

Purchase Order Quality Clause QC42

Rev A1 Jan 2021

Commodity
Systems

Clause A - Quality System Requirements

All references to the term "Government" in any of the documents referenced below shall be replaced with the term "CWDS and/or the Government". All references to the term "Departmental Representative" shall be replaced by CWDS Representative and/or Departmental Representative".

- A1** The supplier shall establish and maintain a Quality Management System that complies with International Organization for Standardization.
For example :(ISO 9000:2015, AS9100, AS9120 or equivalent as applicable to the product or services they provide)
Supplier's Quality Management System is subject to audit, verification and approval and/or disapproval by CWDS designated representative(s).
- A2** The supplier shall notify CWDS Supply Chain in writing of any significant change to the quality management system and/or its approval status including any suspensions, disapprovals and major non-conformities issued by their certification body. This shall include provision of renewed certifications.

Clause B - Quality Assurance Requirements

- B1** CWDS's Customer and the Prime Contractor reserve the right to carry out Quality Assurance practices at source during performance of this order.
- B2** CWDS reserves the right to carry out Supplier Quality System Audit, Source Inspection and/or Test at the supplier's facility prior to shipment.
- B3** **Control of Nonconforming Product**

Any nonconformance discovered by the Supplier, on products in their control, shall be documented by the organizations' approved method of nonconformance reporting. (8D is a preferred method) This shall include a detailed description of the nonconformance; location (by drawing reference point, hardware reference point, clock location, etc.); and exact callout of the violation by drawing or specification requirement (including sub-paragraph or illustration number). It shall also list what type of inspection revealed the discrepant condition, and what, if any, subsequent actions were taken prior to disclosure. Dimensional violations shall include "should be" and "is" dimensions, and tool(s) calibration traceability numbers.

Clause C - Manufacturing, Test and Inspection Requirements

C1 The supplier shall provide manufacturing test and inspection data with each shipment as applicable to the commodity, which shall specifically include **or traceability to** :

- a) The Purchase Order number
- b) The part number and revision level
- c) Traceability to specific items or lots
- d) Approval by the supplier's authorized representative.

C2 The supplier shall ensure and maintain the physical and chemical test reports on raw materials on file, either at the supplier's plant or at those of their OEM suppliers, and that any processes used in the fabrication of CWDS parts satisfy the requirements of the applicable specifications (including, where applicable, certification of process personnel). Records must be available for examination by CWDS upon request.

C3 The Supplier shall perform a First Article Inspection (FAI) when any of the following occur:

The Supplier shall perform a First Article Inspection (FAI) when any of the following occur: (for reference - not applicable to COTS products/ commercial off the shelf.). AS9102 FAI is not required for the following as defined in AS9102 (examples COTS; Gaskets, Nuts, bolts, epoxy) COTS equipment, COTS software. FAI applies to CWDS designs only

- The first time material is provided (full FAI)

- A change in design (partial FAI for affected features/characteristics)
- A change in manufacturing source(s), process(es), inspection method(s), location of manufacture, tooling, materials, NC programming (full FAI).
- FAI is required if there is an extended gap of time (Two years) since last production.

First Article Inspection shall be performed per AS9102 as a guide line. The FAI and the product may be shipped at the same time or later as authorized by CWDS buyer.

First Article material shall be produced using production tooling, processing and methods and must include all design data Specified by the PO, Detail drawing and any other applicable design document such as IGS/Files and CAD models.

The FAI requires inspection and verification of all features and key characteristics on the design specification and control plan prior to Production. Record the actual measured values as opposed to general statements of conformance or other notations simply indicating acceptance. Shall provide Objective evidence of a first article inspection report or validation with the shipment. Where applicable, this evidence shall include CMM measurements of CTQ parameters or Key Characteristics as identified on the CWDS drawing.

Unless previously approved by CWDS all CTQ (Critical to Quality) or key characteristics must be compliant with the design data.

If CTQ parameters or key characteristic are not identified on the drawing then the vendor is to contact CWDS Quality for directions.

- C3** The Supplier shall perform a First Article Inspection (FAI) when any of the following occur as per AS9102 as a guideline, (not applicable to COTS products)
- The first time material is provided (full FAI)
 - A change in design (partial FAI for affected features/characteristics)

- A change in manufacturing source(s), process(es), inspection method(s), location of manufacture, tooling, materials, NC programming (full FAI).
- A lapse in production for two years shall require an update for any characteristics that may be impacted by the inactivity. This lapse is from the completion of last production operation to the actual restart of production

The FAI and the product may be shipped at the same time or later as authorized by CWDS buyer.

First Article material shall be produced using production tooling, processing and methods and must include all design data Specified by the PO, Detail drawing and any other applicable design document such as IGS/Files or CAD models.

The FAI requires inspection and verification of all features and key characteristics on the design specification and control plan prior to Production.. Where applicable, this evidence shall include CMM measurements of CTQ parameters or Key Characteristics as identified on the CWDS drawing.

If CTQ parameters or key characteristic are not identified on the drawing then the vendor is to contact CWDS Quality for directions.

- C4** Shipments made against this Purchase Order must be accompanied by a Certificate of Conformance attesting that all the applicable specifications, drawings, and Purchase Order requirements have been met. The supplier must maintain quality records applicable to the certificate for a period of not less than Seven years.

The C of C must contain the following as a minimum:

- a) The Purchase Order number
- b) Manufacturers part number and revision level (rev level if item is revision controlled)
- c) Quantity shipped
- d) Approval by the supplier's authorized representative
- e) The manufacturers' lot (batch or serial number) and the date of manufacturer (date code) for each unique item as applicable that the C of C pertains to. **(Exemption to (e) requirement is acceptable for connectors)**

The supplier shall not supply electrical, electronic, or electromechanical (EEE) parts having lot date codes older than 5 year without specific C-W agreement in writing.

If this agreed material is MSL 2 or worse than the supplier shall verify prior to delivery that a valid HIC Tag is present along with desiccant in the component bag.

Customer Furnished Equipment is exempt from this requirement.

- C5** The supplier shall furnish a C of C stating that the product supplied was developed with adequate controls and documentation and testing as applicable. All such documentation shall be made available upon request.

The C of C must be approved by the suppliers authorized representative and must accompany the shipment. Electronic approval is acceptable

- C6** Each part shall be identified with a unique serial number traceable to its production lot records.
- C7** Each part shall be marked with a manufacturers date code traceable to its production lot record. If it is not practical to mark the part, the lowest order of packaging shall be marked with the date code.
- C8** The supplier distributors exempt, shall maintain records providing traceability to the batch or lot number, the date of manufacture and the name of the manufacturer of raw metal stock utilized in the production of the item delivered. These records must be available for acquisition and examination by CWDS upon request.
- C9** All removable chassis piece parts are to be identified with a serialized date code, marked adjacent to the part number. Exception to heat spreaders, select on build shims.

Clause D - Change Control Requirements

- D1 The supplier shall operate and maintain a written Configuration Management system, which shall ensure:
- a) Changes are properly evaluated, classified, and documented.
 - b) Traceability of all changes made after the initial baseline is maintained.
 - c) Baselines are clearly defined and are re-creatable from CM records.

Clause E - Workmanship

- E1 Acceptance criteria shall be per CWDS Workmanship Standards Manual (document #800221/IPC-A-610/WHMA 620) of the issue in effect at the time of procurement.
- E2 Workmanship shall be in accordance with latest revision of IPC-A-610 and cables WHMA IPC 620 class 3 or as specified on the applicable Drawing, PO or contract. This clause shall apply to OEM suppliers where Distributors must be able to acquire the OEM certs or packing lists upon request that attest to this workmanship clause.
- E3 Workmanship and Process Control shall be in accordance with the latest revision of IPC/JEDEC J - STD – 001 at the time of the Purchase order. This clause shall apply to OEM suppliers where Distributors must be able to acquire the OEM certs or packing lists upon request that attest to this workmanship clause.
- E4 Cosmetic requirements shall be in accordance with CWDS Cosmetic Specification 819576. Mechanical requirements shall be in accordance with the CWDS mechanical specification 834303
- E5 **Control of Contamination & Foreign Object Damage (FOD)**
To preclude introduction of foreign objects into any deliverable item, the Supplier shall maintain a documented FOD prevention program appropriate to the commodity provided to CWDS. This program shall be compliant to AS9146 Foreign Object Damage

(FOD) Prevention Program - Requirements for Aviation, Space and Defense Organizations during design, manufacture, assembly and shipment of an item as well as use NAS 412 as a guide.

Supplier shall flow the requirement of this clause as applicable to their sub-tier and / or supplier.

- E6** Solder ability shall comply with IPC/JEDEC J-STD-002 or the latest revision to ensure component leads and terminations meets those requirements. Suppliers shall employ storage conditions and procedures ensuring no adverse effect on the ability to solder components to an interconnecting substrate. Upon request distributors are required to provide certifications from the OEM.

Clause F – Calibration

- F1** The Supplier Calibration system shall comply and be IAW with the latest Revision of ISO 10012-1, MIL- STD-45662 or ANSI Z540-1 or ANSI/ISO/IEC 17025. Calibration shall be traceable to National or International Standards.
- F2** The supplier shall provide a Certificate of Calibration for equipment purchased or rented on this Purchase Order. The certificate shall include:
- a) The description and unique identification of the equipment
 - b) The date of calibration
 - c) The results obtained
 - d) The recommended calibration interval
 - e) The designated limits of permissible error
 - f) The source used to obtain traceability
 - g) Relevant environmental conditions
 - h) A statement of uncertainties and their cumulative effect
 - i) Details of maintenance or servicing performed
 - j) Limitations of use
 - k) Identification of person who performed the calibration
 - l) Identification of related calibration certificates or other relevant documents

Calibration shall be traceable to National or International Standards

Clause G - Material Handling/Packaging/ Counterfeit Avoidance

- G1** All material shall be protected against corrosion, contamination, deterioration, or other spoilage during transit. All material shall be packed with suitable protection so as to prevent damage through handling in transit, during storage, and prior to use. Packaging will be in accordance with "best commercial practice" unless otherwise stated.
- G2** The supplier shall have a MIL-STD-1686 or ANSI/ESD S20.20 compliant Electro-Static Discharge control program in effect to protect electronic devices and assemblies during manufacture, test, inspection, packaging, transportation, shipping, rework, repair, and failure analysis. This program is subject to approval by CWDS.
Components ordered by this purchase order/contract require electrostatic protection and must be properly packaged and identified. The packaging must conform to requirement specified for electrostatic sensitive protection with clear markings illustrating electrostatic sensitive equipment.
- G4** The lowest order of packaging shall be marked with the manufacturing lot (or batch #) and the date of manufacture (date code). It is preferred that different lot codes or date codes are not intermixed within the lowest level of packaging.
(Exemption to requirement is acceptable for connectors)
- The supplier shall not supply electrical, electronic, or electromechanical (EEE) parts having lot date codes older than 5 years.*
- G5** The supplier shall operate and maintain a Moisture Management Control Program for handling, packing and shipping of non-hermetic SMD packages. The program shall meet the requirements of standard IPC/JEDEC J-STD-033, the latest revision in effect.
- G6 COUNTERFEIT PARTS PREVENTION**

The Supplier shall not provide electronic components, or assemblies containing electronic components, procured from Independent Distributors **without completion of CWD prescribed**

counterfeit risk mitigation testing and approval from the buyer prior to the use of all products from independent distributors.

The Supplier shall maintain a Counterfeit Part risk mitigation process internally, and with its suppliers, using SAE AS5553 and/or AS6174 as a guide. Supplier shall provide evidence of their risk mitigation process upon request.

The Supplier shall provide unique traceability identifiers (i.e. Date Code / Lot Code, Serial numbers) for all items delivered to CWDS which contain an item procured from sources other than Original Equipment Manufacturer or Original Component Manufacturer or their Authorized Distributors.

The seller shall ensure all authenticity testing is performed by an AS6081/AS9120 certified supplier as approved on **CWDS Approved Vendor Listing** using the test methods depicted in CWDS document **830585** latest revision available from CWDS portal.

<http://www.curtisswrightds.com/company/customer-supplier-information/>

(a) Definitions for purposes of this PO/Contract:

(i) "Counterfeit Parts" shall mean a part, component, module, or assembly whose origin, material, source of manufacture, performance, or characteristics are misrepresented. This term includes, but is not limited to, (A) parts that have been (re)marked to disguise them or falsely represent the identity of the manufacturer, (B) defective parts and/or surplus material scrapped by the original manufacturer, and (C) previously used parts pulled or reclaimed and provided as "new".

(ii) As used herein, "authentic" shall mean (A) genuine; (B) from the legitimate source claimed or implied by the marking and design of the product offered; and (C) manufactured by, or at the behest and to the standards of, the manufacturer that has lawfully applied its name and trademark for that model/version of the material.

(iii) "Independent Distributor" shall mean a person, business, or firm that is neither authorized nor franchised by an Original Component Manufacturer ("OCM") to sell or distribute the OCM's products but which purports to sell, broker, and/or distribute such OCM products. Independent Distributors are also referred to as unfranchised distributors, unauthorized distributors, and/or brokers.

(b) SELLER represents and warrants that only new and authentic materials are used in products required to be delivered to CWDS and that the Work delivered contains no Counterfeit Parts. No other material, part, or component other than a new and authentic part is to be used unless approved in advance in writing by CWDS. To further mitigate the possibility of the inadvertent use of Counterfeit Parts, SELLER shall only purchase authentic parts/components directly from the Original Equipment Manufacturers (“OEMs”)/OCMs or through the OEM’s/OCM’s authorized distribution chain. SELLER must make available to CWDS, at CWDS’s request, OEM/OCM documentation that authenticates traceability of the components to that applicable OEM/OCM. In addition, SELLER must produce, upon request from CWDS, proof that they are authorized distributors for material being purchased at the time of shipment. Purchase of parts/components from Independent Distributors is not authorized unless first approved in writing by CWDS Procurement Representative. SELLER must present complete and compelling support for its request and include in its request all actions to ensure the parts/components thus procured are legitimate parts. CWDS’s approval of SELLER request(s) does not relieve SELLER’s responsibility to comply with all Contract requirements, including the representations and warranties in this paragraph.

(c) SELLER shall maintain a documented system (policy, procedure, or other documented approach) that provides for prior notification and CWDS approval before parts/components are procured from sources other than OEMs/OCMs or through the OEM’s/OCM’s authorized distribution chain. SELLER shall provide copies of such documentation for its system for CWDS’s inspection upon CWDS’s request.

(d) If the SELLER is providing electronic components/devices only, the following certification applies:

Certification of Origin of Product:

Acceptance of this Contract constitutes confirmation by the SELLER that it is either the Original Equipment Manufacturer (OEM), Original Component Manufacturer (OCM), or a franchised or authorized distributor of the OEM/OCM for the product herein procured. SELLER further warrants that OEM/OCM acquisition documentation that authenticates traceability of the components to that applicable OEM is available upon request. If the SELLER is

not the OEM/OCM or a franchised or authorized distributor, the SELLER confirms by acceptance of this Contract that each product supplied to CWDS has been procured from the OEM/OCM or a franchised or authorized distributor of the OEM/OCM. The supplier further warrants that OEM/OCM acquisition traceability documentation is accurate and available to CWDS upon CWDS's request.

(e) *SELLER agrees to disclose their source of supply to CWDS in the event that the material in question is deemed suspected to be counterfeit.*

Independent Distributors only:

Unless defined in a document with a higher order of precedence than this CWDS

Verification of Authenticity Testing Requirements shall apply here as defined in 830585

CWDS supplier Portal <http://www.curtisswrightds.com/company/customer-supplier-information/>

(e) SELLER shall flow above listed requirements to its subcontractors and suppliers at any tier for the performance of this PO/Contract.

Clause H - Miscellaneous

Customer Furnished Material / Equipment/Assistance

- H1 The supplier is required to maintain a system for positive identification, segregation, and control of Customer Furnished Material. This system shall provide for the notification of CWDS of any deficiency or failure noted upon receipt.
- H2 In the event that the requirements are not completely clear, or where special assistance is needed, CWDS will provide qualified personnel for consultation. Requests for this assistance shall be made via CWDS purchasing department.

H3 Franchised (OEM authorized) distribution or direct OEM supply only unless otherwise authorized by the customer. ****Pre-approval is required for use of non-traceable components. Customer subscribes to Franchise Only Service. Substitutions including Supplies from independent distribution require customer approval. ****

Seller represents and warrants that only new and authentic materials are used in products required to be delivered to CWDS and that the work delivered contains no Counterfeit parts. No other material, part or component other than new and authentic part shall be used unless approved in advance in writing by CWDS. To further mitigate the possibility of the inadvertent use of Counterfeit parts, seller shall only purchase authentic parts/components directly from the Original Equipment Manufacturers (OEMs) / OCMs or through the OEM's/ OCM's authorized distribution chain. Seller must make available to CWDS, at CWDS request, OEM/OCM documentation that authenticates traceability of the components to the applicable OEM/OCM.