 Manufacturing Planning

The contractor shall conduct operational risk assessments associated with the introduction of Pb-free solder and finishes into critical piece parts, assemblies, and subsystems to identify potential risks from failure due to Pb-free transition per GEIA STD-0005-2 section 3.3.4.

2.3 Configuration Management

2.3.1 Configuration Control

2.3.1.1 All changes to the Technical Data Package that involve material changes from Lead to Lead-Free must be submitted as a Class II ECP to the Program Technical Authority for review and technical concurrence.

2.3.1.2 Program Manager will be the approval authority for all Class II ECPs that involve material changes from Lead to Lead-Free.

All Class II ECPs submitted by the Contractor for government review (or approval for Lead Free issue) shall include a complete package of drawing revision sheets, Notices of Revision (NORs), Specification Change Notices (SCNs), revised parts lists, and other necessary technical data package change pages to document the proposed change. This documentation shall be of sufficient quality and accuracy for release concurrent with ECP approval by the Contractor CCB or Program Management as applicable.

2.3.2 Lead Free Configuration Management

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2.3.2.1 The Contractor shall identify Lead-free components, connectors and assemblies in Technical documents including Weapons specifications, Item specifications and Technical drawings per GEIA-STD-0005-2 section 3.3.1.3.

2.3.2.2 The Contractor will mark and label approved tin solder or tin finish components, Printed Circuit Boards (PCBs) and Print Circuit Board Assemblies (PCBAs) using industry standard IPC-J-STD-609 per GEIA-STD-0005-1 section 6.2.5.

2.3.2.3 If no tin solder or tin finished COTS or any other tin finished electrical or electronics components exist in the manufactured end-item, the Contractor shall provide a written CoC as a part of the As-Built Configuration Data Lists.

2.4 Manufacturing Processes applicable to Lead-Free Materials

2.4.1 Materials

The contractor shall avoid use of Pb-free tin whenever possible. The Contractor shall use whenever possible Tin-Lead (Sn-Pb) based solders and Sn-Pb part surface finishes (minimum 3% Pb by weight) for the assembly of electronics hardware (Components, Boards, Card Cages, Cabinets, Connectors and other electrical assemblies) for Weapons Systems Electronics per GEIA-STD-0005-2 section 3.2.4.1.

2.4.2 Methods

The Contractor shall comply with the latest revisions of Soldering and Electronic Assembly standards for Class 3 Electronics as defined in IPC-A-610 and J-STD-001. The Contractor shall ensure that all technicians follow approved standard.

2.4.3 Rework

The Contractor shall use eutectic Sn-Pb solder for all rework and repair actions where the solder alloy can not be verified as Pb-free through approved documentation and/or analysis.

The Contractor shall Use Pb-free solder alloys only in rework actions where positive identification of the Pb-free alloy can be confirmed through approved documentation and/or analysis.

2.5 Other Materials

All requirements related to Lead Free Tin items also apply to Lead-free Zinc and other pure metal systems known to demonstrate Whisker formation.