

Title:	Quality Clauses
Document #:	F-840-015
Revision Level / Date:	7.0 / 02-06-2023
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Applicable Quality Clauses are referenced on the Purchase Order.

Clause	Requirement
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**Q1 First Article Inspection (FAI)**

- During initial production of each part number a first article inspection (FAI) shall be performed by the Seller.
- Seller may use the forms contained within AS9102 or their equivalent, so long as the forms contain all the information required by AS9102.
- If more than a one-year break in production, seller shall perform full FAI.
- The FAI shall require an update (partial/delta FAI) for changes in design, configuration and manufacturing location.
- The FAI shall include objective evidence of all design characteristics and material requirements.
- Actual results (data) shall be documented in report form per a First Article Inspection Report in accordance with AS9102. Enter "N/A" if not applicable, do not leave blank.
- When recording variable data for multiple features that are the same (i.e., 20x hole size, positions, etc.) it is required that each feature be identified and listed separately on AS9102 form 3. It is acceptable to use the same balloon number, but have a dash that follows for each location/result (1-1, 1-2, 1-3, etc.). Must list result for each location.
- All dimensional features, parts lists and drawing notes must be ballooned. Drawing notes must be written in full, do not shorten wording or reference note number.
- If first article item contains welding, a weld approval letter must be present in FAI package and listed for weld process approval.
- Certificate of conformance (CofC) for all material is to be included in package. For COT's items, a CofC from a distributor is acceptable as long as there is traceability on the packing slip or CofC to the original manufacturer (OEM) and includes lot/date codes, if applicable.
- If drawing note allows alternate or like/similar material, the specification comparison/qualification must be a part of the FAI for the CofC acceptance.
- Email approvals are not acceptable forms of deviation. A signed, deviation must be present if deviation is needed. The deviation must be listed in the FAI.

**Q2 High Strength Fasteners (QL22)**

When use of English series (Grade 5, or Grade 8) or Metric Series (Class 8.8, 9.8, 10.9, 12.9) hexagon or socket head fasteners are used, must be from a manufacturer approved by Buyer. Full traceability of these fasteners is required and shall include material chemistry, hardness/tensile strength and plating requirements. Traceability and any required test results shall be maintained on file and be available on request.

**Q3 Weld Items (QX118)**

Weld qualification packages are required to be submitted and approved by Buyer and Buyers customer prior to production. Weld packages shall be presented in a single document package showing compliance to the weld standards and drawing requirements prior to production delivery and shall contain:

- 1) Weld map indicating WPS #'s for each weld.
- 2) Weld Procedure Specification (WPS).
- 3) Procedure Qualification Record (PQR).
- 4) Test reports for PQR(s).
- 5) Welder Qualification Records.
- 6) Weld Inspector Certification.

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**Q4 Supplier Furnished Inspection and Test Data**

A copy of the supplier's actual recorded inspection and test results for the material produced against this purchase order must be provided to GEN3 Defense & Aerospace for the product delivered for each shipment. The data must comply with the requirements of the applicable drawing and/or specification. The data recorded must have positive identification with the product being supplied with that shipment. Unless otherwise specified on drawing, this clause applies only during First Piece Inspections.

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**Q5 Government/Customer Source Inspection (On Site Inspection)**

When Government or Customer Source Inspection is required, it will be so stated in the body of the purchase order, along with the pertinent instructions.

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**Q6 Configuration Management**

Supplier shall make no change in design, assembly processes, manufacturing, or supply source, after approval of first production item, without Buyer written approval. Seller shall flow requirement of this section to its subcontractors at any tier for the performance of this contract.

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**Q7 Material Certification**

The supplier shall furnish certification for the materials used in the process. In addition, supplier's Certificate of Conformance will reflect products were manufactured/processed using this material. Unless otherwise specified on drawing this clause applies only during First Piece Inspections.

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**Q8 Lot/Date Code Control**

Components supplied with multiple date codes must be clearly identified and segregated from each other. Components being supplied with multiple date codes must have a date code within a 12 month period. The date code shall be recorded on the certificate of conformance.

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**Q9 Records and Audit**

Seller shall maintain, and the Buyer, shall have the right to review and audit all books and records relating to this Contract showing incurred costs, including direct costs such as labor, burden rates, and subcontracts. Other records such as Seller's purchase records to their suppliers / vendors, production records, inspection records, training records, and configuration management records shall be maintained. Such books and records shall be made available at reasonable times at facility of Seller for up to ten (10) years after final payment is made to Buyer. Other retention periods and disposition methods may be detailed in Purchase

Orders and/or Purchase Agreements. In the event that the Purchase Order or Purchase Agreement differs from these requirements, the Purchase Order or Purchase Agreement requirements supersede these requirements. Disposal of records shall be done in a manner that shall prevent reconstruction. Seller shall flow requirements of this section to its subcontractors and subcontractors at any tier for the performance of this Contract.

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**Q10 Certificate of Calibration**

The calibration service shall provide a certificate of calibration for each item calibrated. The certificate must include the date of calibration, listed uncertainties, calibration due date, model and serial number of the equipment used in the calibration and a statement that all equipment/standards used are traceable to the National Institute of Standards and Technology (NIST).

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**Q11 Solderability**

Components, wires, lugs, terminals, etc., furnished under this order shall meet solderability requirements of J-STD-002A. Revision in effect as of this order shall apply.

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**Q12 Drawing and Change Control**

The Seller's system shall assure that the latest applicable drawings, specifications, technical requirements, Purchase Order information and changes thereto will be available at the time and place of Seller's acceptance of material and/or services or as negotiated and agreed to in writing by Buyer and Seller. All changes shall be processed in a manner, which will assure incorporation on the affected material and/or services as specified effectivity points.

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**Q13 Product Identification and Traceability**

The Seller shall maintain documented procedures for identification of product from receipt and during all processes of production and delivery. When traceability is a specified requirement, the Seller shall establish and maintain documented procedures for unique identification of individual product or batches; this identification shall be recorded.

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**Q14 Processing**

The Seller shall establish a system to assure that all processes, even including those, which cannot be readily verified by inspection, will conform to specification requirements. Those processes to which Government specifications apply are subject to the applicable requirements regarding certifications or approval by Government agencies. When critical or special processes are performed outside the Seller's facility, it shall be the Seller's responsibility to assure proper performance of all such processes through surveys, certification, testing, etc. These processes include, but are not limited to, welding, X-Ray, magnetic particle and fluorescent penetrant inspection, heat treating, plating, coating and anodizing.

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**Q15 Chemical and Physical Analysis**

Chemical and physical analysis reports are required for raw material (i.e., sheet, rod, bar stock) for first article piece shipment. Subsequent shipments are to be made available upon request from Buyer. Suppliers of raw material or components containing greater than 0.25% (one quarter of one percent) carbon are required to produce chemical and physical analysis and maintain these records for a minimum of 10 (ten) years.

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**Q16 Printed Circuit Boards**

Printed circuit boards shall be shipped with evidence of solderability for first article piece. Subsequent shipment evidence are to be made available upon request from Buyer. This may be done by submitting unsoldered coupons, partial boards, or completed boards to Buyer for evaluation. Multi-layered boards shall be submitted with cross-section(s). The cross-section shall show all of the inner layers making contact with the walls of the plated holes to determine internal layer registry, plating thickness, and internal integrity of the boards. Each cross-section shall be identified with board part number and lot/batch code.

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**Q17 Tool, Gage, Measuring Equipment and Calibration**

The supplier shall maintain a system in compliance with ISO/IEC 17025, "General requirements for the competence of testing and calibration laboratories" or equivalent to ensure adequate controls over all tools, gages, measuring, and testing equipment used for product acceptance. Calibrations must be traceable to the National Institute of Standards and Technology (NIST). Any measuring equipment supplied by the buyer must be maintained in accordance with that system.

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**Q18 Characteristics Not Verifiable Upon Receipt**

The Seller shall provide adequate controls and records, within the quality system, to ensure that characteristics not verifiable upon receipt are adequately controlled.

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**Q19 Final Acceptance**

Inspection/test acceptance at the Seller's facilities by Buyer or the Government does not guarantee final acceptance. Final acceptance shall be at Buyer's facility unless otherwise specified on the Purchase Order. When required by contract, the Seller will comply with the requirement for customer verification of the subcontracted product.

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**Q20 English Language Requirement**

The Seller shall submit all required quality data (i.e. Seller quality procedures, certificates, reports, or other similar data required by the Buyer), correspondence, and corrective actions responses in the U.S. English language.

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**Q21 Seller Outsourcing Approval**

For parts or assemblies where Buyer has design authority, the Seller shall notify Buyer and request written approval when outsourcing a process, part, assembly or end item prior to invoking the change. Any outsourcing must be in accordance with Buyer's Approved Drawing.

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**Q22 Evidence of Effective Control**

Verification of product by the Buyer or Buyer's Customer shall not be used by the Seller as evidence of effective control of quality and shall not absolve the Seller of the responsibility to provide acceptable product, nor shall it preclude subsequent rejection by the Buyer or Buyer's Customer.

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**Q23 Quality and Delivery Rating**

Seller is responsible for correcting any negative trends in product Quality or Delivery, that are identified by the Buyer's Supplier Rating System. Sellers who fail to maintain these levels of product and service performance will be requested to take the necessary actions needed to resolve the root causes. Seller is

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encouraged to conduct an internal assessment and implement actions deemed appropriate to prevent further degradation in performance and possible formal corrective action.

**Q24 Nonconforming Material and Corrective Action**

Buyer rejects product as nonconforming, quantities under this Contract may be reduced by same quantity. Seller will not replace reduced quantities with a new order or schedule from Buyer. Buyer will hold all nonconforming product in accordance with Seller’s instructions at Seller’s risk. Failure by Seller to provide written instructions within forty-eight (48) hours, or shorter period as commercially responsible under circumstances, after notice of conformity, shall entitle Buyer, at Buyer’s option, to return product to Seller at Seller’s cost or charge Seller for both storage and handling or disposing of nonconforming product. Nonconforming product payment does not limit or impair Buyer’s right to assert legal or equitable remedy, or relieve Seller responsibility for latent defects.

Seller shall initiate containment and corrective action on notification of nonconforming product. Seller shall respond within twenty-four (24) hours of notification to inform Buyer of product already shipped to Buyer and future shipment status. Seller will not ship additional nonconforming product, material dispositioned Use as Is or Repaired, without formal authorization from Buyer. The seller will submit a formal response within ten (10) calendar days to any formal supplier corrective action request directed to Seller by Buyer quality. The response shall include; containment activities, root cause of defect, corrective action taken to prevent recurrence of defect and effective date or break point of corrective action, and preventive action taken.

**Q25 Circuit Card Assemblies**

Circuit card assemblies shall be handled in accordance with IPC-J-STD-001. Circuit card assemblies shall be packaged in such a way to prevent damage during shipping and storage. ESD (electrostatic discharge) preventive packaging shall be used in accordance with ANSI/ESD S20.20.

**Q26 Sampling Plan**

The seller shall perform a C= 0 sampling plan based on the following table. For the first 5 production lots the seller is to use an AQL of 2.5. When 5 consecutive lots are produced with no non-conformances, then the seller will move to an AQL of 4.0. If a non-conformance is identified by either the seller or buyer. The seller will start back with an AQL of 2.5 until 5 consecutive lots are produced with no non-conformances.

**Normal Sampling Plan (C=0)**

Lot Size	AQL 2.5	AQL 4.0
2-8	5	3
9-15	5	3
16-25	5	3
26-50	7	7
51-90	11	8
91-150	11	9
151-280	13	10
281-500	16	11
501-1200	18	15
1201-3200	23	18

3201-10000	29	22
10001-35000	35	29
35001-150000	40	29
150001-500000	40	29
500001 and over	40	29

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**Q27 #Shelf-Life Materials**

The Date of Manufacture and Shelf-Life Expiration Date shall be clearly marked on the item and / or packaging adjacent to batch or lot number identification. The Date of Manufacture and Shelf-Life Expiration Date shall also be clearly marked on the Certification of Conformance or pack list. Eighty percent (80%) of the Shelf-Life item is required up receipt.

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