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Revision History

Date	Change Notice	Change Description
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Quality Management System: The seller shall maintain a Quality Management System that complies with the requirements of ISO 9001, AS9100, or an AMSC approved Quality Management System (formal certification by an accredited registrar is preferred). The Seller shall notify the Buyer of any changes to the QMS, i.e. certification status, facility relocation, Quality Manager.

The organization shall ensure that persons doing work under the organization's control are aware of their contribution to product safety. The organization shall determine the requirements for the products and services including consideration of personal and product safety. The organization shall plan, implement, and control the processes needed to assure product safety during the entire product life cycle, as appropriate to the organization and the product. These processes include:

- assessment of hazards and management of associated risks;
- management of safety critical items;
- analysis and reporting of occurred events affecting safety;
- communication of these events and training of persons.

Control of Records: All records related to the manufacturing, testing and inspection of parts supplied to an AMSC PO will be maintained for a minimum of seven (7) years from delivery and final payment, unless otherwise specified by AMSC. These records shall be accessible, upon request, to AMSC, AMSC customers, or to regulatory and statutory authorities. All records submitted are subject to AMSC review and approval prior to acceptance.

Note: All blank lines or fields on records shall be marked as N/A if not applicable; edits or changes shall be noted with a single line-out and must be annotated, minimally, with initials and date next to edits or changes. No ditto marks or continuation marks are allowed.

Measuring & Test Equipment: It is the seller's responsibility to ensure all equipment; including Customer Furnished Equipment (CFE), and Government Furnished Equipment (GFE), used to test and inspect AMSC supplied parts are maintained and traceable to the National Institute of Standards and Technology (NIST) requirements. The calibration system used by the supplier must be in accordance with ISO 17025, General Requirements for the Competence of Testing and Calibration Laboratories and Z540.1, Requirements for the Calibration of Measuring and Test Equipment. Additionally, the supplier shall demonstrate compliance to ISO 10012 Measurement Management Systems – Requirements for Measurement Processes and Measuring Test Equipment.

Special Processes: The Supplier shall ensure that all personnel performing special processes, inspections and testing are certified to perform the function in accordance with the requirements of the referenced PO, drawings, and any specifications referenced directly or indirectly therein. The Supplier shall ensure the associated equipment and laboratory used for these processes is certified, as appropriate.

Foreign Object Debris (FOD) Prevention and Part Cleanliness: The Supplier shall conduct production processes appropriate to prevent, detect, and remove all FOD from

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product(s) during manufacture and provide parts clean and free of all FOD. FOD contamination will be cause for rejection of material.

Prohibited Materials:

Mercury Prohibition: The supplies furnished under this Purchase Order shall not contain functional mercury. Furthermore, external contamination by metallic mercury or mercury compounds shall be cause for rejection. The Supplier shall notify AMSC prior to proceeding with manufacturing or shipping, if the presence of mercury or mercury contamination is suspected. The Supplier shall perform a suitable test to verify the suspicion. The deliverable materials shall not come into direct contact with mercury containing devices employing only a single boundary of containment. A single boundary of containment is one which is not backed by a second seal or barrier to prevent contamination in the event of rupture of the primary seal or barrier. This requirement does not preclude the use of fluorescent lighting fixtures or fixtures employing mercury vapor lamps, which contain no more mercury per lumen than a comparable fluorescent lamp.

Asbestos Prohibition: Materials containing asbestos shall not be provided without Buyer's prior written permission. If invoked specifications and standards permit other materials, such materials shall be used in lieu of asbestos.

Identification, Preservation, Packaging, and Packing: Unless otherwise noted on the PO, packaging and packing of all products shall be in accordance with Standard Commercial Packaging Practice. Reference ASTM D3951-10 for guidance. Each packing list shall include, as a minimum, the following information:

- Part number and revision;
- PO number;
- PO Line item;
- Quantity;
- Supplier/Manufacturer's identification.

Supplier Material Review Board (MRB) Authority: The Supplier does not have MRB authority to accept or repair nonconforming products related to this order. Any nonconformance on the product to the purchase order, drawing, specifications or applicable documents must be submitted to AMSC for approval prior to usage or shipment, unless otherwise documented.

Notification of Non-conformances Responsibility: The Supplier shall inform AMSC immediately when there is a reason to suspect that products previously supplied to AMSC may not be in accordance with the AMSC drawing(s), specification, or purchase order requirements. The Supplier shall promptly inform AMSC of any circumstance related to materials, manufacturing, processing, methods, design, etc. which may make a product susceptible to premature failure or otherwise place the safe operation of that product at risk. The notification shall describe the nature of the discovered anomaly, its applicability to AMSC part number(s), quantities affected and the probable impact to the proper function/performance of the item supplied. Supplier is responsible to notify AMSC if they have received any corrective actions from the government or regulatory agencies within 30 days.

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Parts Substitution: The Seller shall not deliver substitute parts for the part specified on the purchase order line unless AMSC and/or AMSC customers have approved the substitution in writing as evidenced by a formally released AMSC alternate parts document, other document or instruction. For Buyer specified and controlled drawings and specifications, the Seller shall not use substitute or alternate component parts or subassemblies without receiving approval in writing. The supplier shall notify AMSC of any End of Life, Obsolescence or Form, Fit, or Function issues for ten (10) years beyond the award date of the purchase order.

Source of Supply: Suppliers are responsible to ensure compliance for materials used to manufacture parts supplied to AMSC. Suppliers will only purchase materials from Original Equipment Manufacturers (OEMs), Original Component Manufacturers (OCMs) or the OEM/OCM authorized distributors. Purchasing from independent brokers or other sources is not authorized unless approved in writing by AMSC. Suppliers of electronic components shall have an established counterfeit avoidance program in place. Distributors of electronic components shall certify that franchise agreements and/or written OEM/OCM reseller authorization is on file for all parts provided.

Supplier shall notify AMSC when suspect counterfeit materials has been identified. The Supplier shall not deliver products that contain counterfeit items, such as, but not limited to, software, material, and electrical/mechanical parts/assemblies. Any suspect counterfeit parts delivered to AMSC are considered non-conforming material and will be controlled per site requirements. Counterfeit parts will not be returned to the supplier and will be reported to GIDEP.

Control of Lower-Tier Suppliers: Supplier is responsible for the quality of all sub-tier products and services. The Supplier shall flow-down all applicable AMSC purchase order requirements, including, but not limited to Terms and Conditions, Federal Acquisition Regulations (FAR), Defense Federal Acquisition Regulations Supplements (DFARs), and Quality Clauses to sub-tiers performing work involving this purchase order.

Right of Access: During the performance of the order, AMSC, AMSC Customers, and/or a regulatory or statutory agency including Government Representatives, reserve the right to attend, review, and participate in the Supplier's Quality System and associated manufacturing processes including inspection and testing of any work related to this contract. AMSC, AMSC Customers, and/or regulatory or statutory authorities shall be afforded the right to verify at the supplier's premises (or Supplier's subcontracting premises) that the supplier's product conforms to all specified requirements.

Part / Commodity Specific Quality Requirements

The following part specific quality requirements shall be reviewed and met for when applicable to the final deliverable product. Any questions of applicability should be raised to AMSC Quality personnel.

- Circuit Card Assemblies (CCAs):** Unless otherwise specified on the PO or drawing:
- CCAs will comply with IPC-A-610 Acceptability of Electronic, Class 3 acceptance criteria.

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- CCAs will comply with IPC-J-STD-001 Requirements for Soldered Electrical and Electronic Assemblies, Class 3 acceptance criteria.

Note: This clause does not apply to COTS Items.

Electrostatic Discharge (ESD) Control: All electrostatic sensitive devices shall be packaged, marked and handled in compliance with ANSI/ESD S20.20 Protection of Electrical and Electronic Parts, Assemblies and Equipment (Excluding Electrically Initiated Explosive Devices), or equivalent.

Moisture Sensitive Components: The supplier shall ensure packaging and handling of all moisture sensitive components, as classified by, and in accordance with IPC/JEDEC J-STD-033 Standard for Handling, Packing, Shipping, and Use of Moisture/Re-flow Sensitive Surface Mount Devices and IPC/JEDC J-STD-020 Moisture/Reflow Sensitivity Classification for Non-hermetic Solid State Surface Mount Devices, or other documented procedure.

Magnetic Core Packaging:

Seller shall ship magnets to AMSC in individual packaging. Many of these individually packaged magnets can be contained within one container. Each shipping container shall have shunt material on all six sides to shield the magnets' flux from anything magnetic (or magnetically susceptible), that is external to the container.

Printed Boards (PWB or PCB): Unless otherwise specified on the PO or drawing:

- Printed boards will comply with IPC-A-600 Acceptability of Printed Boards, Class 3 acceptance criteria.
- Printed board(s) must meet J-STD-003 Solderability Test, Class 3 acceptance criteria.
- All documentation delivered shall include traceability to date code/lot/serial number of the printed board manufactured.
- Boards to be individually bagged, but NOT HEAT SEALED.

Note: This clause does not apply to COTS Items.

Shelf Life: No shelf life sensitive materials will be shipped to AMSC with less than 80% of the full shelf-life as determined by the original manufacturer unless previously approved in writing by AMSC. The expiration dates shall be clearly recorded on the packaging and shipping documents.

Solderability: Unless otherwise specified on the PO or drawing:

- All parts that require soldering shall meet industry standards for hand and machine soldering. The supplier shall ensure compliance to IPC/EIA J-STD-002 Solderability Tests for Component Leads, Terminations, Lugs, Terminals and Wires, Class 3 acceptance criteria.
- Components that require tinning shall be tested and certified to IPC/EIA J-STD-002 Section 4.3.1 Test "E" Wetting Balance Test (Leaded Components), Class 3 acceptance criteria; Section 4.3.2 Test "F" Wetting Balance Test (Leadless Components). Class 3 acceptance criteria; and, IPC/EIA J-STD-013 Implementation of Ball Grid Array and Other High-Density Technology Outlines for Ball Grid Arrays, Class 3 acceptance criteria.

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Temperature Sensitive Material: The Supplier must identify each shipment of temperature sensitive material with the manufacture date, storage temperature and recommended shelf life. In addition to the normal identification requirements of name, type, size, lot/date code, and quantity.

Wiring Harnesses: Unless otherwise specified on the PO or drawing:

- Cables and wiring harnesses will comply with IPC/WHMA-A-620 Requirements and Acceptance for cable/Wire Harness Assemblies, Class 3 acceptance criteria
- Cables and wiring harnesses must be 100% electrically tested per IPC/WHMA-A-620, Class 3 acceptance criteria.

Note: This clause does not apply to COTS Items.

Quality Deliverables

The Supplier shall provide a copy of all quality deliverables required by this purchase order for shipment to AMSC. If shipment contains different PO line items (part numbers), then each line item shall have separate quality deliverables as appropriate.

Acceptance Test Plan: A detailed Acceptance Test Plan must be submitted to the AMSC for review and approval. This plan shall consist of a test plan and list of equipment employed. Changes must be approved by AMSC prior to first delivery against the Purchase Order.

Acceptance Test Procedure/Test Data Sheets: This ATP and any subsequent changes must be submitted for approval thirty (30) days prior to testing deliverable end items. Completed Data sheets must contain at a minimum, identification of the item being tested (Part number, description, revision and serial numbers, if applicable); the specification requirement; minimum and maximum limits; the actual recorded result; indication of pass or fail; the person performing the test/inspection and the date the test/inspection was performed.

Cable Harness Test Report: Supplier shall provide AMSC the continuity test detailed results for all short and open connections and fiber optics signal loss where applicable that verify conformance to specifications.

Certificate of Analysis (C of A): C of A is required to accompany all materials supplied to an individual purchase order. Material, Chemical and Mechanical Reports.

The C of A will include:

- Customer Name *
- Manufacturer's name;
- Country of origin/melting/smelting;
- Specification number;
- Material grade;
- Material marking
- Material condition;
- Size;*

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- Heat lot, number;
 - Heat Condition *
 - Date Code; *
 - Chemical analysis (Specification requirements and results);
 - Physical properties applicable to the procured material (Specification requirements and results)
- *(Indicates where applicable)

Certificate of Compliance, or Conformance (C of C): Supplier shall submit with each shipment either on their packing list, or attachments, a certificate of conformance or certificate of compliance on supplier letterhead, indicating that the materials furnished to AMSC are in conformance with the applicable requirements of the contract (i.e. T&C's, PO comments, Quality Clauses, etc.), drawings, and specifications (e.g. procedures, material certifications, etc.). A Certificate of Conformance (CofC) is required for EACH unique PO part number and must include the following:

1. The supplier's full name and address
2. Manufacturer's full name and manufacturing address if different than seller (Distributors need to only list OEM/OCM full name)**
3. AMSC purchase order number;
4. AMSC part number, revision, and as applicable, serial numbers (Distributors need to only list AMSC part number)
5. Seller or Manufacturer's part number, revision (if applicable), and as applicable serial numbers (if different than AMSC part number)
6. PO quantity
7. Quantity shipped (Note: CofC is applicable to this quantity only for partial shipments and subsequent shipments require unique applicable CofC for balance)
8. Date codes or lot codes, as applicable
9. Name of lower-tier supplier and description of service provided (if applicable)*
10. Statement by the supplier declaring the product or service has met all the requirements of the purchase order, including drawings and specifications at the prescribed revision level. It shall also state that the supporting documentation is on file and will be made available to AMSC, its customer(s), Government Representative, or any other regulatory or statutory agency upon request.
 Note: An example of an acceptable statement of Certificate of compliance/conformance is as follows: "This is to certify that all items noted are in conformance with the contract, drawings, specifications, and other applicable documentation, and that all process certifications, chemical and physical test reports are on file at this facility and are available for review by AMSC".
11. Supplier's authorized personnel signature, printed name, title, and signature date

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* Unless specifically required per the purchase order, the Supplier's lower-tier supplier/process C of Cs shall be made available to AMSC, AMSC customer(s), authorized Government Representative, or any other regulatory or statutory agency upon request.

** Distributors shall include the OEM Certs.

COTS Suppliers: The packing slip, provided all packing slip requirements are followed, can be used in lieu of a C of C.

Qualified Products List (QPL): One or more of the items of this order may be identified as a QPL part that is required to be produced by a Qualified Product Listed (QPL) supplier. In these cases, the supplier certifications must contain evidence of manufacture by a QPL source.

Certification of Solderability: The supplier shall perform Solderability testing as specified by this Purchase Order.

Certification of Special Processes: The supplier shall provide a Special Process Certification as specified in this Purchase Order.

Certificate of Test (C of T): All parts supplied to this purchase order will be accompanied by a C of T. The C of T will be dated and signed by the responsible company representative certifying the supplied parts meet all purchase order, specification, and drawing requirements from the buyer. Certifications must include the following:

- AMSC PO Number;
- AMSC Part Number, Revision, Serial Numbers and Date/Lot Codes where applicable;
- Purchase Order Quantity;
- Quantity Shipped;
- Name of approved lower-tier supplier and descriptions of service provided (if applicable);
- Authorized signature and date;
- Name and Address of the tester or independent laboratory;
- Date and run time, if applicable.

Circuit Card Assembly (CCA) Test: The Supplier shall perform 100% electrical testing on the CCAs as required by purchase order to identify and correct manufacturing defects prior to delivery. Tests such as In-circuit Test (ICT), Bed-of-Nails, Flying Probe or other Manufacturing Defect Analyzer (MDA) may be used. CCA Test Reports including the CCA Test procedures conducted, pass/fail results by serial number, and authorization by a representative of the Supplier's Quality function shall accompany each shipment.

First Article Inspection (FAI) Required: The Seller shall perform a First Article Inspection (FAI) on Buyer controlled drawings and specifications in accordance with AS9102 (latest revision) and/or AMSC approved equivalent for this purchase order if one of the following apply:

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- First time submission (part or new supplier);
- Revision change affecting form, fit, or function;
- A process change used to manufacture the part;
- Change in manufacturing location (facility);
- 24 months or longer have passed since the supplier has last produced the Item requested by AMSC.

All first article inspections (full or partial) performed by the seller will be accompanied with a First Article Inspection Report (FAIR) and all other documentation showing conformance to the contract, purchase order, drawing, specifications, and/or performance requirements. The Seller shall submit to ASMC for review and approval prior to shipment of the product.

The seller shall use an independent method of inspection to verify process capability and compliance to all Drawing/Specification and or Purchase Order dimensional characteristics. The following capability guidelines shall be applied to verify all dimensional characteristics.

- Tool must be capable of measuring feature and feature size
- Tool must be capable of measuring feature with repeatable and reproducible results within 5%
- Tool must have sufficient capability to measure one decimal point beyond engineering requirements (e.g. 1.000" would require tooling to be capable of measuring 1.0000")
- The use of inspection fixtures or templates used in the acceptability of product must be separately validated and entered into a calibration system for future monitoring and re-validation.

NOTE:

- The use of programed type equipment (i.e. CNC , etc.) used in the machining, turning and or fabrication of the product is not acceptable as an independent method of inspection.
- AMSC may provide the Ballooned Drawing(s) and FAI forms to assist the seller in documenting the FAI as required.
- All non-conformances noted during the FAI process must be reported to and approved by AMSC. Any AMSC approved supplier deviations or waivers must then be included and noted within the FAI Package before shipment can occur.

Inspection Reports: The data must include the actual measured value and be traceable to the product lot code or serial number. Dimensional Inspection data required by the drawing and /or PO shall be included in an inspection report on items delivered under this Purchase Order.

Critical Dimension Report: The supplier shall provide a Critical Dimension report as specified in this Purchase Order.

Full Dimension Report: The supplier shall provide a Full Dimension report as specified in this Purchase Order.

Non-Destructive Test (NDT) report: The supplier shall provide all NDT reports when NDT is required elsewhere in the PO, drawing, specifications, etc. (e.g. Visual

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Weld Inspections, Magnetic Particle Inspections, Liquid Penetrant Inspections, Ultrasonic Testing, X-Ray Inspections, etc.)

Qualification Test Reports: The supplier shall provide Qualification Test Reports as specified in this Purchase Order.

Supplier Inspection & Test Plan: Supplier shall prepare a detailed inspection plan including all measurement and testing methods. The plan shall include name, type, accuracy and calibration date of measuring and test equipment, as well as measuring record forms that are required for in-process and/or final acceptance of product. For measurement or testing of parts performed in-process, plan shall include process flow. Inspection plan requires by AMSC SQE approval prior to delivery of the first product.

Welding Certifications: The supplier shall provide Welding Certifications as specified by this Purchase Order.