



Millennium Space Systems Quality Clause Requirements

MSS08012-204-RQT

REV: -

Related AS9100D Clauses: 8.4

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Millennium Space Systems Quality Clause Requirements are intended to define and clarify quality requirement expectations of material made for, sold and/or delivered to any Millennium Space Systems' business unit.

1. DEFINITIONS

- a. Buyer shall mean Millennium Space Systems: A Boeing Company.
- b. Seller shall mean the party that sells or contracts to sell material or services to Buyer.
- c. Distributor shall mean authorized seller of original equipment manufacturer/original component manufacturer (OEM/OCM) items.
- d. Material shall mean item(s) contracted by a contracting vehicle.
- e. Service shall mean intangible labor, process, digital documentation, testing and/or other non-physical action or activity contracted by a contracting vehicle.
- f. Contracting vehicle shall mean the purchase order, subcontract, or contract. This may also incorporate by reference the Standard Terms and Conditions (TC-001).
- g. Customer Furnished Material (CFM) - Material consigned by Millennium Space Systems for use by Seller in manufacturing or assembly process of Millennium Space Systems' contracted items.

2. GENERAL QUALITY REQUIREMENTS

- a. Any activity performed by the Seller against the contracting vehicle shall constitute acceptance of the contracting vehicle and all terms and conditions as applicable, such as but not limited to:
 - i. furnishes the materials or services
 - ii. any shipment is made
 - iii. delivery received
 - iv. acceptance of payment
- b. Substitutions to materials ordered shall not be accepted unless approved in writing prior to shipment by an authorized Millennium Space Systems procurement authority.
 - i. Substitution agreement documentation shall be included with Seller's documentation package.
- c. Seller shall maintain a documented quality management system that meets the intent of the latest ISO 9001 or an equivalent system that provides adequate inspection and/or testing to verify products or services are in full compliance with the contracting vehicle requirements and all applicable specifications/standards. This shall include Seller organizational awareness of their contribution to product conformity, service conformity and product safety.
- d. Seller shall notify Buyer in writing of any significant change in the quality management system or special process certification (i.e., expiration, loss or suspension of any certification or eligibility for AS9100, ISO 9001:2015, NADCAP) within 3 business days and ensure receipt by Buyer of such notification.
- e. Seller is responsible for adequate and effective control over sub-tier sellers. The applicable Quality Assurance Requirements shall be flowed down to sub-tier sellers as necessary to ensure the quality and reliability of their products.
- f. Seller shall not ship items having less than eighty percent (80%) shelf life remaining from the initial date of certification without the written approval of the Buyer. Proof of approval shall be included with Seller's documentation package.
- g. Seller shall preserve, package, and contain all items in a manner that will ensure protection against damage, corrosion, contamination, oxidation, deterioration, loss and/or substitution in accordance with Buyer specifications, manufacturer specifications or best commercial practices, given preference in that order.

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- h. Packaging shall have a label affixed to any/all external packaging in accordance with the contractual requirements. At a minimum, the label shall indicate that the item is temperature sensitive, moisture sensitive, electrostatic discharge sensitive, shock sensitive or hazardous (as applicable), along with any other information that would be critical for taking the necessary precautions to avoid damage to the packaging and material and injury to personnel.
 - i. Seller shall notify Buyer within 3 business days of identifying any material that will result in a nonconformance to the requirements of a received contracting vehicle.
 - j. When requested by Buyer, Seller shall investigate nonconformities to determine the root cause(s) of nonconformance and take effective action(s) as appropriate to correct the items and prevent future nonconformances. Corrective action(s) shall be documented in a mutually agreed upon format and completed in a timely manner. The standard response timeframe for an RCCA is five to seven (5-7) business days upon identification of nonconforming parts or longer as mutually agreed upon in writing by both parties. Previous dispositions shall not be considered precedence for acceptability. When requested by Buyer, Seller shall submit proof of correction or corrective action on discrepancies prior to acceptance of item in a timely manner.
 - k. Buyer shall notify Seller in writing of any suggested disposition of "use as is" or "repair" to nonconformances to the requirements of this contracting vehicle. Seller shall submit suggested dispositions, identification of the cause of nonconformance and the corrective actions taken in writing to Buyer. Further work that may result in the same nonconformance shall not be performed until disposition has been directed in writing by Buyer.
 - l. Buyer reserves the right to evaluate Seller's applicable documents, facilities, and any sub-tier facilities to:
 - i. Determine the capability and competency of Seller to meet the requirements of the contracting vehicle.
 - ii. Verify that corrective action measures have been implemented after a non-conformance.
 - iii. Conduct performance surveillance to meet the requirements of the contracting vehicle; and/or
 - iv. Monitor Seller's performance.
- Access rights shall extend to Buyer's customers and government or regulatory agency representatives. If access is requested by Buyer, Seller shall coordinate the date with Buyer in a timely manner.
- m. Seller shall have and maintain documented procedures to control, calibrate and maintain inspection, measurement, and test equipment (including software and tooling) that is used to demonstrate the conformance of products or services and is traceable to National Institute of Standards and Technology (NIST) standards.
 - n. Seller shall ensure all items provided to Buyer are not counterfeit and have a counterfeit parts avoidance, detection, mitigation, and disposition program meeting the intent of Aerospace Standard AS5553 Review. Seller shall only deliver authentic items that are manufactured by or obtained from the OEMs, OCMs or authorized distributors. Seller shall make the documentation that authenticates and provides traceability of the item to the applicable OEM or OCM available upon Buyer's request.
 - o. Items furnished under a contracting vehicle for which no Buyer drawing exists (being proprietary to Seller), with exception of Commercial Off the Shelf Parts (COTS), shall be accompanied on the initial shipment by a copy of Seller's drawings, specifications, etc. to facilitate Buyer's receiving inspection. It is understood that data supplied is not expected to be proprietary. Seller shall notify Buyer in writing of any changes proposed in product design, fabrication methods, materials, or processes of proprietary products, including those procured

from secondary sources and/or including assembly components, and shall obtain Buyer approval prior to supplying such products on this contracting vehicle. Deviation and approval shall be submitted upon delivery to Buyer.

- p. Seller shall use recognized statistical principles that are appropriate for the product when employing sampling for product acceptance.
- q. Seller shall not provide refurbished, reconditioned, or re-used items unless approved in writing in contracting vehicle by Buyer.
- r. Seller shall maintain legible copies of all records, either digital or physical, related to all materials and/or services for a minimum of 7 years. At any time, Seller shall be obligated to notify Buyer in writing and obtain approval prior to destruction or deletion of any digital or physical records.

3. BUILD TO PRINT PROCUREMENTS

- a. Seller is required to maintain configuration of the products with the specified requirements(design documentation). Seller shall impose the same configuration requirements on sub-tier suppliers.
- b. Seller shall comply with special requirements, critical items or key characteristics as defined on Buyer released engineering and/or contracting vehicle.
- c. Seller shall maintain internal traceability of items to the raw material level and shall be able to provide such traceability within 10 business days if requested by Buyer.
- d. When applicable, Seller shall maintain test sample(s) of each batch or lot with all relevant specifications sufficiently tested and documented. Each test sample shall clearly and permanently be marked with:
 - i. Batch or lot number.
 - ii. Date manufactured.
 - iii. Specification or material control information.
 - iv. Manufacturer's designation; and
 - v. Contracting vehicle document number.

Sample(s) shall be maintained for a minimum of seven (7) years and be deliverable to Buyer, upon request.

4. EEE Electronic Parts Requirements

- a. All electrical, electronic, and electromechanical (EEE) parts shall be controlled, handled, and packaged in accordance with latest revisions of ANSI/ESD S20.20, ANSI/ESD S541, or Buyer-approved Seller equivalent ESD control process. EEE parts storage shall comply with the moisture sensitivity level associated with each part as defined per IPC/JEDEC J-STD-020, manufacturer data or Buyer-approved Seller equivalent process.
- b. Unless waived by Buyer, the following materials are prohibited:
 - i. Cadmium, magnesium, zinc, or selenium, except internal to hermetically sealed devices.
 - ii. Unalloyed tin (pure tin or Pb-free solder) except when resulting solder joint is verified for "mixed alloy" soldering.
 - iii. Corrosive solder fluxes unless detailed cleaning procedures are specified along with appropriate verification methods to insure removal of residual contaminants.
 - iv. Mercury and compounds of mercury.
 - v. Materials exhibiting or known to exhibit natural radioactivity such as uranium, potassium, radium, thorium and/or any alloys thereof; and
 - vi. Materials exhibiting or known to exhibit health hazards such as unalloyed beryllium, toluene, lithium and/or any alloys thereof.

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- c. Restriction of hazardous substances (RoHS) components may be used with a Sn63Pb37 solder alloy resulting in a "mixed alloy" solder joint. The resulting "mixed alloy" soldering process shall be validated for complete coverage with leaded solder.
- d. Lot date code limitations for Electrical, Electronic and Electromechanical (EEE) parts will be five years or less. Buyer may grant specific exceptions approving shipment of EEE parts exceeding this requirement in writing. Evidence of approval shall be provided with Seller's documentation package.
- e. Seller shall have a systematic approach to evaluate and respond to Government Industry Data Exchange Program (GIDEP) Alerts that are received or forwarded by Buyer. Seller shall investigate, resolve, and document items that are affected and communicate any GIDEP Alerts to Buyer that could affect the product/service.

5. MSS Quality Clauses

The following Quality Clauses shall be applicable when specified on the contracting vehicle.

MSSQC-1 Certificate of Conformance for Commercial Off the Shelf Parts (COTS)

When a Certificate of Conformance (CofC) is requested for a COTS item, it shall contain the following information, as applicable:

- Buyer's contracting vehicle number and part number
- Quantity in lot, date code, batch number and serial number
- Seller's address
- Manufacturer's part number and/or generic part number
- Applicable specifications or standards and their revisions (if no revision identified assume latest revision)
- Any deviation or waiver to specifications or standards
- Country of origin (COO)
- Test results
- Storage conditions/shelf-life expiration date
- Latest safety datasheet (SDS) for all chemicals

MSSQC-2 Certificate of Conformance for Millennium Designs (Build to Print/BTP)

When a Certificate of Conformance (CofC) is requested for a Millennium Design, it shall contain the following information, as applicable:

- Buyer's contracting vehicle number, part number, and/or revision for Millennium design
- Quantity, batch number and serial number
- Seller's address
- Applicable specifications or standards and their revisions (if no revision identified assume latest revision)
- Any deviation or waiver to specifications or standards
- Country of origin (COO)
- Test results
- Storage conditions

MSSQC-3-Dimensional Inspection Report

Seller shall provide dimensional inspection reports with the dimensions or values, inclusive of tolerance ranges, of each product characteristic and evidence of compliance to applicable drawing, CAD files or other engineering documentation. Inspection shall be 100% for all

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features, regardless of tolerance. A sampling plan of the manufacturing lot based on recognized statistical principles may be used when conducting inspection on all features, except for key/critical characteristics as defined by the drawing as well as threaded features such as threaded holes, helical inserts, etc., which shall be 100% inspected on the entire manufacturing lot. The Inspection report shall note part number, revision, quantity sampled/inspected, and accepted/rejected quantity.

MSSQC-4 Raw Material Certification Report

Seller shall provide Material Certification containing the material type and temper, specifications, physical and chemical testing report, and country of origin, as applicable.

MSSQC-5 First Article Inspection Report

Seller shall submit the first article product(s) and paperwork in concurrence with the first production delivery and in accordance with the requirements of the latest revision of AS9102. Documents and data representing results of the Seller's First Article Inspection/Test shall show actual dimensions or values of each product characteristic and evidence of compliance to applicable drawing notes. The First Article product(s) shall be clearly identified.

MSSQC-6 Material Processing Certification

Seller shall submit certification(s) for special processing (i.e. plating, painting, coating, welding, finishing) including processing not performed by Seller, such as by sub-tiers.

MSSQC-7 Turn-Key Assembly Traceability

For partial or full Turn-key Build to Print assemblies, the Seller shall provide Certificate of Conformance for any material procured by Seller. Certificate of Conformance shall conform to the traceability requirements, as applicable:

- Buyer's contracting vehicle number and part number
- Quantity in lot, date code, batch number and serial number
- Seller's address
- Manufacturer's part number and/or generic part number
- Applicable specifications or standards and their revisions (if no revision identified assume latest revision)
- Any deviation or waiver to specifications or standards
- Country of origin (COO)
- Test results
- Storage conditions/shelf-life expiration date

MSSQC-8 Drop Shipments

Should material be Drop Shipped, the Seller will verify the quantity and condition of delivered material and perform receiving inspection and/or test to verify compliance in accordance with internal turnkey buying process. The Seller shall notify the Buyer on the condition of the material and provide applicable vendor documentation. Should any furnished material be found discrepant, the Seller shall notify the Buyer immediately, mark and segregate the material until Buyer dispositions material. All customer furnished material shall be identified, handled, stored, and protected from damage. Seller shall maintain all traceability and ensure all required documentation (e.g. Certificate of Conformance, material certs, etc.) is provided with the material.

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MSSQC-9 Source Inspection

Seller shall notify Buyer, at least 2 business days prior to Source Inspection at Sellers' facility. Buyer shall specify in writing whether Final and/or In-Process Source Inspection is required.

MSSQC-10 Printed Circuit Board

Quantity of Solder Samples shall be identified on the contracting vehicle, be clearly marked as solder samples, and be included with the manufacturing lot delivery. All test and inspection results shall be provided including:

- Electrical Test report
- Drill report
- Bow and Twist Inspection
- Ionic cleanliness report
- Microsection/coupon testing report

MSSQC-11 Printed Circuit Board Assembly

The following inspection and test reports shall be provided upon delivery:

- Ionic cleanliness report
- X-Ray images provided for partially visible or hidden solder connections (as applicable)
- Inspection report
- Automated Optical Inspection (AOI)

MSSQC-12 PCBA Polymeric Coating

Build per drawing and the most current revision of ALT18042-101-SAP Polymeric Application Standard Assembly Procedure. Use 10 X magnification with MSS provided or approved UV light for connector inspection. Maximum Referee magnification of 20 X. Seller shall retain original packaging and match the PCBA's to their original packaging upon return.

MSSQC-13 Build to Print Harnessing

Build per drawing, MSS08011-303-HBK "Harness Design for Manufacturing, Assembly, Assembly, and Test Handbook," and MSS08014-102-SOP "Harnessing Build Standard Practices and Inspection" unless otherwise noted, given preference in that order. Seller shall provide inspection, build, and test reports for Build to Print harnessing including but not limited to:

- Electrical Conformance Test Reports
- Mechanical Conformance Test Reports
- Work Order Traveler/Build Documentation

MSSQC- 14 Serialization

Assembled hardware shall be assigned unique identifiers and physically identified. Unique identifiers or serial numbers shall contain no duplication within the given part number, shall be legible upon receipt to Buyer, and shall conform to all drawing requirements. If drawing does not specify method of identification for serialization, Seller shall default to bag and tag per AS478-35D. Seller may use its own serialization system within the limitations outlined above unless otherwise specified in writing. Seller shall indicate serial numbers on all

documentation (such as but not limited to inspection reports, packing lists, First Article Inspection Reports).

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