



MASON ESTERLINE CONTROL & COMMUNICATIONS

SUPPLIER QUALITY REQUIREMENTS

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This document contains the quality requirements for Mason-Esterline Control & Communications, Suppliers. All suppliers of items used in the production of shippable product are required to meet these supplier quality requirements. In addition , suppliers to Mason must meet the terms and conditions outlined in Document no SOP-060.6



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QC 1. QUALITY SYSTEM REQUIREMENTS

QC1a.) Supplier shall maintain a Quality Management System [QMS] certified by accredited independent third party registrar to Aerospace Standard SAE AS9100, AS9120, International Standard ISO9001:2008 or equivalent, ISO/IEC 17025 and/or NADCAP for special processes, inspection and non-destructive testing, as applicable.

QC1b). Suppliers that are not certified shall maintain a Quality Management System [QMS] or Quality Inspection System [QIS] which must be approved by Mason. Quality System shall provide a high degree of confidence that all material and services provided conform to all purchase order requirements. As a minimum, the Quality System must be compliant with MIL-I-45208, ISO 9001:2008.

QC 2. NONCONFORMANCE

QC3A. REPORT OF DISCREPANCY/DEVIATION A system shall be in effect for the control of material nonconforming to drawings, specifications or other purchase order requirements. Such material shall be withheld from shipment until authorized by the MASON Purchasing Department with an approved Supplier Deviation Request (SDR). The SDR shall describe the nonconformance in detail, the quantity, the cause and corrective action to preclude a recurrence. Acceptance of the SDR by Material Review Board will not affect the supplier's quality rating providing no other non-conformances are found during the receiving inspections.

QC2B. NOTIFICATION OF ESCAPE At any time if supplier finds any nonconformance, which has any effect on delivered product quality or reliability, Supplier must submit a disclosure report / Notice of Escape to Mason within 24 hours. The disclosure report shall include the following information:

- a. Description of the nonconformance
- b. Part Number and Traceability information (serial number, lot/batch, date code et).
- c. Delivered quantity
- d. Containment actions and immediate corrective action proposal.
- e. In addition, the Supplier shall report cause and corrective action to Mason as soon as possible or within mutually agreed time frame.

QC 2C. CORRECTIVE ACTION

Materials or services found to have a quality problem will result in a formal request for corrective action. Such requests require a timely response. On government source inspected material, the supplier shall coordinate the corrective action reply with the government quality representative assigned to his plant.

QC 3. FIRST ARTICLE INSPECTION:

The supplier shall perform a First Article Inspection and provide documentation in accordance with specification SAE AS9102 when one of the following applies: 1] A first time supplier; 2] New product representative of the first production run 3] A change in design; 4] A change in location, process, inspection method, material, or tooling; 5] A lapse in production for two years. The First Article Inspection Report [FAIR] must include all blueprint notes and dimensions. The supplier must use the FAIR forms contained within the SAE AS9102 specification and an itemized drawing must be included. The complete FAIR must accompany the part[s] shipment.

QC 4. RAW MATERIAL IDENTIFICATION PHYSICAL AND CHEMICAL ANALYSIS

All raw material must be identified with applicable specification, nomenclature, type of material, condition and manufacturer. Test reports which list actual chemical/mechanical values and which state conformance to and applicable material specifications shall be submitted for each shipment. Full supply chain traceability (certification of conformance) to the original mill is required.

QC 5. FUNCTIONAL/ACCEPTANCE TEST REPORTS

Include with each shipment a legible and reproducible copy of the actual test results identifiable with test parameters of the lot or item acceptance tests required by the applicable specification requirements. Test report shall contain the signature and title of authorized representative for the agency performing the test and must conform to specific requirements.

QC6. PRINTED CIRCUIT BOARDS

A potted micro-section reflecting complete manufacturing processes performed must be retained as record for each lot of new date coded boards.

QC 7. IDENTIFICATION, SERIALIZATION AND TRACEBILITY

All items are subject to traceability of the history, application, use and location of the item through the systematic assignment recording and correlation of control identification numbers assigned by MASON. Supplier shall maintain traceability records of product during all production processes from Supplier raw material receipt to MASON's delivery. Supplier's records shall include the material certs from their sub-tiers.

Category I items, traceability by serial number. Each item and all associated documentation (test reports, certifications, etc.) shall be identified with the traceability serial number as directed by purchase order.

Category II items, traceability by lot number. All items within the lot and all associated documentation (test reports, certifications, etc.) shall be identified with the lot traceability number. Unless otherwise specified, the purchase order number shall be the lot traceability number.

Category III items, castings shall be identified by a permanent part number, configuration, foundry identification and melt number, or by a traceable chemical, physical analysis and heat treat. The identification shall remain legible after machining or surface machining.

QC 8. CERTIFICATION OF CONFORMANCE AND RECORD RETENTION

Each shipment shall be accompanied by a dated certification, signed by a responsible Quality Assurance representative of the supplier, stating that the items were produced and conforming to the purchase order and applicable specifications and the following as a minimum:

- a. Name and address of the Supplier
- b. Mason's Purchase Order Number
- c. Part number, and revision
- d. Lot number or serial number
- e. Quantity Delivered
- f. Date of Manufacture or Date Code
- g. Original Component Manufacturer (as applicable)
- h. QPL Vendor ID for MIL Spec Parts (as applicable)
- i. List of the specifications, including the revision or date.
- j. Objective evidence of conformance to the purchase order and applicable specifications
(as applicable)
- k. Country of Origin

8A. MATERIALS FURNISHED by MASON. The certificate of conformance shall list the MASON material code number assigned to the furnished material.



8B. MILITARY SPEC PARTS require traceability back to a vendor who is on the QPL.

8C. CALIBRATION SUPPLIERS

Calibration suppliers certifies the following: Quality management Systems conforms to AS9100 or ISO9001, ISO/IEC 17025, and ANSI/ NCSL Z540-1 or Z540-3. All calibrations performed are (1) traceable to NIST; (2) obtained from independent reproducible standards derived from acceptable values of natural physical constraints; or (3) derived from the ratio type of self-calibration techniques. Calibration C of C shall record the following at a minimum for each asset calibrated:

- a. Asset number: Unique number identifying the individual equipment.
- b. Date calibration was performed.
- c. Calibration interval in weeks.
- d. Date T&ME item will be due for calibration.
- e. List of standards used to perform calibration.
- f. Temperature at which calibration was performed.
- g. Percent humidity at which calibration was performed.
- h. Calibration facility/source performing calibration.
- i. Unique number identifying the calibration certificate.
- j. Calibration technician's identity.
- k. This is the Time required to complete calibration process.
- l. Date and serial number of out-of-tolerance report, if required.
- m. OUT OF TOLERANCE NOTES/CALIBRATION NOTES: Comments relative to the calibration performed including actual measured value for out of tolerance condition.
- n. SEALS O.K.: "Y" or "N" indicating whether the item was received with tamper seals intact
- o. Number identifying the calibration procedure used.
- p. REV: Current revision of the calibration procedure

Q9 PRESERVATION AND PACKAGING - Basic

The Supplier is responsible for assuring that all items are delivered without damage or deterioration and are efficiently and economically packed for the method of transportation and type of handling involved.

Buyer may charge Supplier or adjust the price of the goods downwards for any goods damaged or which deteriorate due to improper packing. No charge shall be made for preparation, packing, crating, cartage or shortage unless specifically stated in this purchase order. Each shipping container must be marked to show this purchase order number, Mason part number, and quantity of goods contained therein. When applicable packaging must be identified with Electro Static Discharge sensitive warning

QC 10. SURVEILLANCE BY MASON AND RIGHT OF ENTRY

All items covered by this purchase order are subject to surveillance by a MASON Supplier Quality Representative and or Government/Customer Representative. Government Representative may be Defense Contract Management Agency [DCMA] or Military. The supplier shall also allow a MASON Supplier Quality Representative and or Government/Customer Representative the right to enter the supplier facility at any time during manufacture of product contracted for by this purchase order. This will include surveillance of the products and supplier's systems, procedures and facilities. The supplier shall furnish, at no cost, necessary facilities and equipment, supply data, and perform tests as required by applicable drawings, specifications, and Inspection Instructions under surveillance of the MASON Supplier Quality Representative.



QC 11. SOURCE INSPECTION

11A. SOURCE INSPECTION BY MASON - PRIOR TO SHIPMENT

All items covered by this Purchase Order are subject to inspection at the supplier's facility by a MASON. Quality Representative prior to shipment. The supplier shall furnish, at no cost, acceptable facilities and equipment for the inspection. Evidence of the completed source inspection shall accompany each shipment evidenced by the Inspector stamping and signing the supplier's shipping document.

11B. SOURCE INSPECTION BY GOVERNMENT- PRIOR TO SHIPMENT

Government inspection is required prior to shipment from supplier's plant. Evidence of such inspections shall be indicated on the packing sheet and certifications accompanying each shipment. On receipt of this order, promptly furnish a copy to the Government office or representative who normally services your plant so that appropriate planning for Government inspection can be accomplished. In the event the representative or office cannot be located, Mason's buyer shall be notified immediately.

11C. SOURCE INSPECTION BY MASON'S CUSTOMER - PRIOR TO SHIPMENT

Mason's customer source inspection is required prior to shipment from supplier's plant. Evidence of inspection shall be indicated on the certifications accompanying each shipment. Notify Mason's buyer at least forty-eight hours prior to need for source inspection.

11D. IN-PROCESS SOURCE INSPECTION

Materials and services are subject to inspection throughout all or portions of the manufacturing and/or testing operations. Mason's Quality Assurance will establish the mandatory inspection points. Other conditions of QC 3 apply.

QC 12. SOFTWARE CONTROL

Suppliers of materials and services utilizing computer aided design, computer aided manufacturing/processing or computer aided test equipment shall comply with the requirements of DOD-STD-2168. On request, the supplier shall make available for review and approval the quality control procedures on software controls.

QC 13 SHELF LIFE MATERIALS

The material provided must be submitted with at least 75% shelf life remaining or as specified in the body of the PO. If the product submitted is out of this requirement it can be a cause for rejection.

QC13A. SYNTHETIC RUBBER MATERIALS

Materials and articles subject to deterioration of quality by virtue of time or environment shall be identified on the certification provided by the date on which the shelf life began and include the limiting conditions under which the material can be held. Materials should be packaged and labeled in accordance with ARP5316 section 5 or AMS2817.

QC 13B. CHEMICALS

Copy of the Material Safety Data Sheets [MSDS] for any hazardous material used in completion of this order must be supplied with chemical products.

Q14 DOCK-TO-STOCK CERTIFICATION PROGRAM

this item has been approved for our Dock-To-Stock Certification Program, which means this item upon receipt will go directly from our dock to our stock with little or no incoming inspection.

QC 15. PARTS OBSOLESCENCE

When Supplier has knowledge that any hardware item or material to be provided in performance of this purchase order is obsolete, is marked for impending obsolescence, or has an established end of production date, Supplier shall immediately give initial notice thereof, including all relevant information with respect thereto, to Buyer. Such notice shall include, but not be limited to (1) complete details of which parts are affected; (2) date of obsolescence; (3) end of production date; (4) reason for obsolescence; (5) pricing and availability of last-time buy; (6) supportability terms (repair and warranty) for last-time buy; and (7) Supplier's recommendation for replacement hardware inclusive of known impacts to performance, pricing, availability, and lead time. Supplier's initial notifications of obsolescence shall be made through the end of the contracted warranty period for the items provided under this order.

QC16. TRACEABILITY –MULTI LEVEL

The Seller of any assembled product shall maintain traceability records of all purchased items and materials utilized in the creation of said assembly.

The Seller shall be able to trace back from the shipment to MASON through each level of test and integration back to each lot or serial number (as applicable) of purchased items and materials.

Upon request, the Supplier shall provide:

- The purchased component name
- Component part number
- Component revision
- Reference designator(s)
- Quantity used per assembly
- Lot numbers(s) or serial number(s)
- Certification of Conformance tracing back to the OEM for each component

Suppliers are required to provide OEM traceability within 48 hours of request. OEM packing slips/documentation that includes component traceability/lot code details are acceptable in lieu of OEM Certification. Component traceability must provide complete chain of custody through delivery to MASON. The Supplier's traceability system must account for all components that require replacement past initial installation. The traceability must be maintained throughout the manufacturing process from work order launch to shipping to MASON. In addition to the component traceability, the Supplier shall, upon request, provide all necessary processing history for the assembly in question. This shall include process name, date and time, location, and operator ID of the personnel performing the process function. The Supplier's traceability records shall provide adequate documentation to determine the exact configuration of the product shipped to Mason.

QC17. CONTRACT MANUFACTURER KEY PERFORMANCE

Q18. PRESERVATION AND PACKAGING FOR ELECTRONICS

PRESERVATION. Electronic components preservation requirements

(Applicable to manufacturers of circuit card assemblies, integrated electronic assemblies and any Suppliers of electronic components)

- a. The Seller shall manufacture products per J-STD-001 and inspect per IPC-610 (current rev) class as directed by drawing.
- b. (If the drawing is silent then the Seller shall use Class 3)
- c. The Seller shall assure that the shipping, handling & storage, manufacture, test, rework and repair processes for products have no short or long term quality or reliability impact.
- d. The Seller shall maintain an ESD Control Program compliant with an industry recognized standard such as MIL-HDBK-263, ANSI S20.20, or IEC 61340-5-1
- e. The Seller shall assure that moisture sensitive components are processed in accordance with IPC/JEDEC J-STD-20

PACKAGING.

Each shipping container must be marked to show

- a. Purchase order number,
- b. MASON'S part number,
- c. Quantity of goods contained therein.
- d. Electro Static Discharge (ESD) sensitive warning (as applicable when noted on the PO))
- e. Cautionary Handling Instructions (as applicable)

Q19 FLOW DOWN OF MASON SUPPLIER QUALITY REQUIREMENTS

The Supplier shall flow down all provisions of the Mason supplier quality system requirements, as applicable, to their subtier(s) for items purchased and/or processed in support of Mason orders. Supplier is responsible to ensure that the subtier(s) comply with Mason's quality requirements.

Q20 FLOWDOWN OF ELECTRONICS COMPONENT MANAGEMENT PLAN REQUIREMENT.

TBD

QC 21. COUNTERFEIT POLICY (AS5553 and AS6174)

21A. Supplier represents and warrants that Counterfeit Goods are not contained in Goods delivered to Mason through the implementation of policies that include prevention, detection and risk mitigation methods to protect against the use of Counterfeit Parts.

The supplier shall provide an unbroken chain of certification(s), tracing the movement of the parts back to the Original Component Manufacturer (OCM) or mill – full supply chain traceability.

Any certificate of conformance or other documentation should be examined for originality and applicability to the delivered material, including:

- a. Lot and/or date codes on the packaging match the lot an /or dates codes on the parts
- b. Manufacturer lot or label is present and matches that shown on their website or on previous shipments.
- c. No alteration or changes to the documentation.
- d. Bar coding matches the printed part number
- e. Package materials are consistent with the description of the datasheet
- f. An unbroken chain of documentation should include links between both paperwork and product with reference to C of C number and/or lot batch number date code etc.
- g. If there is an elevated concern for product integrity, it may be possible to verify with the OCM that date, lot codes, reel sizes and quantities listed on the documentation are valid.

21B. (a) Parts must be purchased directly from the Original Component Manufacturer (OCM) / Original Equipment Manufacturer (OEMs), or from the OCM authorized or franchised distributor. Procurement through an independent distributor, non-franchised distributor or broker is NOT authorized. A certificate of conformance shall accompany each shipment of Goods delivered, along with OCM/OEM documentation that authenticates traceability of the components to that applicable OCM

(b) In the event Supplier becomes aware or suspects that it has furnished Counterfeit Parts, it shall immediately notify Buyer. When requested by Mason, Supplier shall provide (if available) Authorized Supplier documentation that authenticates traceability of the parts to the applicable Authorized Supplier.

(c) In the event that Goods delivered under this Order are, or include, Counterfeit Parts, Supplier shall promptly investigate, analyze and report in writing to Buyer whether such Counterfeit Parts should be replaced with genuine parts conforming to the requirements of this Order, or whether an alternative solution is recommended to meet the Order requirements at Supplier's sole expense. The parties shall then agree upon the appropriate course of action.

QC 22. GOVERNMENT / CUSTOMER/ MASON- FURNISHED MATERIALS/EQUIPMENT

The materials/equipment provided on this purchase order are furnished by the Government/ Customer. The supplier shall maintain a system that includes:

- a. Inspection for transit damage
- b. Periodic inspection for handling damage and deterioration during storage
- c. Functional testing when required
- d. Proper identification and verification of quantity and protection from improper use or disposition .
- e. Non-conforming or damaged property shall be reported promptly.



QC 23. FOREIGN OBJECT DAMAGE (FOD)

Suppliers of FOD sensitive articles shall establish procedures in accordance with NAS 412. The FOD program shall prevent and eliminate Foreign Object Damage and/or contamination during manufacturing, assembly, test and inspection operations, shipping and preservation.

QC 24. FACILITY / PROCESS CHANGE

The Supplier shall provide a prompt notification and acquire approval from Mason prior to change any of the following:

- a. Location of manufacturing, and/or processing facilities,
- b. Major process change
- c. Major supplier sub-tier change
- d. Change of third party certification status

Any of these changes will require a full/delta FAI per QC 3 requirements.

QC 25. SPECIAL PROCESS SOURCES REQUIRED

All special processes required by this purchase order shall be conducted by NADCAP approved sources. Each shipment must be accompanied by a legible and reproducible copy of a certificate containing the signature and title of an authorized representative for all processes used such as heat treating, Nondestructive Evaluation [NDE], soldering, welding, environmental testing such as vibration, acoustic, shock, surface preparation and treatment, etc. The certificate shall include the processing used, the specification to which the special process conforms and the name of the agency that performed the process other than Supplier. When parts are serialized, these serial numbers shall appear on the certification.

When required by Mason's customers, as stated on the PO, special processing shall be performed only by customer approved vendors listed on the organizations websites below or contact your Mason buyer.

* Processors approved by NADCAP can be found by accessing web site <http://www.pri/sae.org>. or contacting your MASON buyer.

11a. Boeing: <http://active.boeing.com/doingbiz/d14426/GetAllProcessors.cfm>

11d. Raytheon: <http://qnotes.raytheon.com/>

11e. Northrop Grumman: <https://oasisext.myngc.com/sympreq/aspl/aspl.asp>

11f. Lockheed Martin Fire and Missile : Use NADCAP

To verify if a processor is NADCAP approved you can use <https://www.eauditnet.com/eauditnet/eau/user/login.htm>

If a customer is listed on the PO but you cannot find it on this list – please contact your Mason Buyer.

QC 26. SPECIALTY METALS SOURCE OF SUPPLY:

The supplier must provide "Specialty Metal Certificate of Compliance" reflecting all the requirements of DFAR 252.225-7014 Alt 1 including paragraph d are met for each part number , or materials listed on this purchase order. The supplier shall flow down these requirements to all lower-tier subcontractors and suppliers, as required. Compliance to the DFAR 252.225-7014 Alt1 including paragraph d shall be



stated in the supplier's certificate of conformance or by a separate certificate. Full text of this clause can be viewed at <http://www.acq.osd.mil/dpap/dars/dfars/index.htm>

QC 27. DOMESTIC SOURCE OF SUPPLY:

The supplier must manufacture and/ or procure product from a domestic (USA) source of supply. The supplier shall flow down these requirements to all lower-tier subcontractors and suppliers, as required for conformance. Compliance shall be stated in the supplier's Certificate of Conformance or by a separate certificate.

QC 28. FAA FORM 8130-3

The supplier must provide the FAA form with the purchased goods.

QC 29. RECORDS RETENTION

Records of manufacturing, testing, processing, inspection, packaging and shipping of items on a purchase order shall be retained for a minimum of ten (10) years after completion of the order. Records shall be made available for review on request.