

**QUALITY ASSURANCE REQUIREMENTS
FOR SUPPLIERS**

Approved By:	Christian Grant	Date:	10/7/2024
	_____ Director, Manufacturing Operations		_____
Approved By	Crystal Simmons	Date:	10/1/2024
	_____ Sr. Manager, Quality Operations		_____
Reviewed By:	Rebecca McCleery	Date:	10/7/2024
	_____ Supply Chain Sr. Supervisor		_____
Reviewed By:	Darla Pegg	Date:	10/3/2024
	_____ Purchasing Supervisor		_____

MICRO SYSTEMS, INC.
35 Hill Avenue
Fort Walton Beach, FL 32548-3858
(850) 244-2332

REVISION HISTORY

Date	Revision	Description of Change	Author
09/25/2024	-	Complete write from WI-8.4A; updated clause and added new codes. Renumbered document from WI-8.4A Appendix A to WI-8.4F	C. Simmons

1.0 Purpose

The purpose of this document is to identify common quality clauses used on Purchase Orders (POs) by Micro Systems, Inc (MSI). The following codes/clauses are a requirement when specified by letter/number on the Purchase Order.

2.0 Responsibility

The MSI Quality Manager is responsible for the development and control of common supplier quality clauses.

It is the responsibility of the Supplier to review all identified quality clauses and ensure compliance to the most current revision of specified requirements listed.

QC01 GOVERNMENT SOURCE INSPECTION (GSI)

Government Source Inspection (GSI) is required prior to shipment from the Seller's facility. Upon receipt of this order, promptly notify the government representative who services your facility so that appropriate planning for government inspection can be accomplished. If a government representative does not service your facility, contact the Defense Contract Management Command (DCMC) for direction. Evidence of GSI shall accompany each shipment.

QC02 MSI SOURCE INSPECTION

Customer source inspection is required prior to shipment from the Seller's facility. The Supplier shall notify MSI in writing at least five (5) business days in advance of inspection and/or acceptance testing. To facilitate the performance of source inspection, the Supplier shall furnish the necessary facilities and equipment, data, and perform tests as required by applicable drawings, specification, and inspection instructions. Evidence of source inspection shall accompany each shipment.

QC03 CERTIFICATE OF COMPLIANCE

Seller shall submit with each shipment a Certificate of Conformance/Compliance (C of C) on Supplier letterhead, indicating the materials furnished to MSI are in conformance with the applicable requirements of the contract (e.g. Ts&Cs, PO comments, Quality Clauses, etc.), drawings and specifications (e.g. procedures, material certifications, etc.) and that all required tests and inspections have been performed.

At a minimum, the C of C shall contain, the MSI purchase order number, MSI part number, revision, lot number(s), date code(s), quantity, authorized signature and date, seller's full name and address, and statement from the supplier declaring the product has met all the requirements of the purchase order, including drawings and specifications at the prescribed revision level.

Material received without this information may be subject to rejection.

QC04 IDENTIFICATION / SERIALIZATION CONTROL

Part or type number shall identify each part, component, or assembly procured on this Purchase Order. Where control of individual or multiple articles is required, one or more of the following detailed identification methods shall also be used: Serial Numbers, Lot Number, Date Codes. Buyer may define the method of traceability to include specific serialization.

QC05 QUALIFICATION REPORTS

As defined in this purchase contract and prior to shipment of first pieces, the Seller must submit Qualification Reports supporting drawings/specification requirements.

QC06 QUALITY MANAGEMENT SYSTEM

The Seller shall maintain a certified Quality Management System that complies with the requirements of ISO 9001 or AS9100. Other QMS standards may be approved by MSI if coordinated prior to performance of the Purchase Order. The Seller shall notify the Buyer of any changes to the QMS, i.e. certification status, facility relocation, Quality Manager.

QC07 Not Used

QC08 RECORD RETENTION

Seller and Seller's Subcontractors shall maintain verifiable objective evidence of all inspections and tests performed, results obtained, and dispositions of non-conforming articles. These records shall be identified to associated articles, including heat and lot number of materials, unit or lot serialization when applicable, and shall be retained by the seller and made available for review to Buyer and/or authorized representatives/customers of the Buyer upon request. Records shall be retained in a safe, accessible location for a period of life of the article or minimum of seven (7) years, whichever is greater.

Records held for the required retention period (life of the article or minimum of seven (7) years) shall not be destroyed without Buyer's written concurrence. Contact Buyer for concurrence. Additional retention/storage time, if required by Buyer, will be subject to negotiation.

QC09 NOT USED

QC10 SCREENING DATA

Each shipment of solid-state devices shall be accompanied by objective evidence of screening in accordance with MIL-STD-883. Specific parameters for testing and acceptable quality levels (AQL) are identified in the purchase order.

QC11 ELECTROSTATIC SENSITIVE DEVICES

These parts/components are electrostatic sensitive. Parts shall be packaged and handled as to afford protection from static damage. Material shall be individually packaged in a resealable bag/container that shields the device from Electrostatic Discharge. Twisting the leads together as a means of static protection is prohibited. Methods of protection shall comply with ANSI/ESD S20.20 (or equivalent).

QC12 MIL-PRF-31032/ IPC-6013 Class III

Printed circuit boards and printed wiring boards shall be manufactured and supplied in accordance with MIL-PRF-31032 or IPC-6013 Class III (C)

QC13 BOEING APPROVED SOURCES FOR SPECIAL PROCESSES

Seller and/or seller's subcontract process sources shall be an approved processor or shall use approved processors as required by D1-4426, "Approved Process Sources". A list of approved processors and associated processes are available from Buyer's Procurement Agent.

This clause shall be included in Seller's subcontracts for work performed under this purchase contract for specified processes.

A Certificate of Conformance and/or equivalent Process Certificate, signed by an authorized agent of the Processor/Seller shall be maintained by Seller. The certificate shall include purchase order number, part number(s), Trace Number(s) (as applicable), Process Specification number with revision, processing date(s) and name and address of the Processor(s) performing each of the D1-4426 Process(es).

Buyer approval of any Processor shall not relieve Seller of Seller's requirement to comply with the terms of this purchase order.

QC14 MIL-PRF-19500 (SEMICONDUCTOR DEVICES: Transistors, Diodes, ETC.)

Seller shall certify that Manufacturers who offer the product described by the specifications noted herein have provided written certification, signed by the company or corporate official who has management responsibility for the production of the products: (1) that the product being supplied has been manufactured and tested in accordance with this specification and conforms to all of its requirement, and (2) that all products are as described on the certificate which accompanies the shipment.

QC15 SHELF LIFE, CURE/MOLD/MANUFACTURING DATE

No material with a shelf-life date will be shipped to MSI with less than 80% of the full shelf life as determined by the original manufacturer unless approved in writing by MSI. The expiration dates shall be clearly recorded on the packing and the shipping documents. The cure, mold or manufacture date, and shelf-life, when applicable, shall be supplied with each shipment of material. The Seller shall identify on the Certificate of Conformance or packing slip the manufacture's lot or batch number, manufacture date, and expiration date or remaining shelf life of the supplied material.

QC17 TEMPERATURE SENSATIVE MATERIAL

The Seller must identify each shipment of temperature sensitive material with the manufacture date, storage temperature, and recommended shelf-life and material identification including name, type, size, lot, and quantity as applicable. Identification and special handling conditions must be recorded on the shipping document(s).

QC18 PRESERVATION/ PACKAGING REQUIREMENTS

Unless otherwise noted on the PO, packaging and packing of all products shall be in accordance with standard commercial packaging practice. All shipments to MSI must be packaged to avoid damage and deterioration and must be shipped to the address specified on the PO unless otherwise noted. Parts shall not be intermingled unless otherwise specified. Material subject to oxidation shall be protected against deterioration during storage and shipment. Each box or container shall be labeled and have as a minimum part number, revision, PO number, PO line item, quantity, and manufacturer's identification. Material displaying signs of shipping damage or suspect functionality due to improper packaging will be rejected and returned to the vendor.

QC19 MIL-M-38510 (MICROCIRCUITS)

Manufacturers who offer the product described by the specification noted above shall provide written certification, signed by the company or corporate official who has management responsibility for the production of the products: (1) that the product being supplied has been manufactured and tested in accordance with this specification and conforms to all of its requirement, and (2) that all products are as described on the certificate which accompanies the shipment.

QC20 MIL-PRF-39018 (CAPACITORS)

Manufacturers who offer the product described by the specification noted above shall provide written certification, signed by the company or corporate official who has management responsibility for the production of the products: (1) that the product being supplied has been manufactured and tested in accordance with this specification and conforms to all of its requirement, and (2) that all products are as described on the certificate which accompanies the shipment.

QC21 SUPPLIER CORRECTIVE ACTION

In response to Buyer initiated corrective action requests, Seller must advise Buyer of root cause determination, corrective action taken to prevent recurrence of reported problems and/or discrepancies, and effective dates of the planned corrective action(s). Supplier must maintain a corrective action system that determines the effectiveness of such corrective actions, and that prevents shipment of nonconforming material without prior approval from Buyer.

QC23 TRACEABILITY DOCUMENTATION

The Seller shall provide and maintain a system of traceability on this product. The Seller may use the original lot number, date code, serial number, or other controlled and documented numbering system. Serialization must have the serial numbers listed on the packing list and on the corresponding intermediate packaging. Documentation shall provide evidence of product conformance, traceable to its origin of manufacture.

QC24 QUALITY ASSURANCE PROGRAM PLAN

The Seller shall prepare and submit a quality program plan in accordance with the flow down requirements of this purchase contract.

QC25 QUALIFIED PRODUCTS LIST

Items in this PO are required to be produced by a Qualified Product Listed (QPL) supplier. The Seller's certifications must maintain evidence of manufacture by a QPL sources.

QC26 MEASURING & TEST EQUIPMENT

The Seller shall maintain a documented calibration system for the calibration and maintenance of tools, ovens, and equipment used for delivery of items requiring evidence of conformance through test and inspection. The Seller's calibration system shall be in accordance with a nationally or internationally recognized standard (i.e. ISO 10012-1, ANSI NCSL Z540, or ISO 17025).

For delivery of items which require calibration, the Seller shall furnish a Certificate of Conformance with the procured item stating the item/equipment has been calibrated and has traceability to National Institute of Standards and Technology (NIST)

QC27 TEST/INSPECTION DATA

Shipments made against this Purchase Order, must include copies of final inspection and/or test reports, witnessed by the Seller's Quality System, reflecting conformance to applicable drawing and/or specification requirements. The Seller shall provide inspection/test data and reports to MSI indicating which characteristics, parameters, dimensions, etc., were tested/inspected. Each report shall at least include the Supplier's name and location, part number, revision, serial number, date of test/inspection, parameters measured/tested with specified limits, recorded quantitative data against each identified parameter.

QC28 MIL-DTL-5541

Apply Chemicals in accordance with MIL-DTL-5541, Type 1 or 2, Class 1A or 3, as specified by the drawing.

QC29 NOT USED

QC30 QUALITY STANDARDS OF WORKMANSHIP

The Seller is responsible for complying with the standard of workmanship specified in this Purchase Order. Workmanship must satisfy the minimum requirements of acceptable industry standards and specifications applicable to the Purchase Order. The system shall assure conformance to customer flow-down requirements, including key characteristics, throughout all phases of design, fabrication, inspection and test.

QC31 ACCEPTANCE TEST PLAN/PROCEDURE

The Seller shall generate an Acceptance Test Procedure (ATP) that is consistent with the requirements of the contract and verifies the product meets its' specified requirements. The ATP shall include Test Data Sheet(s) for identifying and recording data. A copy of the ATP shall be provided to the buyer for review and concurrence prior to shipment of the first lot of material. Each deliverable item shall be tested to the ATP, and the resulting data forwarded with the product. At a minimum, the ATP must contain part number, revision, serial number (if applicable); the specification requirement; minimum and maximum limits; the actual recorded result; indication of pass or fail; identification of test/inspection personnel and the date performed.

QC32 CONFIGURATION CONTROL

The Seller shall deliver the revision of product specified on the Purchase Order, SOW, associated blueprint and/or specification. There shall be no change in configuration resulting from repair actions, a change in material, components, or dimensions without the written authorization of MSI.

QC33 FIRST ARTICLE INSPECTION (FAI) / REPORT (FAIR)

The Seller is required to furnish verification of First Article Inspection Report (FAIR) in accordance with AS9102 (latest revision). The FAIR shall be documented on forms 1, 2, and 3 in accordance with AS9102. The FAIR shall include a complete report with actual drawing attributes (including tolerances) and actual inspection date, material certifications, special process certifications, bubble drawing, test data, and any other applicable documents. The FAIR must show Buyer's part number, revision, and purchase order number. The first article item shall be clearly identified indicating the item was used to conduct Seller's FAI.

Sellers are encouraged to contact MSI Quality Assurance with any questions about the AS9102 FAIR prior to beginning work.

QC33A MSI FIRST ARTICLE/FIRST PIECE INSPECTION (FAI/FPI)

The Seller is required to furnish one unit to MSI from the first production lot to verify compliance with PO requirements. As required by the PO, build sheets and inspection/test data shall be submitted with the item. Compliance shall be determined by inspection to drawings and specifications.

QC34 MARKING PERMANENCY

All marking shall meet the permanency requirements of MIL-STD-202 Method 215, MIL-STD-130, or equivalent industry standard.

QC35 MATERIAL SAFETY DATA SHEETS

Material Safety Data Sheets must be supplied with each shipment of this product.

QC36 SOLDERED ELECTRICAL AND ELECTRONIC ASSEMBLIES

Seller must meet the standards specified for Soldered Electrical and Electronics assemblies as defined in ANSI/J-STD-001 (Class 3), IPC-A-610 (Class 3) and IPC/WHMA-A-620 (Class 3)

QC37 DESIGN REVIEW

Design Review for this program will occur during the Production Readiness Review, as scheduled.

QC38 QUALITY ASSURANCE NOTES

Additional and/or special Quality requirements are specified by the purchase order.

QC40 IPC-A-600/6010 SERIES, CLASS 3

Printed wiring boards shall be manufactured and supplied in accordance with IPC-A-600/6010 series, Class 3, High Reliability Electronics Products.

QC41 IPC-A-600/6010 SERIES, CLASS 2

Printed wiring boards shall be manufactured and supplied in accordance with IPC-A-600/6010 series, Class 2, Dedicated Service Electronic Products.

QC42 IPC-A-600/6010 SERIES, CLASS 1

Printed wiring boards shall be manufactured and supplied in accordance with IPC-A-600/6010 series, Class 1, General Electronics Products.

QC43 DELETED

QC44 GOVERNMENT INSPECTION AT MICRO SYSTEMS, INC

Items received from suppliers are subject to government inspection upon receipt at Micro Systems, Inc.

QC45 MSI SURVEILLANCE

MSI reserves the right to perform a Quality Assurance surveys, audits, and surveillance of Seller and Seller's sub-tier facilities with prior coordination with Seller to determine capability to comply, and to verify continuing compliance, with the requirements of the PO. The Seller shall be subject to surveillance and inspection of products, systems, processes/procedures, and facilities by a Micro Systems, Inc. representative. The Seller's Quality System is subject to audit and re-verification.

QC46 IPC-A-610, CLASS 3

Standards of workmanship for manufacture of electronic assemblies under this program shall, as a minimum, meet the requirements of IPC-A-610, Class 3, Acceptability of Electronic Assemblies.

QC47 IPC-A-610, CLASS 2

Standards of workmanship for manufacture of electronic assemblies under this program shall meet the requirements of IPC-A-610, Class 2 or better, Acceptability of Electronic Assemblies.

QC48 IPC-A-610, CLASS 1

Standards of workmanship for manufacture of electronic assemblies under this program shall meet the requirements of IPC-A-610, Class 1 or better, Acceptability of Electronic Assemblies.

QC49 NO CHANGE POLICY

The Seller shall understand that during performance of this work there shall be no changes to:

Product design or configuration.

Procurement of item specification.

Place of manufacture, processing technique, and/or outside processing source(s).

The Seller's inspection techniques and/or Acceptance Test Procedure (ATP)

QC61 PREFERENCE FOR DOMESTIC SPECIALTY METALS

The Seller shall supply/procure/employ specialty metals defined/qualified by DFAR 252.225-7014, as prescribed by 225.7002-3(b)(1).

QC62 IPC/WHMA-A-620, CLASS 3

Standards of workmanship for the manufacture of cable and wire harness assemblies under this program shall, as a minimum, meet the requirements of IPC/WHMA-A-620, Class 3, Requirements and Acceptance for Cable and Wire Harness Assemblies.

QC63 IPC/WHMA-A-620, CLASS 2

Standards of workmanship for the manufacture of cable and wire harness assemblies under this purchase order shall meet the requirements of IPC/WHMA-A-620, Class 2, Requirements and Acceptance for Cable and Wire Harness Assemblies.

QC64 SOLDERABILITY

Solderable component leads or surfaces (including wire) must meet the requirements for solderability per MIL-STD-202 Method 208 and/or ANSI/J-STD-002 Solderability Tests for Component Leads, Terminations, Lugs, Terminals, and Wires.

Leads, pins, and terminals of components or parts susceptible to oxidation shall be protected by adequate packaging to minimize oxidation during storage and shipment.

QC65 PROTECTION OF MOISTURE SENSITIVE DEVICES

The Seller shall ensure packaging and handling of all moisture sensitive components, as classified by and in accordance with IPC/JEDEC J-STD-033 Standards for Handling, Packing, Shipping, and Use of Moisture/Re-flow Sensitive Surface Mount Devices.

Moisture Sensitive Device components shall be protected from moisture contamination by dry packaging in moisture barrier bags with desiccant, a humidity indicator card, and moisture-sensitive caution labels. The components shall also be identified to their appropriate moisture classification level (1-6) for floor life/soak level.

QC66 RAYTHEON QUALITY NOTE “SF” APPLIES TO THIS PURCHASE ORDER

Items delivered under this purchase order shall conform to the latest revision of Raytheon specification 61494 for printed wiring boards. Notify the Buyer for a current copy of the specification.

QC67 FOREIGN OBJECT DEBRIS (FOD) PREVENTION AND PART CLEANLINESS

The Seller shall conduct production processes appropriate to prevent, detect, and remove all FOD from product(s) during manufacture and provide parts clean and free of all FOD prior to shipment to MSI. FOD contamination shall be cause for rejection of material. Suppliers are encouraged to institute FOD prevention programs using AS9146 and NAS 412.

QC68 RESTICION OF HAZARDOUS SUBSTANCE (ROHS) COMPLIANT

The processes used and product supplied to this purchase order shall be RoHS compliant per the EU directive on the restriction of the use of certain hazardous substances, by not exceeding the specified limits of those hazardous substances, as contained in the latest directive and revision.

A statement of RoHS compliance is required for all deliveries.

QC69 LOT CONTROL

Material provided under this purchase order shall be identified by the manufacturing lot, or batch number. If it is not practical to stamp individual products due to size or shape, the lot or batch number shall be stamped on identifying tags. All accompanying documents, such as packing list or certifications, shall include lot control number.

QC70 INDEPENDENT DISTRIBUTORs (BROKERS)

All Independent Distributors (Brokers) of EEE parts shall comply with the QMS portions of SAE AS6081, Fraudulent/Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition – Distributors. Inspection and testing requirements contained within SAE AS6081 have been superseded by SAE AS6171A, Test Methods Standard; General Requirements, Suspect/Counterfeit, Electrical, Electronic, and Electromechanical Parts, including all applicable slash sheets

QC71 PROHIBITED MATERIALS

Supplies furnished under this purchase order shall not contain any of the following: pure tin, pure cadmium and high cadmium alloys, and zinc plating.

QC72 RAW MATERIAL REPORT

The Seller shall provide a Report or Certificate of Conformance with each delivery for the raw material supplied or used in the parts supplied. The C of C shall be from the original raw material supplier and include original supplier, lot number, material specification, tests conducted, and any other relevant information needed to identify the raw material. Acceptable examples include foundry report, mill report, dimension/description, temper/hardness, alloy and condition, as well as composition and test reports for ink and paint. The Seller shall maintain the original mill certification and any secondary independent test laboratory certification(s) if any additional process was done after original mill certification for procured metallic material that shall include physical properties, chemical analysis and lot number(s).

QC73 ORIGINAL EQUIPMENT MANUFACTURER (OEM)

The Seller shall only purchase from Original Equipment Manufacturers (OEMs), Original Component Manufacturers (OCMs) or the OEM/OCM Authorized Distributors (i.e. all electrical, electronic, and electromechanical (EEE) parts that are currently in production or available in stock at an Authorized Source, shall be procured from an Authorized Source).

QC74 PHYSICAL / CHEMICAL TEST REPORTS

The Seller shall provide results of chemical/physical testing conducted on materials furnished on this purchase order/subcontract which will be validated by MSI Receiving inspection up receipt.

QC75 SPECIAL PROCESS

Approved process certifications are required for all special processes and will be submitted to MSI with the delivered item. If the special process was outsourced, the certification shall originate from the contracting company.

The Seller shall ensure that all personnel performing special processes such as welding, soldering, plating, non-destructive testing, etc. are certified to perform the special process in accordance with the requirements of the specification, the PO, or any specifications referenced directly or indirectly therein. The Supplier shall ensure the associated equipment used for these processes is certified as appropriate.

Seller shall provide a Certificate of Conformance with each delivery, certifying compliance with all special processes required in executing this Purchase Order.

Special Processes may include but not be limited to the following: plating, heat treating, chemical films, X-ray, magnetic particle and penetrate inspection, soldering, encapsulation, fusion welding, resistance welding, gap welding, electron beam welding, electron beam welding, printed circuit boards, foundries, brazing, etc.

QC76 NADCAP ACCREDITED

Special processes required by this purchase order or drawing shall be National Aerospace and Defense Contractors Accreditation Program (NADCAP) accredited or approved by MSI prior to production. Special processes are defined as processes where resulting output cannot be verified by use of visual or common measuring technique (anodize, paint, heat treating, welding, soldering, non-destructive testing, etc.).

QC77 LEAD FREE PARTS / PART MARKING

Part marking and labeling of components and PCBs to identify materials as not lead free or lead free as detailed in IPC/JEDEC J-STD-609.

QC78 X-RAY INSPECTION OF AREA ARRAY COMPONENTS

Area Array Components Area Array Components (including but not limited to Ball Grid Array (BGA), Land Grid Array (LGA), and Column Grid Array (CGA) require X-Ray inspection with acceptance criteria as defined in IPC-A-610. Seller must provide copy of X-ray inspection to MSI with each shipment.

QC79 MATERIAL REVIEW BOARD (MRB)

The Seller does not have MRB authority to accept or repair nonconforming products relating to MSI controlled drawings or specifications. Any nonconformance on such final deliverable product to the purchase order, buyer drawings, buyer specifications or applicable documents must be submitted to MSI for approval prior to usage or shipment, unless otherwise documented on the Purchase Order.

QC80 COUNTERFEIT PARTS PROGRAM

The Seller shall maintain an effective detection and avoidance Counterfeit Parts program in accordance with AS6174 Counterfeit Material; Assuring Acquisition of Authentic and Conforming Material and/or AS5553 Counterfeit Electronic Parts; Avoidance Detection, Mitigation, and Disposition. Seller must detect and prevent the use of counterfeit, suspect counterfeit, unapproved, or suspect unapproved parts.