

# Level I Document Quality Program Provisions

Signatures on file.

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<b>DRAFT</b>	P. Sharma	Leach International Corporation	
Director of Supply Chain	Maxwell Monese	<b>Leach International Mexico S de RL de CV</b>	
Supplier Quality Engineer	S. Baza		
Supplier Development Manager	Brian Azevedo		
Manager, QS	Praveen Krottapalli	<b>DOCUMENT TITLE: QUALITY PROGRAM PROVISIONS</b>	
Manager, Procurement	Adam Fleisher		
		<b>DOC NO.</b> 512-0031-000-000	<b>REV.</b> AJ
		<b>Release Date:</b> 09/24/2019	<b>SHEET 1 OF 21</b>

**DOCUMENT CHANGE HISTORY**

<b>REV</b>	<b>Page(s) Affected</b>	<b>DCN/Description of Change</b>	<b>Date</b>	<b>Initiator</b>
K	All	See E. O. 67031	07/09/1998	KP
L	All	See E. O. 68187	01/08/1999	KP
M	All	See E. O. 68753	05/05/1999	KP
N	All	See E. O. 69745	08/23/1999	KP
P	All	See E. O. 70445	07/10/2000	KP
R	All	See E. O. 72348	01/28/2003	KP
T	All	See E. O. 73486	03/26/2004	KP
U	All	See E. O. 76559	09/21/2007	KP
V	All	Removed from Engineering Document Control - See QA Department	01/09/2009	JG
W	All	Returned No Pure Tin requirement SEE DCN 0054	04/22/2009	MS
X	All	SEE DCN 0108	09/25/2009	MS
Y	All	SEE DCN 0169	04/29/2010	MS
AA	All	SEE DCN 0226	07/29/2011	JG
AB	All	SEE DCN 0316	07/20/2012	JG
AC	All	SEE DCN 0356	08/06/2013	LG
AD	All	SEE DCN 0369	09/26/2013	LG
AE	All	SEE DCN 0376	01/16/2014	ML
AF	All	SEE DCN 0400	01/30/2014	ML
AG	All	SEE DCN 0448	04/10/2014	ML
AH	All	SEE DCN 0670	10/02/2015	S.Baza
AI	All	SEE DCN 0684	11/04/2015	P.McNamee
AJ	All	SEE DCN 2019-101	06/19/2019	S.Baza

NOTE: Add rows as necessary

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**1. PURPOSE**

A supplement to our drawings and specifications for the purpose of flowing down to our suppliers, sub tier suppliers, special processors, and other services our customer and Leach requirements that may not be contained in these documents. However, they are required by Leach and our customers via. Leach International internal contracts review and flowed down process, internal (QAD's) Quality Assurance Directives to become a part of our Purchase Order requirements.

**2. APPLICABILITY**

This procedure applies to all employees located at Leach International Corporation Buena Park, California and Leach International Mexico S de RL de CV at Tijuana, Mexico.

**3. SCOPE**

This document applies to all incoming purchase Parts, Material, Sub-assemblies, and Assemblies received at Leach International for incorporation in deliverable product.

**4. RECORD RETENTION**

Records established to provide evidence of conformity to requirements and of the effective operation of the quality management system shall be controlled in accordance to QAP 2.3 Data Retention/Data Control.

**5. REFERENCE DOCUMENTS**

<u>Document Number</u>	<u>Document Name</u>
400-0111-001-000	Packaging, Storage, Transportation, and Handling of Relay Parts and Sub-Assemblies
512-0000-000-000	Quality Management System Manual
512-0030-000-000	Inspection Requirements for Contacts & Contact Assemblies
512-0033-000-000	Product Assurance System Requirements for Off-Shore Assembly
QAP 1.1	Quality Policy
QAP 2.3	Data Retention/Data Control
QAP 3.16	ESD Control Program
QAP 9.0	Trade Compliance Program
MRL	Master Records List
OPR 030	Technical Data Transfer Work Instruction
TC-LCH-WI-003	Technical Data Transfers
TC-ESL-POL-100	Company Global Trade Compliance Policy
TC-ESL-REQ-100	Company Global Trade Compliance Requirements
TC-ESL-REF-101.1	TR Policies Change Request
AC7004	Nadcap Aerospace Quality System
NOP-002	Nadcap Operating Procedures
AC7006	Nadcap Audit Criteria for Accreditation to ISO/IEC 17025
AC7101/1	Nadcap Audit Criteria for Material Testing Laboratories – General Requirements for All Laboratories
AC7101/2	Nadcap Audit Criteria for Materials Testing Laboratories – Chemical Testing
AC7101/3	Nadcap Audit Criteria for Materials Testing Laboratories – Mechanical Testing

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AC7101/4	Nadcap Audit Criteria for Materials Testing Laboratories – Metallography and Micro induction Hardness
AC7101/5	Nadcap Audit Criteria for Materials Testing Laboratories – Hardness Testing (Macro)
AC7101/6	Nadcap Audit Criteria for Materials Testing Laboratories – Corrosion
AC7101/7	Nadcap Audit Criteria for Materials Testing Laboratories – Mechanical Testing Specimen Preparation
AC7101/8	Nadcap Audit Criteria for Materials Testing Laboratories – (Differential Thermal Analysis)
AC7101/9	Nadcap Audit Criteria for Materials Testing Laboratories – Specimen Heat Treating
AC7101/11	Nadcap Audit Criteria for Materials Testing Laboratories – Fastener Testing
AC7102	Nadcap Audit Criteria for Heat Treating
AC7108	Nadcap Audit Criteria for Chemical Processing
AC7109	Nadcap Audit Criteria for Coatings
AC7110	Nadcap Audit Criteria for Welding/Brazing
AC7114	Nadcap Nondestructive Testing (NDT) Supplier Accreditation Program Audit Criteria
AC7116	Nadcap Audit Criteria for Nonconventional Machining
AC7117	Nadcap Audit Criteria for Shot Peening, Peen Forming, Glass Bead Peening
AC7118	Nadcap Audit Criteria for Composites
AC7119	Nadcap Audit Criteria for Electronics Printed Circuit Boards
AC7119/1	Nadcap Audit Criteria for Electronics Rigid Printed Circuit Boards
AC7119/2	Nadcap Audit for Flexible and Rigid-Flexible Printed Boards
AC7119/3	Nadcap Audit for High Density Interconnect Printed Boards
AC7120	Nadcap Audit Criteria for Circuit Card Assemblies
AC7121	Nadcap Audit Criteria for Electronics Cable and Harness Assemblies
AC7126	Nadcap Audit Criteria for Conventional Machining as Special Process
ISO9001	Quality Management Systems Standard
ISO10012	Measurement Management Systems
ANSI/ISO/IEC 17025	General Requirements for the competence of testing and calibration laboratories
ANSI/NCSL Z540	Requirements for the Calibration of Measuring and Test Equipment
AS7112	National Aerospace and Defense Contractors Accreditation Program Requirements for Fluid System Components
AS9100	Quality Management Systems – Requirements for Aviation, Space and Defense Organization
AS9102	Aerospace First Article Inspection Requirement
AS/EN9110	Quality Management System Certification for the Aerospace Industry
SAE AS5553	Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition
SAE AS6174	Counterfeit Materiel; Assuring Acquisition of Authentic and Conforming Materiel

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J-W-1177	Wire, Magnet, Electrical, General Specification
SAE-J1739	Potential Failure Mode and Effects Analysis in Design (Design FMEA) Potential Failure Mode and Effects Analysis in Manufacturing and Assembly Process (Process FMEA).
MIL-S-19500	Semiconductor Device, Transistor
002-5800-000	Semiconductor Dice General Specification
QAF-208	Supplier Deviation Request Form (SDR)
QAF-250	Hardware Kit Tabulation
QC-1700.00	UTC FAI Report Review Checklist

## 6. DEFINITIONS

Term	Definition
Red Flags	<ul style="list-style-type: none"> <li>Any unusual circumstances that indicate a party to transaction is prohibited end-user or Defense Technology / Defense Articles are destined to a prohibited end-use location. Special care should be taken to prevent transactions with entities involved in proliferation of weapons of mass destruction.</li> </ul>
QPP	<ul style="list-style-type: none"> <li>Quality Program Provisions</li> </ul>
QAP	<ul style="list-style-type: none"> <li>Quality Assurance Procedure</li> </ul>
QAF	<ul style="list-style-type: none"> <li>Quality Assurance Form</li> </ul>
FAR	<ul style="list-style-type: none"> <li>Federal Acquisition Regulation</li> </ul>
DFARS	<ul style="list-style-type: none"> <li>Defense Federal Acquisition Regulation Supplement</li> </ul>

NOTE: Add rows as necessary

## 7. ROLES & RESPONSIBILITIES

Role	Responsibilities
Leach International Employees	<ul style="list-style-type: none"> <li>Maintain full compliance with all applicable laws and regulations that protect and support the national security, foreign policy, and commerce of the United States and other countries in which Leach International operates.</li> </ul>
Leach Buyers	<ul style="list-style-type: none"> <li>Reviews drawings and specification requirements for each PO line item to insure appropriate drawings, specifications, special conditions, sub level drawings are available to the supplier reflecting the latest revision level.</li> </ul>
Leach Contracts Administration, Customer Sales Representatives, Quality Assurance, EH&S, Export Compliance, Program Office	<ul style="list-style-type: none"> <li>Insures proper flow down to supply chain management latest Terms &amp; Conditions by classification, and maintain the Leach Website where Terms and Conditions by classification are located and accessed by our external providers.</li> <li>Works in concert with other disciplines to insure Customer Contract Requirements are properly flowed down within Leach and ultimately its suppliers.</li> </ul>
Leach Engineering	<ul style="list-style-type: none"> <li>Insure requirements and specifications are properly flowed down from our customers are reflected in associated product,</li> </ul>

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	<p>part, material specification, process specification, test procedure, Vendor Item Control Drawing, Source Control Drawing, etc.</p> <ul style="list-style-type: none"> <li>Reviews requests for use of Brokers for sourcing difficult to locate electrical components, or having unusually protracted lead times, or in cases of part obsolescence for acceptability prior to PO placement.</li> </ul>
Supplier Quality Engineering	<ul style="list-style-type: none"> <li>Perform periodic reviews of Purchase Orders in accordance with a standard check list to insure accuracy and completeness.</li> <li>Responds to LEACH (QAD's) Quality Assurance Directives where specific QPP's are required to be added to PO's via a specific PO fields.</li> <li>Reviews new item introductions into the Leach ERP system when to insure there are no gaps in QPP flow down via ERP system Item Master/Parts Master File or Bill of Material (BOM).</li> <li>Insures suppliers and sub tiers are correctly interpreting our drawings, specifications, Quality Program Provisions, FAR and DFARS, and that suppliers are properly flowing these requirements to sub tier suppliers, processors, etc.</li> </ul>
Leach Configuration Management	<ul style="list-style-type: none"> <li>Insures there's proper document change process management to insure latest revision documentation is available to buyers, and ultimately to suppliers or external providers.</li> </ul>

NOTE: Add rows as necessary

#### 8. PROCEDURE. QUALITY PROGRAM PROVISIONS (SUPPLIER PURCHASE ORDERS)

The following (QPP) Quality Program Provisions with their terms and conditions become an integral part of each Purchase Order to the extent specified in the Purchase Order.

Important: Refer to QPP sections 1 through 19, below for requirements that are applicable to all Supplier Purchase Orders. Additional QPP's are applicable when indicated on Purchase Order line items. A reference to these standard QPP's and associated Leach procedure with revision level, and applicable QPP numbers can be found just below PO date, buyer ID, shipping method, F.O.B. point, and terms section.

Important: The procedure containing Quality Program Provisions for Supplier Purchase Orders can also be accessed via a hyperlink located within each Purchase Order. Also, the Purchase Order classification can be found right below this hyperlink, which allows the supplier to select the associated FAR and DFAR's pertaining to the PO as illustrated below.

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Requester:				
P.O. DATE	BUYER	SHIPPED VIA	F.O.B. POINT	TERMS
8/30/2019	BRISHI57220	VENDOR TRUCK	SHIPPING POINT	2% 10 Net 30 Days

Leach Quality Program Provisions 512-0031-000-000 Revision A1, 1-16 and all purchasing terms and conditions apply to this purchase order. Additional provisions may apply as indicated in the QPP fields below.

The quality program provisions and the terms and conditions may be found at:  
[http://www.esterline.com/powersystems/Quality\\_Customer\\_Supplier/SupplierInformation.aspx](http://www.esterline.com/powersystems/Quality_Customer_Supplier/SupplierInformation.aspx)

USE T&C\_Commercial US Government Prime Contract

Suppliers are required to access the link embedded in all supplier Purchase Orders once the pertinent PO classification is identified, the one of the following Terms and Condition categories shall be selected and will apply. In the above example, this PO states USE T&C Commercial US Government Prime Contract classification. When no PO classification is indicated, such as MRO PO's, the default Terms and Conditions will be Leach Purchasing Terms and Conditions Non-Government.

The Terms and Conditions Categories by PO Classification are as follows:

- a. Leach Purchasing Terms and Conditions Commercial US Government Prime Contract
- b. Leach Purchasing Terms and Conditions Commercial US Government Prime Contract with International Contractor.
- c. Leach Purchasing Terms and Conditions Non-Commercial US Government Prime Contract
- d. Leach Purchasing Terms and Conditions Non-Commercial US Government Prime Contract with International Contractor
- e. Leach Purchasing Terms and Conditions Non-Government

## 8.1 REQUIREMENTS FOR ALL PURCHASE ORDERS

### 1. Applicability of Revised Documents

Where a specification is referred to herein, it shall be construed as being of the latest revision in effect as of the date of this purchase order or quotation.

### 2. Nonconforming Material

The Supplier is not authorized to perform material review action of nonconforming materials, with the intent of delivering such nonconforming materials without the express written authorization from Leach International. Disposition of any deviation from Leach International drawings, specifications, or other purchase order requirements must be approved by an authorized member of Leach International Quality Assurance Department prior to shipment from the supplier.

The Supplier shall promptly notify Leach International of any nonconformity that may affect already delivered products.

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**3. Resubmission of Rejected Material**

All material rejected by Leach International and subsequently resubmitted to Leach International by the supplier shall bear adequate identification of such resubmission, either attached to the material or on the suppliers shipping document. Reference shall be made to the original Leach International rejection document and clear evidence submitted that the cause(s) for rejection have been corrected.

Government Source Inspected Material must be accompanied by evidence that the resubmission has also been accepted by Government Source Inspection.

**4. Changes**

Supplier shall notify Leach International in writing when any of the following changes occur:

- a. Change in location of Supplier.
- b. Change in Senior Management personnel.
- c. Change in ownership of Supplier.
- d. Change in Quality System status, e.g. Award/Removal of ISO 9001 registration.
- e. Change in design, materials, processes or control of materials.

**5. Right of Entry**

All work performed shall be subject to inspection, surveillance and test by Leach International and/or Customer/Government representatives at any time, including the period of performance, and at all places including the plant or plants of the supplier or sub-tier suppliers engaged in the performance of work to fulfill this Leach International Purchase Order. Inspection by the Leach International Quality Representative and/or Customer/Government Representatives does not constitute final acceptance of parts and/or material.

Government / Customer inspection or release of product prior to shipment is not required unless you are otherwise notified. You shall provide a copy of this order to the Government / Customer representative on request.

**6. Acceptable Quality System**

The supplier must maintain a Quality System that meets the requirements of Leach International such as ISO9001, Quality Systems, Model for quality assurance in design, development, production, installation, and service, AS9100, Quality Systems, Aerospace, Model for Quality Assurance in Design, Development, Production, Installation, and Servicing.

The quality system requirements for each supplier shall be commensurate with the size of the business, the type of business and the complexity and criticality of the parts, materials or services provided.

- a. Where a sampling inspection plan is utilized for the acceptance of parts for delivery to Leach International, the supplier must utilize a sampling plan which precludes the acceptance of defective parts (Commonly described as an 'Accept on Zero' sampling plan.

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- b. The Supplier shall maintain an inspection system that is adequate to ensure that all parts and materials shipped on this purchase order meet all applicable requirements.
- c. The quality system shall also provide for the maintenance of records and data of all inspections and tests performed for a period of at least ten years. These records shall be made available to Leach International for examination and verification, upon request.
- d. The supplier shall respond to customer requests for corrective or containment action and apply at a minimum typical 8D format and principles. Responses to SCAR (Supplier Corrective Action Requests) shall be received within 30 days from date of issue, and requests for extensions must be received within 5 days of due date. Responses to CAN (Containment Action Requests) must be received within 7 days from date of issue, and requests for extension are permissible within 7 days from date of issue.

**7. Traceability to Raw Material**

All Items fabricated under this purchase order shall be traceable to raw material used. All traceability and Inspection records must be identifiable with raw material, parts, parts or assemblies to which they are applicable and shall be available upon request or audit by Leach International.

- a. Raw material used shall be identifiable by lot number as well as material type, specification, heat number, etc., and shall be identifiable with lot or raw material used. When two (2) or more parts are joined in an assembly, the Supplier shall prepare an assembly parts list identifying each assembly and the lot of raw material from which it was fabricated.
- b. Raw material fabricated by the Supplier in one lot shall be identifiable to that lot when supplied to Leach International. When the Supplier is combining materials fabricated in two or more different lots to fulfill purchase order requirements, these materials shall be segregated and identifiable to the lots from which they were fabricated.
- c. The Supplier shall request, from the buyer whose signature appears on the purchase order, written authorization to submit materials in two (2) or more lots to fulfill the total quantity of each item on this purchase order.

**8. Certificate of Conformity Requirements**

One copy of all certifications required by drawings / specifications / Quality Program Provisions must accompany each shipment. Certificates of Conformity must clearly state that the supplied part, raw material or service meets all requirements of the referenced drawings, specifications and requirements. The Certificate of Conformity shall state that all specifications shall be held on file for a minimum period of ten years from date of shipment and shall be made available for review on request. Only written changes to the purchase order requirements are acceptable. These documents should contain the signature, stamp or approved 'electronic' authorization of the individual certifying the material for the supplier.

**9. First Article Inspection (FAI) Requirement**

A First Article Inspection Report compliant with the requirements of AS9102 must be submitted by the supplier for each item on this order where this is the first delivery of the item from this supplier. The First Article Report shall be required on all parts except: Standard

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Catalog Hardware, Age Sensitive Material, Raw Materials and components with military specifications (MIL parts). Special Processes such as cleaning and painting are excluded from this FAI requirement.

**10. Change of Product or Process**

The supplier/manufacturer shall not implement any Class I changes that affect Leach International's design, materials, processes, safety or control of the materials ordered without prior written approval of Leach International, Quality Assurance Department. The intent of this requirement is to ensure that all material supplied under this order will be homogeneous, and that the performance, reliability, and quality of the material is not degraded. Changed articles shall be clearly identified and in a different manner from previous articles.

- a. The Supplier/Manufacturer shall submit a Supplier Deviation Request (form QAF-208) along with two copies of their Manufacturing Process Procedure/Plan, specifying the process change(s) in detail and the specific quantity impacted to the Leach International Buyer. This includes changes to a sub tier manufacturer or special processors associated with the product delivered to Leach International.

**11. Packaging**

Packaging in accordance with good commercial practice to the extent necessary to provide protection from hazards of contamination and physical damage encountered in general handling, shipping, and storage, or as specified on part drawing, or PO.

**12. Use of Silicone Based Materials**

The use of any Silicone based lubricant or potting compound during the manufacture or assembly of products to be delivered to Leach International is prohibited.

**13. Off-Shore Assembly**

The requirements of 512-0033-000-000, Product Assurance Requirements for Off-Shore Assembly, apply to this purchase order. Product shipped from approved Off-Shore Assembly facilities shall be shipped with copies of all work order travelers and pick lists, providing complete traceability back to the LINA provided materials used in the manufacture of those products.

**14. Part and Component Finishes (non-electrical)**

Mechanical Parts:

The Leach International Engineering drawing, Specification Control Drawing (SCD) or Vendor Item Control Drawing has precedence for defining the finish(s) for all machine parts, fabricated parts, fasteners, and purchased parts. Pure tin, cadmium or zinc may not be used unless specifically required by specification and configuration control drawing. In cases where pure tin finishes are not specified in our specification control drawing, the tin coating must contain a minimum of 3 percent lead.

Where the Leach International Source Control Drawing (SCD) or Vendor Item Control Drawing (VICD) contains no specific requirement regarding plating finish, Leach International requires that the finish shall not consist of pure tin, pure cadmium, or pure zinc. Where tin is selected

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the Tin-Lead plating must contain a minimum of 3% lead unless specifically identified as Lead free.

**15. Detection and Prevention of Counterfeit Parts**

a. Supplier’s Quality Management System: The Suppliers shall implement and maintain a counterfeit electronic parts management process to comply with "Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition," in accordance with DFAR 252.246.7007 (C), DFARS 252.246-7008 SAE AS5553 and “Counterfeit Materiel; Assuring Acquisition of Authentic and Conforming Materiel”, in accordance with SAE AS6174, SAE AS6081: Fraudulent/Counterfeit Electronic Parts: Avoidance, Determination, Mitigation, and Disposition – Distributors, AS6496: Fraudulent/Counterfeit Electronic Parts: Avoidance, Detection, Mitigation, and Dispassion – Authorized/Franchised Distribution. The Supplier counterfeit parts management process shall be subject to evaluation by Leach International’ quality representatives throughout the period of contract. The Supplier shall also maintain complete records on file and make them available upon request.

The supplier shall maintain a method of item traceability that ensures tracking of the supply chain back to the manufacturer of all parts included in assemblies and subassemblies being delivered in accordance with the requirements stated above. This traceability method shall clearly identify the name and location of all of the supply chain intermediaries from the manufacturer to the direct source of the product for the seller and shall include the manufacturer’s batch identification for the item(s) such as date codes, lot codes, serializations, or other batch identifications.

- b. Supplier’s survey: The suppliers shall make the selection on supplier’s survey as required for the supplier type such as OEM/OCM, franchised/in-dependent distributor and/or service providers due to the different requirements are imposed to different supplier type.
- c. Supplier must notify Leach International buyer when there is a potential risk where the product may be reaching the end of the product lifecycle or product availability; to support the order quantity as requested.
- d. Supplied parts: The Supplier shall verify the procurement source and associated certifying paperwork. Appropriate incoming inspection test methods shall be used to detect potential counterfeit electronic parts in accordance with the requirement of this section. The supplier shall flow this requirement down to all sub-tier suppliers to prevent the inadvertent use of counterfeit electronic parts. The Supplier shall be responsible for assuring that only new and authentic materials are used in products built for Leach International. Acquisition traceability from original manufacturer required in accordance with DFAR 252.246.7007(C), SAE AS5553 Aerospace Standard for Counterfeit Electronics Parts; Avoidance, Detection, Mitigation and Disposition, Appendix C - C.3.2 and SAE AS6174 Counterfeit Materiel; Assuring Acquisition of Authentic and Conforming Materiel, C.2.2.
- e. Documentation: The Supplier shall ensure that all parts procured to fulfill Leach International’ purchase order requirements include a certificate of conformance from the

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Original Equipment Manufacturer or a Franchised and independent Distributor and acquisition traceability. A copy of this document must accompany shipment of parts to the end customer

Certification of conformance contains at a minimum the manufacturer, distributors (applicable), distributor purchase order number, part number, quantity, and date code of each quantity supplied.

Acquisition traceability consists of the name and location of all supply chain intermediaries from the part manufacturer to the direct source of the product.

For procurement of product for military or US Government use, a manufacturer certification to a specified military or aerospace specification or standard is required. Additional information, as required by governing specifications, may also be required as specified on the purchase order.

- f. In the event that the parts are not available from the OEM or Franchised Distributor within Leach International ' requested lead time, then the parts can be procured from Brokers or Suppliers (other than the Original Equipment Manufacturer or their Franchised Distributor) that have met the requirements of Leach International to be qualified for inclusion in our ASL (Approved Supplier List). In which case, Broker must also provide certification of compliance and acquisition traceability that warrants covered parts to be original (that is, not refurbished or reworked). These documents must be reviewed and approved by Supplier Quality Engineering before product can be released.

Whenever a broker, independent distributor, or sources that do not have authority of the OEM is used to procure a component (e.g. articles, components, standard hardware, goods, raw materials, and assemblies including electrical, electronic, and electromechanical) the customer service manager and the master production planner shall be notified by e-mail. The notification shall include the component being purchased, a copy of the quote and engineering's formal approval to procure the component.

Engineering's approval may be in the form of an e-mail or technical memorandum, and the Component or Product Engineer will determine if customer notification or approval is required prior to procuring product from such broker or independent distributor.

Any components that are purchased from such broker or independent distributor shall have a purchase history file that may be either hard copy or electronic. This file shall include the (a) RFQ, (b) suppliers quote, (c) supplier's conformity documentation for the component, (d) all purchasing and engineering approvals, and (e) purchasing related documents.

The supplied documentation shall include objective evidence of traceability that enables tracking of the supply chain back to the original manufacturer, whether the electronic parts are supplied as discrete electronic parts or are contained in assemblies. This traceability

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process shall include certification and traceability documentation developed by manufacturers in accordance with Government and industry standards; clear identification of the name and location of supply chain intermediaries from the manufacturer to the direct source of the product for the seller; and, where available, the manufacturer's batch identification for the electronic part(s), such as date codes, lot codes, or serial numbers.

These documents must be reviewed and approved by Supplier Quality Engineering or Product Quality Engineering before product can be released.

**16. Calibration**

The following requirements are applicable to supplier(s) responsible for calibration;

**Adequacy of the calibration system**

The seller shall maintain a system which evaluates the adequacy of their calibration system based on out-of-tolerance data as a result of calibrating the measuring and test equipment. The system shall include, but not be limited to, adjustment of calibration frequency, adequacy of the measuring or test equipment, calibration procedures and measuring or test procedures. The seller's system shall specifically identify, and prevent the use of the any measuring and test equipment that does not perform satisfactorily.

**Calibration certificate/report**

Calibration certificates and/or report shall include environmental conditions at the time of the calibration, statement of uncertainty and statement attesting to measurement traceability and to the fact that calibration services were performed in compliance with one or more of the following: ISO 10012, ANSI/NCSL Z540, or ANSI/ISO/IEC 17025.

**Notification of significant out-of-tolerance conditions**

Seller's system shall clearly define a significant out-of-tolerance condition. Seller's system shall include the requirement for notification of measurement and test equipment users, or other appropriate seller elements, of significant out-of-tolerance conditions so appropriate actions can be taken to correct possible nonconforming goods.

17. The Suppliers, Special Processors, and Subcontractors shall apply appropriate controls to their direct and sub-tier external providers, to ensure that requirements flowed down via POs, drawings, and specifications are met.

**18. FOD Prevention Program**

Suppliers and their sub-tiers or contractors shall maintain a FOD Prevention Program in accordance with Aerospace Standard AS9146, Foreign Object Damage (FOD) Prevention Program – Requirements for Aviation, Space, and Defense Organizations. Whenever or wherever Foreign Object Debris (FO) can be entrapped or Foreign Objects (FO) can migrate, Suppliers shall ensure that applicable Quality Clause for FOD and FO prevention requirements are flowed down to their sub-tiers or subcontractors at every tier.

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Prior to closing inaccessible or obscured areas and compartments during assembly, Suppliers and sub-tiers shall inspect for FO/material and ensure protective devices (e.g., bags, caps, covers, plugs) remain embedded. Supplier shall ensure tooling, jigs, fixtures, and test or handling equipment are maintained in a state of cleanliness and repair sufficient to prevent FOD and FOD.

19. Awareness: The suppliers and their sub-tiers or contractors shall ensure that all employees Performing work on this purchase order are aware of the importance of their contribution to: the conformity of the products and services to the requirements; ensuring product safety; and of ethical behavior.

### 8.2 Quality Program / Inspection Systems

The following quality system requirements may be specified on specific purchase orders where the customer contract or order requires compliance to the stated standards.

#### TRACEABILITY AND CONTROL

301. Dice Traceability Requirement  
All dice used in the device(s) described on this order must have traceability to the original manufacturing lot. A manufacturing lot is defined as, and shall be composed of, those devices which were processed through all phases of wafer fabrication together. Shipping documentation must provide traceability from the original dice to the manufacturing lot identification of the devices.
- a. Semiconductor dice shall be identifiable by diffusion lot number. A 'diffusion lot' is defined as a homogenous lot of devices that have been processed through all phases of wafer diffusion and aluminum interconnect metallization together.
302. Identification of Limited-Calendar-Life Material  
The Supplier shall identify each item, package or container of limited calendar-life material with the manufacture date, storage temperature, and special handling conditions, in addition to the normal identification requirements of name, part or code number, specification number, type size, quantity, and manufacturer recommended shelf life. This identification, including special handling conditions shall be recorded on the shipping documents for the material.
303. Identification of Limited-Calendar-Life Material in a Cured Condition
- a. The Supplier shall furnish cure date, assembly date, part name and number, and manufacturer's identification number, (if different from part number) for rubber parts (synthetic or natural), individual parts or parts installed in assemblies, delivered under this purchase order. This information shall be identifiable with the assembly, and when applicable, component parts within the assembly to which it applies. The assembly date shall be marked on each assembly or on an attached tag.

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- b. The Supplier shall furnish with each shipment of parts or parts within an assembly incorporating a limited-calendar-life material that does not require age control after installation (e.g., adhesives, resins, plastic base paints, etc.) two (2) legible and reproducible copies of a certification stating the limited-calendar-life material was properly controlled prior to use and within the shelf-life period when incorporated.
- a. The certification shall be identifiable with the part(s) or assembly(s) to which it applies and this purchase order. The certification shall contain the signature and title of an authorized representative or the Supplier.

306. Wire Identification

Each package or spool of wire on this order must be legibly and permanently identified with:

- Purchase Order number
- Wire Gauge
- Cure date (if applicable)
- Military Specification number
- Leach International Specification number (if applicable)
- Leach International Part Number (if applicable)

307. Hardware Kit Tabulation

For those shipments in which Leach International intends to procure kitted hardware, a Hardware Kit Tabulation (form QAF-250) must accompany each lot shipment. The form is intended to provide full traceability for all item(s) supplied in the kit by tabulating the hardware, quantity, description, and its respective trace number back to the original equipment (OEM) manufacturer certification(s). These certifications are to remain on file at the supplier's facility and made available upon request.

**TESTING AND CERTIFICATIONS**

401. Test Reports – Chemical / Physical

Each shipment must be accompanied by a legible and reproducible copy of actual reports of tests performed in accordance with the applicable specification or purchase order requirements, identifiable to material submitted. These reports must contain the signature and title of an authorized representative or the agency performing the tests and must assure conformance to specification requirements.

- a. Suppliers of Contacts or Contact materials shall submit a copy of the original Certificate of Conformity for Raw materials used, a chemical analysis of the finished product and photographs of sectioned contacts with each shipment of materials per 512-0030-000-000, Inspection Requirements for Contacts and Contact Materials.

402. Nondestructive Test Reports

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Each shipment shall be accompanied by two (2) legible and reproducible copies of nondestructive test reports conducted per the applicable procedure which demonstrate that the material supplied meets the requirements of the applicable specification. The reports must include the signature and title of an authorized representative of the agency performing the test and must assure conformance to specification requirements.

407. Process Certification (Special Processes Only)

Each shipment of material on this purchase order must be accompanied with a legible and reproducible copy of a process certification containing the signature and title of an authorized representative of the agency performing the process. The certification shall include the process used such as: heat treating, liquid honing, surface preparation and treatment (plating), brazing, etc., the Leach Process Specification number or other applicable specification, e. g. ASME or MIL-SPEC. and the Leach Part Number including Revision letter of the part being processed. When parts are serialized, the serial numbers must appear on the certification.

408. Functional Test Certification

Each shipment shall be accompanied by a legible and reproducible copy of functional test certificates for which test reports are on file and available for examination. This certification must contain the signature and title of an authorized representative and assure conformance to specification requirements.

409. Required Test Data

Each shipment of material on this purchase order must be accompanied with a legible test data report(s).

411. JAN Devices, Traceability Documentation (MIL-S-19500)

Procurement traceability of JAN-marked devices shall be confirmed by documentation and furnished with parts delivered to Leach International regardless of whether the devices are procured directly from the manufacturer or from another authorized source, such as a manufacturer authorized distributor. When other sources are involved, their documentation shall be in addition to and include that provided by the manufacturer and previous distributors. This documentation shall include the following information:

a. Manufacturers Documentation

1. Manufacturer's name and address.
2. Customers or distributor's name and address.
3. Device type and product assurance level (e.g., JAN, JANTX, JANS).
4. Lot date code (including assembly plant code).
5. Original inspection date or latest re-inspection date.
6. Quantity of devices in shipment from the manufacturer.
7. Signature of authorized person and date of transaction.

b. Distributor Documentation for Each Distributor

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1. Distributor's name and address.
2. Name and address of customer.
3. Quantity of devices in shipment.
4. Latest re-inspection date, if applicable.
5. Certification that this shipment is a part of the shipment covered by the manufacturer's documentation.
6. Signature of authorized person and date of transaction.

412. Destructive Testing Requirements

The Supplier shall submit all destructive testing samples that are required by the applicable drawings, processes or specifications included as part of this order. The submitted samples shall demonstrate that the parts meet all requirements for the process being tested. The submitted samples shall be packaged separately and clearly identified as destructively tested samples and include reference to the test specification.

Destructive test samples shall be limited to two (2) pieces per manufacturing lot unless otherwise specified in the applicable drawing, specification or Manufacturing Job Instruction.

413. Finish for Electronic Components

Electronic Components:

Where the Leach International Source Control Drawing (SCD) or Vendor Item Control Drawing (VICD) contains no specific requirement regarding plating finish, Leach International requires that the finish shall not consist of pure tin, pure cadmium, or pure zinc. Where a tin-lead alloy termination coating is specified, the tin-lead composition must contain a minimum of 3% lead. Lead free termination finish options containing tin, such as matt/bright tin, tin-silver, tin-copper, tin-silver-copper, etc. are acceptable if specified on a Drawing, SCD or VICD.

**PACKAGING REQUIREMENTS**

503. ESD PACKAGING

ESD Packaging to be in accordance with Leach International Document 002-5800-000, Paragraphs 4.6 and 5.0 and QAP 3.16 when applicable.

504. Magnet Wire

Magnet wire, 45 gauge or finer, shall be packaged per Federal Specification J-W-1177A, Paragraph 5.1-1.1, or better

505. Packaging Silver

Silver Packaging: Storage, transporting and handling of parts and sub-assemblies containing silver or silver alloys shall be in accordance with Leach International Document 400-0111-001-000.

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600. PPAP AND NADCAP REQUIREMENTS CODES  
This section defines the compliance requirements for goods purchased under PPAP and NADCAP quality requirements.

601. General PPAP Documentation Requirements  
Suppliers shall have an EPSL approved control plan for any item identified as critical or, where key characteristics are specified. (Codes 6011 or 6012.)

FAIR shall be in accordance with IAW AS9102.

Suppliers of standard parts, (MS, AN, AS, etc.) do not need to comply with PPAP requirements.

A supplier of COTS parts does not need to comply with PPAP requirements.

Certificates of conformity are required for all items.

Certificates of conformity are required for raw materials including all mill original material certifications if available.

Certificates of conformity are required from all sub-tier supplier goods and processes.

Certificates of conformity are required for all special processes.

Copies of NADCAP accreditation certificates are required for all special process suppliers.

NADCAP accreditation AC7004 may be substituted for AS9100.

6011 FAIR shall also include QC-1700.00.

6012 Critical Item, identified key characteristics must be verified IAW AS9102 and the control plan. (See 617.)

## NADCAP REQUIREMENTS

The following codes indicate which special processes must be NADCAP accredited and certificates of conformity supplied.

602. Aerospace Quality Systems AC7004  
The Aerospace Quality Systems Task Group recognizes the industry developed Aerospace Quality Systems standard AS/EN/JISQ9100 and AS/EN9110. In, addition, NADCAP recognizes ISO 17025 for testing laboratories, including nondestructive testing laboratories. The ISO 17025 scope of accreditation must cover the NADCAP scope of accreditation and be from an approved NACLA / ILAC accreditation body.

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Suppliers who have an AS/EN/JISQ9100 or AS/EN9110 registration / certification from an IAQG approved Registration / Certification body, as listed on the IAQG Oasis website, or an ISO 17025 accreditation approved by NACLA / ILAC do not require an additional quality systems audit through NADCAP.

At the time of the audit, when a supplier does not hold a current approved quality system in accordance with NOP-002, an assessment to the NADCAP AC7004 is required.

- 603. Chemical Processing shall conform to AC7108
- 604. Coatings shall conform to AC7109
- 605. Composites shall conform to AC7118
- 606. Conventional Machining as a Special Process shall conform to AC7126
- 607. Elastomer Seals shall conform to AC7115
- 608. Electronics shall conform to AC7119  
Any or all of the following may apply.  
6081 AC7119 – Printed Circuit Boards  
6082 AC7119/1 – Rigid Printed Boards  
6083 AC7119/2 – Flexible and Rigid-Flexible Printed Boards  
6084 AC7119/3 – High Density Interconnect Printed Boards0  
6085 AC7120 – Printed Circuit Assemblies  
6086 AC7121 – Cable and Harness
- 609. Fluids Distribution shall conform to AS7112
- 610. Heat Treating shall conform to AC7102
- 611. Materials Testing Laboratories shall conform to AC7101  
Any or all of the following may apply.  
6111 AC7101/1-9,  
6112 AC7101/11,  
6113 AC7006  
6114 AC7006 – equivalent to ISO/IEC 17025: 2005
- 612. Measurement & Inspection AC is TBD
- 613. Nondestructive Testing AC7114
- 614. Nonconventional Machining and Surface Enhancement shall conform to AC7116 and /or AC7117

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- 615. Sealants shall conform to AS7202 and AS7200/1
- 616. Welding shall conform to AC7110
- 617. Control Plan Required. A Leach International approved critical process/part control plan will be required per SAE-J1739.
- 618. PFMEA (Process Failure Mode Effects Analysis) Required. A Leach International approved process failure mode and effects analysis and a control plan (617) will be required per SAE-J1739

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