



**UTC Aerospace Systems**

# Electronic Systems Center **ESC9100**

Rev F

## Quality Requirements for Suppliers

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**REVISION STATUS**

REVISION	PARAGRAPH	CHANGE DESCRIPTION
A	All	Initial Release
B	All	Reformatted, Incorporate clarifications to requirements, added traceability marking requirements, and added requirements from Enterprise document GR9100 "UTAS Quality Requirements for Suppliers"
C	All	Reformatted, separated General Requirements vs PO imposed requirements & added references to UTAS ASQR-01 – Aerospace Supplier Quality Requirements
D	All	Reformatted, Aligned document with UTAS procedures and UTC procedure 7.4.1 Supplier Approval, Audits and Control ESC-SCM-0003-PRO.
E	All	Further aligned document to ASQR-01. Changed requirements of section 3 and 4. Moved and Clarified counterfeit materials. Added requirements for first article reports.
F	All	Correct Index numbering and Z540.3

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## 1 Introduction and Purpose:

United Technologies Aerospace System (UTAS) Electronic Systems Center (UTAS ESC) is dedicated to continuous improvement in the Quality and integrity of its products and services and to the satisfaction of its customer requirements and expectations. Supplier's contribution to this approach through the Quality and reliability of their products and services is a prerequisite. . Our success depends upon maintaining a commitment to integrity, fairness and quality of service. As suppliers to UTAS ESC these attributes must be core competencies within your company.

The purpose of this document is to provide the minimum Quality system requirements for suppliers of direct materials and services to UTAS ESC. The requirements of ESC9100 are in addition to any specific purchase order requirements that are in effect and do not replace them.

This document is divided into two sections: Standard Production Requirements (Section 3) and Supplemental Requirements (Section 4). The standard Production Requirements apply to all purchase orders unless specifically noted on the Purchase Order. The Supplemental Requirements only apply if specifically noted on the Purchase Order.

### 1.1 References

ASQR-01 UTC - Aerospace Supplier Quality Requirements (Available at UTC.com)

ASQR-07 UTC - Control of Software

ASQR-09.2 UTC - Production Part Approval Process (PPAP)

ASQR-15.1 UTC - FOD / Debris, Prevention, Handling, Storage, Packaging, Preservation and Delivery

ASQR-20-1 UTC - Supplier Sampling Requirements

SAE AS9100 - QMS Aerospace Standard Requirements

SAE AS9102 - Aerospace First Article Inspection Requirements

SAEAS9103 - Variation Management of Key Characteristics

SAE AS9120 - Aerospace Requirements for Stocklist Distributors

ASQ/ANSI/ISO 9001 - Quality Management System Requirements

RTCA-DO-178 - Software Considerations in Airborne Systems and Equipment Certification

MIL-S-52779 – Software Quality Assurance Program Requirements

Mil-STD-1686 - ESD Program for Protection of Electrical and Electronic Parts Assemblies and Equipment

NAS412 - Foreign Object Damage/Foreign Object Debris (FOD) Prevention

ISO-10007 - Quality management systems -- Guidelines for configuration management

ISO17025 - General requirements for the competence of testing and calibration laboratories

ANSI/NCSL Z540 Requirements for Calibration of Measuring and Test Equipment

PHX-QA-004-FRM - Request for Deviation / Waiver

PHX-QA-0001-FRM - Supplier Corrective Action Form

## 2 Definitions:

**Certificate of Conformance** - A legal document provided by the supplier that states their compliance to all applicable drawing, specification, and purchase order requirements.

**Counterfeit Parts** – Realistic copies of product that may not comply with engineering drawing and or specification requirements with intent to deceive.

**Deviation** - A specific written authorization granted prior to the manufacturer of an item to depart from a particular requirement (s) of an item’s currently approved configuration documentation for a specific number of units or a specified period of time.

**Direct material** - is material that goes into and forms a permanent part of the end product. Services that may affect the form fit or function of these materials is included in this definition.

**First production article** - the first items of a production run that are the result of a planned process designed to be used for future production of these same items. Prototype parts, or parts built using methods different from that intended for the normal production process, shall not be considered as first article production parts.

**Fixed/Frozen Process** - Is a manufacturing process that has been identified by UTAS ESC or UTAS ESC customers that shall not be changed without prior UTAS ESC approval. This includes process operating parameters, sequence of operation, material or sources.

**Non-conforming product** - Any material or product that does not meet the associated engineering drawing or specification or was not processed in accordance with the proper specification or procedure.

**NADCAP** - National Aerospace and Defense Contractors Accreditation Program - NADCAP provides international, unbiased, independent manufacturing process and product assessments and certification services for the purpose of adding value, reducing total cost, and facilitating relationships between subscribers and suppliers.

**Product acceptance records** - official records to be maintained by the supplier indicating a product passing through planned operations and satisfying planned requirements during product realization. (E.g. signed routers, completed ATP data sheets)

**Qualified Distributor** - A distributor that has met the requirements contained in one of the quality systems listed in Table II herein and designated as “Qualified” by UTAS Electronic systems Center.

**Raw material** - unfinished constituents of a finished product, Material that requires further processing to become the finished product

**Root cause corrective action** - action taken to eliminate or reduce the cause of an existing non-conformity, defect, or other undesirable condition at the most fundamental level.

**Special process** - Those processes where the parameters are directly influenced by component geometry and/or contain features that cannot be confirmed by inspection. Such as, but not limited to:

- Chemical Processing (CP)
- Coatings (CT)
- Welding/Brazing (WELD)
- Non-Destructive Test (NDT)
- Heat Treatment (HT)
- Composites (COMP)

- Non – Conventional Machining & Surface Enhancements (NMSE)
- Materials Testing Lab (MTL)
- Printed Circuit Board (PCB) and Circuit Card Assembly (CCA) manufacture

**Standard Catalog Hardware** – A part or material that conforms to an established industry or national authority published specification, having all characteristics identified by text description, National / Military Standard Drawing or catalog item (ref. AS9102)

**Standard Part** - Is a part manufactured in complete compliance with an established U.S. Government or industry accepted specification which includes design, manufacturing, and uniform identification requirements. The specification must include all necessary information to produce the part.

**Waiver**- A written authorization to accept an item, which during manufacturing, or after having been submitted for acceptance, is found to depart from specified requirements but is suitable for use as is.

### 3 Standard Requirements

**NOTE: The Standard Requirements in section 3 apply to all purchase orders unless specifically noted by the purchase order.**

#### 3.1 General requirements

The supplier shall meet the requirements of the UTAS ESC purchase order completely.

If any second tier subcontract is required, it is the supplier's responsibility to ensure that all UTAS ESC purchase order requirements and supplier quality requirements are flowed down to the sub-tier supplier. The sub-tier may not then further subcontract the original purchase order.

It is the responsibility of the UTAS ESC supplier to ensure that the product conforms to all required specifications and to maintain all records of product manufacture and inspection.

##### 3.1.1 Quality Management Systems

Suppliers and their sub-tier suppliers shall have a quality system certified to AS/EN9100 Quality Management System-Aerospace or NADCAP per ASQR-01. UTAS reserves the right to allow deviations to the AS9100 / NADCAP requirement for noncritical suppliers (minor) who possess a minimum certification to ISO9001. The deviation is based upon considerations of products and services provided, quality performance, supplier's responsiveness to quality issues and supplier surveys.

##### 3.1.2 Special Processes

Unless otherwise specified on the Purchase Order, Special Process suppliers and their sub-tiers must be NADCAP accredited for those processes covered by NADCAP

Materials Testing, Calibration, NDT Laboratories shall be compliant to ISO17025, or ANSI/NCSL Z540, AS9003, ISO10012 or NADCAP AC7004 or equivalent.

##### 3.1.3 Changes in Quality System, Facilities, Management or Ownership

Suppliers will immediately notify UTAS in writing within 24 hours of changes to their Quality System, management or ownership. Changes requiring notification include but are not limited to:

- Change in location of facilities, processes or manufacturing equipment. Notification must be prior to relocation and with adequate time for hardware, system, and process requalification.
- Change in ownership, name changes, or change in senior company management.
- Change in quality leadership, system or controlled processes certification status, including suspensions or disapprovals.

### **3.1.4 Configuration Control**

The supplier shall maintain engineering, manufacturing, and quality controls such that the configuration of items scheduled for delivery conforms to the design data.

Formal written consent using the Deviation/Waiver (PHX-QA-004-FRM) or a Purchase Order modification from UTAS ESC is the only form of communication allowed for changes – verbal communications, meeting notes, e-mails, etc. are not considered as formal methods of communication. The formal written consent shall be obtained prior to making any changes to the functional, physical or operational interchangeability, weight, safety, reliability, service life, maintainability, of product prior to any deliveries.

UTAS ESC reserves the right to reject and/or retain any delivered items against the Purchase Order until concurrence of the supplier's submitted change request is approved. Additional guidance can be found in ISO-10007

### **3.1.5 Counterfeit Parts Prevention**

Suppliers / Distributors providing electronic assemblies, components, or containing electronic components to ESC shall be compliant to SAE AS5553. Non- electronic product shall follow the guidelines of SAE AS 6174. Seller agrees and shall ensure that Counterfeit Parts are not contained in products delivered to UTAS ESC.

Requirements include:

- All parts and materials shall be procured only through original equipment manufacturers (OEMs/OCMs), or their franchised dealer or distributors.
- The supplier shall verify the procurement sources and associated certifying paperwork.
- Appropriate incoming inspection test methods shall be used to detect potential counterfeit parts and materials.
- The supplier shall not use unapproved brokers (any company, person, or entity who is not an OEM/OCM or not an OEM/OCM authorized franchised dealer or distributor) for the purchase of components/materials/parts unless pre-approval has been granted by UTAS ESC.
- The OEM or Franchised Distributor shall provide with the shipment a Certificate of Conformance, certifying that the component provided is the part number being procured on the UTAS ESC Purchase Order. A certificate which certifies the vendor part number, with the UTAS ESC ordered part number identified as "Reference or Customer P/N," does not indicate certification to the UTAS ESC ordered part number, if the UTAS ESC drawing includes additional requirements.
- A certificate from a Franchised Distributor must also establish traceability to the Original Manufacturer (OEM). The preferable method is for the Franchised Distributor to provide a copy of the Manufacturer's certificate for the lot number being supplied, along with their Franchised Distributor certification.
- In the event SELLER becomes aware or suspects that it has furnished Counterfeit Parts, it shall immediately notify UTAS ESC. When required by UTAS ESC, SELLER shall provide OEM/OCM documentation that authenticates traceability of the parts to the applicable OEM/OCM.



- Flow down: SELLER shall flow this clause down to all sub-tier suppliers to prevent the inadvertent use of Counterfeit Parts and materials.

### **3.1.6 Control of documents**

The latest revision of industry standards shall apply unless otherwise stated in the purchase order. It is the supplier's responsibility to obtain these revisions.

"White-out" or correction fluid shall not be used on product acceptance records. Corrections can be made by having the authorized person mark the error with a single line then make the correction, and initial and date the correction.

### **3.1.7 Records**

Product acceptance records shall be maintained for a minimum of ten (10) years unless otherwise specified by contract or Purchase Order (Ref. ASQR-01, Para 4.2.4). All records supplied to UTAS ESC shall be in English.

Records shall be sent to UTAS ESC within 48 hours of requesting them. At the end of the retention period the supplier shall provide the option for UTAS ESC to take possession of the records.

Records shall be stored, maintained, and protected in a manner to preclude damage or loss and preserve their integrity. Records (hardcopy/electronic) shall be identifiable, accurate, complete, legible, and readily retrievable. When applicable, acceptance stamps and signatures must be legible.

Records may be stored as hardcopy and/or in electronic format. Electronic format can consist of scanned documents, databases, CDrom, electronic forms and files, floppy disks, e-mail and attachments.

When stored via electronic format only, information, acceptance stamps and/or signatures must be legible.

If the supplier ceases trading with ESC, quality records shall be maintained until disposal is authorized by the purchasing site Quality Manager. If the supplier ceases trading completely, or is unable to maintain the records, the purchasing site Quality Manager must be informed so that alternative arrangements can be made to store the records.

## **3.2 Product Realization:**

### **3.2.1 Order of precedence**

In the event there is a written UTAS ESC requirement that appears to be in conflict with any other requirement, the supplier shall contact the UTAS ESC buyer who will forward the request for clarification to the proper internal function.

### **3.2.2 Purchasing information**

The purchasing documents shall be reviewed to ensure the adequacy of requirements before orders are placed with the sub-tier supplier. Purchase orders placed with sub-tier suppliers to fulfill UTAS ESC orders must cascade pertinent requirements including Quality System and customer specific requirements to sub-tier suppliers. If a government contract is being fulfilled, federal acquisition regulations (FAR) and defense federal acquisition regulations (DFAR) supplemental requirements shall be invoked on sub-tier purchase orders. Additional Quality clauses may be incorporated on the UTAS ESC purchase orders and those clauses shall be subsequently flowed down to sub-tiers where appropriate.

Proprietary information shall not cascade to second tier suppliers without written permission from UTAS ESC.

The supplier shall be responsible for their statutory and regulatory requirements.

### **3.2.3 Validation of processes for production and service**

The supplier shall validate any process or Special process for production and service provision that requires destructive testing to validate. Validation demonstrates the ability of these processes to achieve planned results.

### **3.2.4 Customer property**

UTAS ESC or UTAS ESC customer property shall be used only as required in the completion of UTAS ESC orders.

### **3.2.5 FOD / Debris Prevention, Handling, Storage, Packaging, Preservation and Delivery**

Suppliers shall follow the guidelines of ASQR-15.1 which is based on specifications NAS 412 (FOD) and Mil-Std-1686 (ESD). Additional requirements are listed in ASQR-15.1 for handling, storage controls, preservation and packaging, shipping and records. Key criteria and additions to ASQR-15.1 shall include the following:

- Foreign object damage (FOD) prevention must be maintained using NAS412 as a minimum during design, manufacture, assembly and or shipping of an item.
- When temperature controlled material is involved the supplier shall provide material packaging suitable to maintain proper temperature during transportation from their facility to UTAS ESC. Supplier shall provide necessary temperature measuring equipment to monitor the material during transportation to assure compliance to the specifications of the Purchase Order/Contract. Packaging for such material shall be clearly marked as containing temperature controlled material. UTAS ESC reserves the right to reject any material where temperature storage requirements have been exceeded.
- Supplier shall ensure that all ESD sensitive materials, devices, or assemblies capable of being degraded, damaged or destroyed by static electrical charge shall be handled in accordance with MIL-STD-1686. All items in unit, intermediate and shipping containers shall be clearly marked as “Electrostatic Discharge Sensitive” or in accordance with MIL-STD-1686.
- The supplier shall ensure that all moisture sensitive components, used in the production of items per the purchase order / contract, are handled and preserved per the guidelines of J-Std-020 and J-Std-033.
- The supplier shall incorporate good practices for preservation and packaging of all items submitted under the contract / purchase order and shall identify each package permanently and legibly with the purchase order number, date shipped, and packing slip number. The supplier shall ensure that the items provided under the contract / purchase order are packaged in such a manner that the product integrity is preserved, contamination and corrosion is prevented and no physical damage occurs.

### **3.2.6 Product / Lot Sampling per ASQR – 20.1**

Product / lot sampling and acceptance shall be accordance with the guidelines of ASQR-20.1.

In addition, Non-destructive testing of electrical and mechanical parameters shall be performed 100% unless specifically permitted by part number.

### **3.2.7 Internal Audit**

The supplier shall conduct internal audits at planned intervals to confirm compliance to UTAS Quality requirements contained within this document including all applicable ASQR Supplier documents. Objective evidence of completed audits must be made available to UTAS ESC upon request.

### **3.2.8 Monitoring and measurement of processes**

Special process suppliers shall provide certifications for each special process or NDT method performed (e.g. metal to metal bonding, plating, anodizing, chemical conversion, heat treating, and fluorescent penetrant inspection). Certification shall provide evidence of compliance to drawing, specification and/or purchase order and contract requirements in accordance with Requirement F of this document.

### **3.2.9 Control of Monitoring and Measuring Devices**

The supplier shall have a documented calibration system that meets the requirements of ISO 10012, ANSI/NCSL Z540 or ISO 17025.

Measuring equipment shall have unique identification to allow for calibration record traceability and recall as necessary.

Records defining calibration intervals for each piece of equipment shall be maintained and include the date and technician who performed the last calibration. All equipment shall be checked against a standard traceable to the National Institute of Standards and Technology (NIST).

### **3.2.10 Score Cards**

In order to keep suppliers apprised of their level of performance in the delivery of goods and services to UTAS ESC, scorecard data will be compiled and used as a metric. There are metrics for both on-time delivery and Quality.

The delivery metric is comprised of the percentage of products /services delivered “On Time and in Full” (OTIF) per reporting month. The window of delivery to UTAS ESC is 5 days early, 1 day late, from the P.O. due date

The quality metric is comprised of the percentage of products / services delivered against the number of rejects, per reporting month. The goal is zero defects for all deliverables.

Suppliers shall maintain an acceptable UTAS ESC quality approval rating of 95% for on time delivery and product quality acceptance on the basis of a six month average. Failure to meet the minimum delivery and or quality ratings may result in the supplier’s disapproval.

Suppliers are expected to work with ESC personnel to continuously find process and cycle time improvements as well as cost reductions.

Suppliers shall maintain an acceptable UTAS ESC quality approval rating. Failure to meet UTAS ESC’ minimum quality ratings and approval status may result in the supplier’s disapproval.

### **3.2.11 Non-Conforming Product / Deviations and Waivers**

UTAS ESC does not authorize any supplier to make “use-as-is” or “repair” dispositions on nonconforming material relating to parts, subassemblies or assemblies of UTAS ESC design unless material review

authority is granted in writing. Suppliers shall take the following steps when nonconforming material is found:

- Identify the nonconforming material and segregate it in a bonded area.
- Submit a UTAS ESC Request for Deviation/Waiver on Form PHX-QA-004-FRM or equivalent - detailing the discrepancy, quantity discrepant, the cause and corrective action to eliminate the discrepancy and the affectivity point of the correction.

Deviation / Waiver procedures must be approved by UTAS ESC in advance of their use on UTAS ESC product. Approval of the Deviation / Waiver does not imply final acceptance of the product.

Known defective parts/material is not to be sent to UTAS ESC without an approved Deviation/Waiver. A copy of the approved document shall be shipped with parts.

The supplier shall notify UTAS ESC of any non-conforming material that may have been shipped at any time against the purchase order. The notification shall be documented on a UTAS ESC Root Cause and Corrective Action form PHX-QA-0001-FRM and include:

- Part Numbers affected with associated serial numbers.
- Quantity
- Detailed description of non-conformance
- Purchase Order number(s) and associated line item numbers
- Shipping date and associated shipping information (tracking number, etc.).

Suppliers, at the discretion of the UTAS ESC supply chain, may be responsible for administrative and manufacturing costs incurred by UTAS ESC for review, disposition and rework of supplier manufactured product which doesn't comply with applicable engineering documentation. Rework costs are inferred for product not returned to the supplier via an RMA.

### **3.2.12 Root Cause Corrective Action**

The supplier shall take action to eliminate the root cause of nonconformities in order to prevent recurrence. Corrective actions shall be appropriate to the effects of the nonconformities encountered and documented on a UTAS ESC Root Cause and Corrective Action form PHX-QA-0001-FRM. A documented process shall be established to accomplish the following:

- Within 24 Hours - Acknowledgment and containment actions shall be communicated to UTAS ESC
- Determine the root causes of non-conformances.
- Determine and implement corrective action or corrective action plan within five (5) days.
- Evaluate the need for and implement preventative action.
- Record results of action taken
- Target completion of root cause and corrective action is 30 days.
- Review corrective action taken for effectiveness
- When applicable, requests for return material authorization (RMA) shall be responded to within 48 hours.

### **3.2.13 Communication and responsibilities**

During the life of the Purchase Order the supplier is required to notify the UTAS ESC buyer of any change concerning Product Definition, Industrial Process and Means (tools and production/test equipment),

major changes to your company structure or process (plant location, transfer of quality or leadership personnel)

When UTAS ESC source inspection (ref Requirement SR-7) is required at the supplier's facility, it shall be after supplier inspection and prior to packaging and shipment. In-process inspection or witness of ATP when required by purchase order need not be performed prior to customer inspection. Supplier shall supply the purchase order or contract including amendments, drawings, specifications, and applicable records, certifications and all necessary measuring equipment. Evidence of source inspection must be indicated on the inspection or ATP record and the shipping paperwork.

The UTAS ESC buyer must be notified at least forty-eight hours (48) in advance of the time product is to be inspected. UTAS ESC reserves the right to waive source inspection.

In the event that an item becomes obsolete, UTAS ESC requires a minimum 12 months prior notification of such and reserves the right to make a 'last buy' to ensure uninterrupted delivery to the end customer.

### **3.2.14 Export / Import Compliance**

The Supplier, and their sub-tier suppliers as applicable, shall comply with all export-import control laws and regulations including, but not limited to, the U.S. Export Administration Regulations (EAR) and the U.S. International Traffic in Arms Regulations (ITAR) to the extent applicable to the Supplier and UTAS ESC respective activities under the Purchase Order.

Any supplier who manufactures defense articles or furnishes defense services for UTAS ESC is required to register with the U.S. Directorate of Defense Controls per ITAR Part 122.

Follow the link below to register.

<http://www.pmdtdc.state.gov/>

Follow the link for a copy of ITAR Part 122.

[US State Department - Policy - Directorate of Defense Trade Controls](#)

If the data or product provided under the UTAS ESC Purchase Order is controlled for US export-import reasons, such data/product will not be further disclosed, exported or transferred in any manner to any other foreign national person (internal or external to the supplier or sub-tier suppliers) or any foreign country contrary to U.S. export-import law.

Prior to a supplier sub-contracting to a foreign facility for product under UTAS ESC design control, they must obtain approval from the UTAS ESC International Trade Compliance Group. If a supplier has any questions on export jurisdiction for UTAS ESC designed product, contact UTAS ESC.

When supplying product to UTAS ESC that is under supplier design control, the supplier shall provide the export classification jurisdiction (e.g., Export Classification Control Number (ECCN), ITAR USML classification), Harmonized Tariff Schedule (HTS) Code, and the Country of Origin information for that product (e.g., on the shipping documentation).

Supplier is required to notify UTAS ESC of part or component status changes in regards to facility, address, and country of origin, export control classification jurisdiction and HTS code. Supplier may use a form with the required information from their own document system. Form must be signed by an authorized Supplier representative.

### 3.2.15 Right of Entry

UTAS Corporation, its customers, contractors, the FAA or other government regulatory agency reserve the right of entry to survey the suppliers Quality management system, processes, sub-tiers to ensure progress of completion of the purchase order and to review all applicable records or that of the supplier's sub-tier suppliers.

## 4 Supplemental Requirements

**NOTE: The following requirements of section 4 apply only when specifically invoked by purchase order.**

### SR - 1. Fixed Processes

Fixed Processes may be established for some products. Fixed processes shall be identified as such on the supplier's manufacturing router or shop traveler. These processes shall not be changed without UTAS ESC approval. Changes refer to process parameters, equipment, tooling or plant layout as well as a change of sub-tier supplier.

Requests for fixed process change approval shall be submitted to the UTAS ESC buyer.

The supplier shall also flow this requirement to applicable sub-tiers.

All changes to fixed processes will require new first article inspection report in accordance with AS9102 and this document.

### SR - 2. Monitoring and measurement of product and Key Characteristics

The supplier shall monitor and validate the characteristics of the product to verify that product requirements are fulfilled. This shall be carried out at appropriate stages of the product realization process.

Evidence of conformity with the acceptance criteria shall be maintained. Records shall indicate the person authorizing release of product. Product release and service delivery shall not proceed until all the planned manufacturing operations have been satisfactorily completed, unless otherwise approved by a relevant authority, and where applicable by the customer.

Suppliers producing product with drawing characteristics designated as KEY characteristics shall manage those characteristics in accordance with the latest version of SAE AS9103. Available at [www.sae.org/aaqg/publications](http://www.sae.org/aaqg/publications)

Suppliers producing product with drawing characteristics designated as FLIGHT SAFETY CRITICAL shall perform 100% inspection on these characteristics.

Key characteristic and flight safety critical data shall be made available to UTAS ESC upon request.

### SR - 3. First Article Inspection Requirement

The supplier's system shall provide a process for the inspection, verification, and documentation of the first production article, and updates to it, in accordance with AS9102 (Aerospace First Article Inspection Requirement) and ASQR-01 (Para. 7.5.1.1). Requirements include:

- A full First Article Inspection Report (FAIR) shall reflect 100% inspection verification of all drawing characteristics with corresponding actual measurements, as applicable per the drawing requirements.

- A first article inspection report is required to be submitted for each drawing revision change (without regard to form, fit, or function). If the revision is only an administrative correction, the FAIR shall state that point.
- A delta FAIR, from a baseline full FAIR, may be submitted for a revision and or part number (dash – xxx) changes.
- For UTAS ESC vendor item control drawings used to procure Commercial Off-The-Shelf (COTS) products, a FAIR is only required for the specific characteristics beyond the COTS design and controlled by an UTAS ESC drawing (e.g., painting a COTS screw would require an FAIR on the paint only).
- The FAIR shall list on form 1 the UTAS ESC part number (as indicated on the Purchase Order), serial number of the article used for the FAIR, and a FAIR number assigned by the supplier.
- The FAIR shall include a second party review (other than the preparer) before submittal to UTAS ESC.
- All FAIRs and Certificates of Conformance shall have a signature of the responsible representative of the supplier.

**The Supplier is not authorized to ship product until UTAS ESC approves the FAIR or otherwise provides authorization for shipment prior to completion of the FAIR approval. Authorization can be obtained by the supplier submitting form PHX-QA-0004-FRM to ESC for approval.**

The following documentation shall be included with the top level AS9102 FAIR package:

- A Certificate of Conformance (C of C) for the top level assembly (Ref. C of C, SR-11).
- Certificates of conformance (C of C's) from the manufacturer (OEM) and distributor for all components and materials used in the top level first article assembly. The C of C's provided by the distributor and manufacturer shall list component / material by part number, lot / date code and or purchase order number.
- Certificates of conformance for any processing (i.e., anodize, chemical conversion coat, heat treat, welding, etc.). The certifying company shall have a Nadcap approved process (as applicable) and be a company / customer approved source when required by the drawing or purchase order.
- The top level FAIR shall include copies of all non-proprietary lower level FAIR's (i.e. PCBs, conformal coating, machined components, etc.) and must comply with the requirements of AS9102 and ESC 9100. For supplier related proprietary lower level items, the supplier can provide a copy of form 1 (AS9102) of their FAIR or state "FAIR approved and compliant to AS9102" for that specific item.
- Certifications and / or data results for testing (i.e. voltage, dielectric, flying probe, ICT, etc.) when such testing is required by the drawing or purchase order.
- The FAIR shall include a copy of and reference all deviations / waivers approved by ESC regarding product changes on form 1 (block 8) and form 3 at all applicable features. The FAIR shall be marked "FAI Not Complete" when deviations / waivers apply.
- The Supplier shall also provide a "balloon" drawing with the FAIR package identifying each characteristic from the drawing associated with the characteristics on Form 3 of the AS9102 report.
- The FAIR shall contain a listing of all components (BOM) used in the top level item. The list shall include the ESC designated number, associated manufacturer's part number, designator location(s) and applicable Certificate of Conformance or FAI number.
- A replication of the product part marking (via photograph or sample) that represents production marking shall be included in within the FAIR.

UTAS may request a new production FAIR based on suppliers Quality performance, request(s) for deviation / waivers, or special cause such as a product escape.

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UTAS ESC suppliers utilizing sub-tiers are required to flow-down the specific First Article Inspection Reports requirements of AS9102 and this document to all applicable sub-tier suppliers. The completed FAIR's shall be approved and retained by the UTAS ESC supplier and provided within the FAIR presented to UTAS ESC.

Note – Supplier forms equivalent to AS9102 may be used as long as it fully meets the intent of the AS9102 document. AS9102 FAI forms are available at [www.sae.org/aaqg/publications](http://www.sae.org/aaqg/publications).

#### **SR - 4. Lot Sampling at 100% of Product**

The supplier shall perform 100% inspection for compliance of each characteristic of all items / parts delivered against this contract / purchase order.

#### **SR - 5. UTAS ESC Supplied Software**

Suppliers that load UTAS ESC provided software and/or firmware are required to verify and control the software per AS9100 – “Control of Customer Property”.

When suppliers utilize a third party to load software and/or firmware, they shall flow down these applicable requirements and ensure the applicable agreements are in place with those sub-tier suppliers to protect ESC UTAS ESC proprietary information.

#### **SR - 6. Direct Ship Authority**

A supplier may be granted direct shipment authority allowing them to ship directly to UTAS ESC customers. If allowed, the direct ship authorization and instructions will be contained in the purchase order.

#### **SR - 7. Source Inspection**

UTAS ESC may elect to employ a 3rd party source inspector and/or utilize the supplier to oversee the processing and release of product to UTAS ESC. Typical duties would include process monitoring and data collection, product audits and reports to UTAS ESC. The Source Inspector would be responsible for releasing product to UTAS ESC.

#### **SR - 8. Certified Suppliers**

Certified Suppliers to UTAS are authorized to assure products/material/services meet all engineering design, drawing, specification, and quality requirements. They have the responsibility to implement and maintain controls, which will assure conformance to all UTAS design and purchase order requirements. This certified inspection authority shall not be delegated to any Sub-tier Supplier

Prior to consideration for certified supplier authority, the Supplier must have established twelve (12) months of performance and acceptance history for their received products and services with UTAS and if UTAS deems necessary, an on-site supplier evaluation performed by UTAS representatives or by a UTAS authorized 3rd party.

Unless otherwise noted, inspection delegation is authorized for all part numbers under the control of the noted Supplier's quality system procured by UTAS. The requirement of this authority will be identified on purchase documents such as UTAS contracts, agreements, purchase orders or notification approval letters.

Certified Suppliers shall have and maintain a Quality Management System (QMS) that is certified and registered by an accredited 3rd party registrar to SAE AS-9100 International Quality Standard.

If the supplier is not AS-9100 certified, UTAS ESC reserves the right to grant certified status by conducting supplier audits either by UTAS ESC or their designee.



The audit is for assessing compliance only, and does not imply that UTAS will certify a supplier to a National or International quality standard.

UTAS may elect to perform supplier on-site audits of that Supplier according to the supplier's performance.

Certified Suppliers must maintain a minimum of 98% acceptance level of received items. This percentage is based on tracking rejections at receiving, in-process use and field reports. The Supplier's effectiveness and timeliness of their corrective actions are also considered during performance evaluation and supplier audits per schedule.

If a Certified Supplier fails to maintain the 98% acceptance level of received items for a running three month average, they will be placed on a probationary period and their status will be changed to "conditional" approval status. If quality standards are not improved to acceptable levels, the certified status will be revoked. Certified status authority for the Supplier may be re-instated provided acceptable identification of root cause and implementation of corrective actions, are addressed.

Certified Suppliers are subject to periodic maintenance verification audits to ensure continued compliance to quality systems and contractual requirements.

The Certified Supplier's Quality personnel shall be responsible for marking acceptance status on the accompanying Certificate of Conformance/Compliance and/or Test Data/Report by using the Supplier's acceptance stamp impression on required documentation.

The Certified Source Inspection supplier shall also use their quality system's acceptance stamp for product acceptance status marking, either marked physically on the product, or packaging, and/or acceptance label or tag.

The Certified Supplier shall be responsible for the definition and maintenance of their quality system acceptance status stamp control system. This control shall include an annual verification or stamp audit to ensure proper use and control of inspection stamps. The documented system and audits shall be subject to audit or review by UTAS upon request.

Certified Suppliers shall perform First Article Inspections (FAI's) per the current SAE AS-9102 First Article Inspection Requirements Standard. The FAI documentation shall be submitted with the First Article shipment.

#### **SR - 9. Software Quality Assurance**

The supplier and sub-tiers shall comply with the appropriate version of RTCA-DO-178, "Software Considerations in Airborne Systems and Equipment Certification" and MIL-S-52779.

Deliverable Software DO 178/Mil - Standard: Any software, including non-deliverable software, used to create or revise Deliverable Software shall be categorized as Deliverable Software.

#### **SR - 10. Serialization**

The product serial number(s) shall appear on all certifications and data sheets provided by the supplier.

#### **SR - 11. Certificates of Conformance/ Compliance**

All products being received at UTAS ESC requires a certificate of conformance and or compliance (as applicable) stating that the material or services being procured meet all purchase order and drawing requirements and Certificates of Conformance / Compliance shall be furnished with each shipment.

A copy of the test reports when required by drawing or specification shall be provided with each shipment.

**The following information shall be included on each Certificate of Conformance / Compliance:**

- Statement of certification: (example) “I hereby certify the materials/service supplied was produced in accordance with the Purchase Order, applicable drawings and specifications. Inspection and test reports are on file and available upon request”.
- UTAS ESC Purchase Order, line item and amendment number.
- Part number, description and drawing revision / index level (if applicable)
- Suppliers performing special processes shall list the number and revision level of the applicable process specification(s), lot size, sample size, applicable process specifications/controls and applicable test results. If the job was processed using a NADCAP accredited process, the supplier shall include a statement indicating the job was processed per their NADCAP Accreditation and shall include their Accreditation number and expiration date.
- Quantity in shipment and if applicable, serial numbers of serialized items, lot number, batch number.
- Signature of authorized representative, and date. Electronic signatures are acceptable. Companies with automated systems for producing certification documents shall control access to this system and limit the release of UTAS ESC product to authorized persons only.
- Supplier name, address, and Original Equipment Manufacturer’s CAGE Code and Country of Origin (COO).
- The location of objective evidence of inspection, if other than the supplier’s facility.
- Waiver/Deviation non-conformance number indicated with documentation (as applicable).
- Any other quality requirements specified on the UTAS ESC purchase order.
- Certificate of Conformance / Compliance documentation from distributors shall include:
- Original manufacturer’s certifications shipped with material or parts plus the distributor’s certification. The C of C’s provided by the distributor and manufacturer shall provide traceability of the component by part number, lot / date code and purchase order number.
- Listing of associated component part number which corresponds with the ESC drawing number (Vendor Item Control Drawings) for standard parts (COTs), (as applicable).
- Distributor’s certification referencing OEM documentation that is maintained on file. Distributors in this category are designated as “Qualified Distributors” and must be licensed by the manufacturer to distribute product or registered to one of the Quality standards outlined in Table II.

See Table I for additional information regarding requirements for raw material, chemicals and standard parts (COTs).

TABLE I: REQUIRED DOCUMENTATION FROM DISTRIBUTORS		
CLASS OF PARTS	REQUIRED	WITH SHIPMENTS
Raw material	Physical and chemical properties reports traceable to heat code or lot number	Physical and chemical properties reports traceable to heat code or lot number
Standard parts (COTs and ESC Vendor Control Dwgs)	C of C from manufacturer (OEM)	C of C from the distributor and OEM traceable by part number, lot/date code and / or purchase order number.
Chemicals	C of C from producer / SDS sheets,	C of C from producer SDS sheets,

TABLE II: QUALITY STANDARDS	
STANDARD	TITLE
ISO-9001	Quality System Standard
AS9100	Quality Management System
AS9120	Requirements for accredited distributors

Products that do not meet the requirements for C of C outlined above must be addressed via the waiver/deviation process, prior to shipment to UTAS ESC.

Products shall contain no metallic mercury and must be free from contamination by mercury. The Supplier shall not use mercury, mercury components or mercury bearing instruments or equipment that cause the contamination during the manufacture, service, assembly, or test of materials.

**Statement that Order is Free of Mercury**

The Supplier shall include on the C of C a statement that tells that the items are either free of mercury (for components), or free from mercury contamination (for assemblies), the statement must be notated as below, or words that convey the same meaning:

For Components: *“ The undersigned certifies that items in this shipment are mercury free .”*

For Assemblies: *“ The undersigned certifies that the items shipped conform to the requirements of the Purchase Order. The items are free from mercury contamination. Mercury-bearing instruments and equipment which can cause mercury contamination were not used in the manufacture, service, assembly, or testing of the items supplied. ”*

The statement must contain the signature of a corporate or company officer.

**Inclusion of Mercury**

If the inclusion of metallic mercury is required as a functional part of the items supplied, the supplier shall get written approval from UTAS ESC prior to delivery and shall supply a “Warning Plate” to show that metallic mercury is a functional part of the item.

The label must identify the name and the location of the part or component.

**SR - 12. Shelf Life**

When Age controlled material is involved the supplier shall identify each material container with the date of manufacture and the time period before expiration. UTAS ESC reserves the right to reject any material with less than seventy-five (75%) shelf life remaining.

**Electronic and electrical components used within UTAS ESC products shall have a maximum shelf life per manufacturer's recommendations. Components beyond the shelf life requirements shall be evaluated for solderability requirements per J-Std-002 (as applicable).**

**SR - 13. UTC Production Part Approval Process (UPPAP).**

The UPPAP requirement when invoked by the P.O. is required anytime new parts or change to existing parts or processes is being planned. Reference ASQR-09.2 UTC Production Part Approval Process.

**SR - 14. REACH Statement Required (REACH Regulation No. 1907/2006/EC).**

**SR - 15. Blue Label Production Items for Engineering Evaluation.**

All requirements of ESC9100 apply with exception to paragraphs 3.1.1, 3.1.2, 3.2.7, 3.2.10, 3.2.11 (no Deviation / Waiver form required), 3.2.12 (no Corrective Action form required), and 3.2.15. No requirements of section 4 apply unless specified on the applicable Purchase Order.

**SR - 16. Limited Red Label Production Items.**

All requirements of ESC9100 Section 3 apply. Requirements of section 4 apply as specified on the applicable purchase order. Exemptions and / or exceptions to any sections / clauses of ESC9100 shall be documented on the applicable Purchase Order.