



QUALITY CONTROL REQUIREMENTS FOR SUPPLIERS

Operational Procedure: **QA-157**

Revision: **AAD**

Page 1 of 13

1.0 PURPOSE

1.1 This document establishes basic Quality Control Requirements for the Supplier necessary to ensure that the products/services purchased from the Supplier meet the required quality levels.

2.0 DEFINITIONS

2.1 "BUYER" means Miltope (herein referred to as "the organization"), issuing the purchase order.

2.2 "SUPPLIER" means the vendor/supplier or distributor performing the work/supplying materials, parts, assemblies, subassemblies, systems or services applicable to the purchase order.

3.0 GENERAL REQUIREMENTS

3.1 The Supplier's Quality Control System shall conform to an approved QMS.

4.0 QUALITY CONTROL PURCHASE ORDER ATTACHMENTS

4.1 The following special clauses are applicable when so indicated on the purchase order.

Clause 1. Quality Program Requirements

The requirement of these clauses and any procedure or reports executed in implementation thereof, shall be in addition to and not in derogation of other purchase order requirements. Compliance with the requirements of these clauses does not relieve the Supplier of his responsibility for furnishing materials and services which fully comply with applicable drawing and specification requirements nor does it guarantee acceptance of materials and services. References to Contract Number and DO/DX Rating only apply when stated on Purchase Order. Supplier shall require their sub-suppliers to comply with quality assurance requirements comparable to those contained in the Purchase Orders. Supplier shall assume responsibility for the quality of all procured material and workmanship. Supplier shall include this clause in its subcontracts with sub-suppliers and require them to flow down this clause to their sub-tier suppliers.

Clause 2. Request for Deviation

All material discrepancies detected and not corrected by the Supplier must be processed on "Request for Deviation/Waiver" DD Form 1694 internal ISO form QA-13-F003 prior to shipment of material. The discrepant material must be held by the Supplier until disposition is made by this organization's Quality Assurance Department and the signed form is returned to the Supplier. These forms may be obtained from the Purchasing Department.

Clause 3. Department of Defense (DOD) Qualified Product/Supplier

This part must be manufactured by an approved DOD qualified Supplier and/or be a DOD qualified product. Qualified Suppliers and/or products are listed on the applicable DOD Qualified Products List (QPL). Unless otherwise specified on this purchase order, the revision status of all applicable military specifications and standards shall be that issue in effect on the date of this purchase order as determined by the Department of Defense (DOD) Index of Specifications and Standards. A Certification of Compliance stating this is required with this order.

QUALITY CONTROL REQUIREMENTS FOR SUPPLIERS

Operational Procedure: **QA-157**

Revision: **AAD**

Page 2 of 13

Clause 4. Supplier Quality Manual Requirements

Refer to the organization's Supplier Quality Manual for specific details on supplier requirements. If you require a copy contact the Buyer or download from our website at www.mymiltope.com

Clause 5. Authority for Changes

The Supplier does not have authority to change any requirement of this purchase order. Only those changes submitted and approved in writing on Deviation Waiver (D/W) form QA-13-F003 shall be considered contractually binding. All other forms of requests such as emails shall not be accepted.

Clause 6. Deleted

Clause 7. Deleted

Clause 8. Marking & Packaging

Material on this order shall be marked with the organization's drawing number and revision per drawing requirements. Catalog items shall be marked with the original manufacturer's part number or the Part Number listed on the Purchase Order. Material which cannot be marked by reason of size shall be suitably marked with individual string tags or on the individual bag, carton, or container used for packaging. Mil Spec items must include Mil Spec part number on label. Metal connectors that are susceptible to scratches shall be protected with protective covers provided by the supplier and/or static shielding bags sealed with anti-static tape. Connectors with protruding pins shall be inserted into anti-static foam and inserted into static shielding bags sealed with anti-static tape. Harnesses and cable assemblies shall be packaged separately into static shielding bags only when populated with active components. Packaging shall be in accordance with ASTM D3951-98 (2004) unless otherwise specified. (No peanuts or equivalent.)

Clause 9. Deleted

Clause 10. Deleted

Clause 11. Deleted

Clause 12. Deleted

Clause 13. Miltope Source Inspection

The items on this Purchase Order are subject to source inspection at point of manufacture. When the items are ready for inspection, or if practical, ten days in advance thereof, notify your procurement representative.

Clause 14. Government Source Inspection

Articles furnished under this Purchase Order are subject to Government inspection at point of manufacture. Upon receipt of this order, promptly notify the Government representative who normally services your plant or the nearest DCMA office in your locality so that appropriate planning for Government inspection can be accomplished. When material is ready for inspection, or if it is practical, ten days in advance thereof, notify the Government Representative or DCMA office. In the event the DCMA representative or office cannot be located, notify the organization buyer immediately. Government Quality Assurance Representative at point of manufacture may use drawings or other pertinent data, which may be required for adequate source inspection, available at supplier's plant.

Clause 15. Certification of Compliance

This certificate shall accompany each shipment and must include the following:

1. A. The organization's Purchase Order Number, part number and revision
- B. Supplier's name, the quantity shipped and serial numbers (if applicable)
- C. When applicable, the contract number, DO/DX rating, and military specification designations
- D. The reference number of any accompanying Material certifications, Certificates of Analysis, etc.
- E. Product Country of Origin

QUALITY CONTROL REQUIREMENTS FOR SUPPLIERS

Operational Procedure: **QA-157**

Revision: **AAD**

Page 3 of 13

- The following notation or equivalent text shall appear on the certificate "We hereby certify that the parts and/or materials supplied in accordance with the purchase order were produced in compliance with the specified requirements and military specifications. Test data and/or other evidence to substantiate this certification is on file at our plant or our suppliers and is available upon request."
- The document shall be signed by a responsible Supplier official.

Clause 16. Chemical and Physical Test Reports

One copy of the actual chemical and/or physical test reports, as required by specification for each lot, batch, or heat, whichever is applicable, must accompany each shipment. These reports are to reference the following: Purchase Order number, contract number, DO/DX rating, packing list number, military specification designations, date, part number and revision, part name, serial number(s) and quantity.

Clause 17. Functional Test Report

Actual functional test data referencing customer, Purchase Order number, contract number, DO/DX rating, packing list number, military specification designation, date, part number and revision, part name, serial number(s), quantity and run time of units if applicable must be available for each delivery upon request. These data shall be validated by an authorized representative of the Supplier's quality control department. The drawing specification will define functional test data items.

Clause 18. Quality Control Lot Test Data

Functional test data used for the Supplier quality control acceptance of the manufacturing lot from which this shipment was derived must accompany each delivery under this Purchase Order. This data shall be identifiable to the devices being delivered by manufacturing date code, serialization or other suitable method and shall be both qualitative and quantitative. All data submitted must show that the sampling inspection performed demonstrates that the product being delivered was derived from a lot which was in strict conformance with the requirements of the article being purchased. These data shall be validated by authorized representative of the Supplier's quality department. These data must reference customer, purchase order number, contract number, DO/DX rating, packing list number, military specification designation, date, part number, and revision.

Clause 19. Deleted

Clause 20. Packing List Documentation

The following are requirements (as applicable) to be included with each shipment.

Supplier's name and address
Purchase Order number
Contract number and DO/DX rating
Item description
Applicable certifications
Date of shipment
Miltope Part number and revision letter
Serial number(s)
Quantity
Copies of test(s) performed

Clause 21. Deleted

Clause 22. Age Control Information

Cure date and/or shelf life expiration date and pot life information is required with each shipment. Shelf-life items/material will have not less than 85% (allowing for rounding to whole months) of shelf life remaining at time of receipt by this organization. The 85% requirement applies to raw/base/materials that typically have an "M" number associated with the product. Materials / fabrications that have a six digit or more part number are excluded from the 85% shelf life requirements. Material Safety Data Sheets (MSDS) and Product Technical data sheets are required if applicable with each shipment.

QUALITY CONTROL REQUIREMENTS FOR SUPPLIERS

Operational Procedure: **QA-157**

Revision: **AAD**

Page 4 of 13

Clause 23. Electro-Static Discharge Control

Supplier must have electrostatic discharge controls when handling or packaging electrostatic sensitive parts or assemblies. Reference DOD-STD-1686 and DOD-HDBK-263. See attachment (ELECTROSTATIC PROTECTION) for packaging and marking Electrostatic Sensitive Items.

Clause 24. First Article Inspection

The First Article Inspection will be required when the clause 24 is identified on the purchase order. The format must comply with the AS9102 in its entirety. The inspection report and the first piece used for dimensional evaluation shall be identified when delivered to this organization. Some examples of justification for this requirement, but not limited to, are new suppliers for parts, significant modification via ECN, or out of production (last production day to start of next production day) for the designated period identified in the most current AS9102 standard.

Clause 25. Entry to Supplier's Facilities

Representatives of this organization, the organization's Customers, and/or the Federal Aviation Administration may inspect and evaluate the Supplier's facilities, systems, data, equipment, personnel, and all completed articles manufactured for this organization.

Verification by the customer shall not be used by the organization as evidence of effective control of quality by the supplier and shall not absolve the organization of the responsibility to provide acceptable product, nor shall it preclude subsequent rejection by the customer.

Clause 26. Prohibited Materials

The product(s) to be delivered under this contract or purchase order may contain or be manufactured using Class 1 Ozone Depleting Substances and the following warning statement shall apply to such product(s):

WARNING; MANUFACTURED WITH OR CONTAINS CFC-11, 12, 13, 111, 112, 113, CARBON TETRACHLORIDE OR METHYL CHLOROFORM SUBSTANCES WHICH HARM PUBLIC HEALTH AND ENVIRONMENT BY DESTROYING OZONE IN THE UPPER STRATOSPHERE.

It is agreed that the above warning statement satisfies the requirements of the Clean Air Act Amendments of 1990 (Section 611), Title 40 CFR PART 82.

Clause 27. Deleted

Clause 28. Deleted

Clause 29. PCB/PWA Requirements

- All PCBs must conform to IPC-6011/IPC- 6012 Class 2 and PWA's must be fabricated to conform to J-STD-001 Class 2 and inspected to IPC-A-610 Class 2 unless indicated otherwise by Miltope P.O. or engineering drawings. If there is a conflict between J-STD-001 and IPC-A-610, the J-STD-001 shall take precedence.
- Printed wiring assemblies and flex circuits must be serialized by the supplier so as to facilitate identification and possible recall in the event a non-conformance is identified. Location of the marking and nomenclature are up to the supplier's discretion if not specified on the drawing/print. In the event a board cannot be marked due to size constraints, marking the ESD bag with the serial number may be substituted. In addition to board serialization, the C of C or attachment to the C of C must list all of the serial numbers in the shipment. If these requirements cannot be complied with, a written deviation/waiver must be submitted to the organization's procurement for approval.

Physical Requirements

- Cross-section per IPC-TM-650, Methods 2.1.1 or 2.1.1.2. The cross-section should contain the smallest vias commonly used on the board.
- Solder samples (2) – Solderability to be compliant with the requirements of ANSI/J-STD-003
- Dimensional Report including Bow/Twist per TM-650 2.4.22.1C
- Max bow/twist .007 inch per inch diagonal length.
- When required, all boards electrically tested must be stamped to indicate they passed.

QUALITY CONTROL REQUIREMENTS FOR SUPPLIERS

Operational Procedure: **QA-157**

Revision: **AAD**

Page 5 of 13

- Controlled Impedance Results as required. (TDR or equivalent)
- Visually examine all samples for the following:
 - a. Markings including part number and revision
 - b. Hold fill materials and condition
 - c. Edge conditions
 - d. Laminate imperfections
 - e. Soldermask registration and adhesion (IPC-TM-650 method 2.4.28.1)
 - f. Drill registration as indicated by external annular rings
 - g. Component land conditions
 - h. Conductor definition, size and spacing
 - i. Edge connector condition

First Article Retention and Sample Retention:

The sample board(s) that was actually inspected and ultimately approved will be identified as such and delivered to the materials department. The method of identification is to be appropriate for that specific board but will ideally be physically on the board. When this is not possible, an alternative ID method assuring the board will be used on the first assembly article will be used. Solder samples and cross sections are retained in the material department following the inspection.

Special Instructions and Continued Conformance:

In all cases where this specification is not met or where other defects are found the inspection instructions will be amended for that board or supplier. Corrective and Preventive actions, MRB's dispositioned RTV and Failed cross section analysis are typical inputs to ongoing and specific inspection instructions. All such records are made a part of those suppliers or that boards history and is included in the inspection requirements per this procedure. Special inspection instructions can also be a result of a PAC or PAR review. The current PAC/PAR process supports these special quality requirements and the requirements will be made available to the proper inspection personnel. The participant requesting the special inspection instructions will note that requirement on the organization's form CS-0002 as a special quality requirement at the PAR meeting. Under the PAC/PAR procedure the job cannot proceed until all the requirements of the participants are adequately addressed. Therefore, the PAC section cannot be signed until the inspection instructions are developed.

Clause 30. Supplier Quality Records

The supplier shall maintain all records associated with the procurement, manufacture, inspect, & test on parts manufactured/sold this organization as defined on the purchase order. Records must be retained for 20 years and remain legible, readily identifiable and retrievable.

Clause 31. Root Cause Analysis and Corrective Action Requirement

When it is determined that defective material has been delivered this organization, the supplier will be responsible for root cause analysis and corrective action.

Clause 32. Deleted

Clause 33. Charge Back

In the event material submitted to receiving inspection is rejected and that rejection impacts the organization's production schedule, the following apply:

1. This organization shall sort and charge the supplier.
2. The supplier may send appropriate personnel to the organization's facility to conduct the sort (must be agreed to by the Purchasing and Quality Departments).
3. The supplier may have a 3rd party conduct the sort on-site (must be agreed to by the organization's Purchasing and Quality Departments).

Clause 34. In the event a supplier elects to sub out materials for fabrication to a sub-tier supplier, the following shall apply:

Supplier shall contact the organization's Purchasing and receive written permission to sub out the material or assembly.

QUALITY CONTROL REQUIREMENTS FOR SUPPLIERS

Operational Procedure: **QA-157**

Revision: **AAD**

Page **6** of **13**

Supplier shall flow down to the sub-tier supplier all applicable requirements in the purchasing documents, including key characteristics where required.

Clause 35. Calibration

Subcontractors that supply calibration services are required to follow a set of guidelines for the items they calibrate whether they work on the equipment in their facility or in the organization's facilities. The requirements are listed below:

- Calibration subcontractors shall utilize calibration methods and processes that are in compliance with the equipment manufacturers' standards or generally accepted industry standards (whichever is appropriate for the equipment). These processes should be available for review by this organization if requested.
- Calibration subcontractors are required to use acceptance criteria as prescribed by manufacturers' specifications, industry standards, national standards, and/or federal standards (whichever standard or specification is appropriate for the equipment). The only exception allowed would be a case in which this organization requests the use of some other acceptance criteria.
- Calibration subcontractors are required to provide certifications of calibration that are traceable to NIST.
- Certificates of calibration should contain all relevant information including calibration measurement data with the applicable acceptance criteria.

Clause 36. Deleted

Clause 37. DFARS 252.225-7009

DFARS 252.225-7009 preference for domestic specialty metals applies to all materials fabricated for this organization. The only exception is for specialty metals metal in a qualifying country per DFARS Subpart 225-7002-2.

Clause 38. Foreign Object Debris / Damage (FOD) Prevention

Supplier shall maintain a FOD prevention program. Supplier's FOD prevention program shall include the review of design and manufacturing processes to identify and eliminate foreign object entrapment areas and paths through which foreign objects can migrate. Supplier shall ensure work is accomplished in a manner preventing foreign objects or material in deliverable items. Supplier shall maintain work areas and control tools, parts and materials in a manner sufficient to preclude the risk of FOD incidents. Supplier shall document and investigate each FOD incident and ensure elimination of the root cause of each such incident.

Buyer shall have the right to perform inspections, verification and FOD Prevention Program audits at Supplier's facility to ensure program documentation and effectiveness. Supplier shall identify FOD control person responsible for implementing FOD prevention, awareness and training.

Supplier's FOD prevention program shall provide annual FOD training to Supplier's employees. At Buyer's request, Supplier shall provide records of such self-assessment and training to Buyer, upon request.

Clause 39 thru 42. Deleted

Clause 43. Counterfeit Electronic Parts Control Plan

A Suspect Counterfeit Item means an item for which credible evidence (including, but not limited to, visual inspection or testing) provides reasonable doubt that the item is authentic. Supplier warrants that it will not act as or engage an independent distributor, non-authorized distributor, non-franchised distributor, non-authorized supplier, or non-authorized re-seller (collectively, Broker), to assist it in delivering goods pursuant to this Purchase Order unless the Buyer provides prior written approval to do so.

The supplier shall develop and implement a counterfeit electronic parts prevention control plan that documents its processes used for risk avoidance, detection, mitigation, disposition, and reporting of counterfeit parts in accordance with the latest revision of AS5553. For distributors, they shall follow requirements in accordance with the latest revision of AS6081. For Authorized/Franchised Distributors they shall follow requirements in accordance with the latest revision of AS6496. Buyer shall have the right to audit, inspect, and / or approve the processes at any time before or after delivery of the goods ordered hereunder. Supplier shall provide evidence of the Supplier's risk mitigation process to Buyer upon request. Buyer shall have the right to require changes to the processes to conform to Buyer's defined standards, if any. Test and Inspection Requirements

QUALITY CONTROL REQUIREMENTS FOR SUPPLIERS

Operational Procedure: **QA-157**

Revision: **AAD**

Page 7 of 13

The Supplier shall establish and implement test and inspection activities necessary to assure the authenticity of purchased product, including:

- Traceability and documentation verification
- Visual examination
- X-Ray Inspection
- X-Ray Fluorescence
- Destructive Physical Analysis
- Thermal Cycle Testing
- Electrical Testing
- Burn-In
- Hermeticity Verification (Fine and Gross Leak)

Tests and inspections shall be performed in accordance with clearly delineated accept/reject criteria provided or approved by this organization. The Supplier shall prepare and provide to this organization records evidencing tests and inspections performed and conformance of the product to specified acceptance criteria.

Tests and inspections shall be performed by persons that have been trained and qualified concerning types and means of electronic parts counterfeiting and how to conduct effective product authentication

Manufacturers Requirement for Material Traceability of Components

The supplier shall maintain a Material Authenticity program that aligns and is consistent with the intent of SAE AS5553, Counterfeit Electronic Parts; Avoidance, Detection, Mitigation, and Disposition. Supplier shall maintain evidence of supply chain traceability to the original component manufacturer (OCM)/original equipment manufacturer (OEM), authorized aftermarket manufacturer (AAM), or manufacturer-authorized distributor that identifies the name and location of all of the supply chain intermediaries from the component manufacturer to the direct source of the component(s) for the Supplier for any components procured in support of this purchase order. Examples of traceability documents indicating proper component transfer from one company to another in the supply chain include but are not limited to: packing slips, receiving documents, purchase orders, and shipping documents. Certificates of Conformance from non-franchised distribution sources are not adequate to meet the supply chain traceability requirements. The Supplier shall request and obtain through the Buyer's Authorized Purchasing Representative (the Buyer), this organization's authorization prior to shipping product with acquisition history that includes distribution sources outside of the United States.

If component(s) is (are) procured from an OCM/OEM-authorized distributor, the OCM/OEM-authorized Distributor must obtain the component(s) to be delivered under this contract from the OCM/OEM. Supplier shall maintain evidence of supply chain traceability, electronic or hardcopy purchase records for these procurements. If evidence of supply chain traceability to the OCM/OEM/AAM is not available, then the Supplier shall have all components submitted to an inspection/test service provider to verify for authenticity prior to shipment.

Any Supplier request to procure from a Broker shall include complete and compelling support for such request and shall include all actions completed by Supplier to ensure the goods thus procured are not Counterfeit Items. When so authorized by Buyer, Supplier shall be responsible for counterfeit risk mitigation testing and providing traceability identifiers (i.e. Date Code / Lot Code, Serial number) for Broker procured parts, and identifying items delivered to Buyer that contain such parts. Supplier shall include the substance of this Clause, including this flow down requirement, in procurements for goods at all tiers.

Certificate of Conformance and Traceability (Government Contracts)

This clause is applicable to all contracts for QPL or QML integrated circuits or hybrid semiconductor devices procured in accordance with MIL-PRF-38534 or MIL-PRF-38535 and semiconductor devices procured in accordance with MIL-PRF-19500. This clause applies regardless of the point of inspection designated in the contract award. This clause applies both to contracts awarded directly to a manufacturer listed on the applicable QPL/QML and to suppliers (e.g., distributors) not listed as approved manufacturers on the applicable QPL/QML. The parts supplied must be in strict conformance to the requirements set forth and/or referenced in the item description, including applicable revisions and slash sheets. To ensure this conformance, the contractor must provide a Certificate of Conformance and Traceability (CoC/T) with the information and documentation required by the applicable military specification. This documentation must reference the contract number and include a certification signed by the approved QPL/QML manufacturer. In addition, if the material is not procured directly from the approved manufacturer, all additional documentation required by the specification must be provided to establish traceability from the QPL/QML manufacturer through delivery to the Government. The CoC/T is required to determine acceptability of the supplies. If the CoC/T is not provided, is incomplete or otherwise unacceptable, the supplies will be determined not to meet contract requirements and will be rejected. If the contract requires inspection and acceptance at origin, the contractor shall furnish the original and two copies of the CoC/T to the Government Quality Assurance Representative (QAR) with the items offered for

QUALITY CONTROL REQUIREMENTS FOR SUPPLIERS

Operational Procedure: **QA-157**

Revision: **AAD**

Page **8** of **13**

acceptance. The CoC/T must clearly reference the applicable contract number. Upon acceptance, the QAR shall sign all copies indicating approval of the certification and acceptance of the supplies. The contractor shall submit one signed copy to DSCC-FMTA. The second copy shall be retained by the QAR. The original shall be maintained by the contractor. If the contract requires inspection and acceptance at destination, the contractor shall mail one copy of the CoC/T to DSCC-FMTA upon shipment/delivery. The CoC/T must clearly reference the applicable contract number.

Certificate of Conformance

The Supplier shall approve, retain, and provide copies of Electrical, Electronic, and Electromechanical (EEE) part Manufacturer Certificates of Conformance (CoC).

Manufacturer CoCs shall, at minimum, include the following:

- a. Manufacturer name and address
- b. Manufacturer and/or buyer's part number and dash number
- c. Batch identification for the item(s) such as date codes, lot codes, serializations, or other batch identifications.
- d. Product / Material country of Origin.
- e. Signature or stamp with title of Supplier's authorized personnel signing the certificate.

NOTE: Distributors shall, in addition to the above, include their name for each part shipped.

Quality Management System

The Supplier shall have a quality management system that complies with Society of Automotive Engineers (SAE), AS9120 Quality Management Systems - Aerospace - Requirements for Stock list Distributors. Independent certification/registration is not required unless specified by buyer. Organizations that obtain certification/registration to AS9120 and subsequently change certification/registration bodies (CRB), lose registration status, or are put on notice of losing registration status, shall notify the buyer's procuring organization(s) within three days of receiving such notice from its CRB.

Verification

-For all packaged active electronic components, verify that component marking and packaging labeling are consistent (100% of parts) and that component marking meets permanency and black topping tests (3 parts per date code). Capture high magnification digital photographs of top and bottom of one component for each date code provided in the delivery and a photograph of the packaging. Component marking and packaging labeling (when original labels are available) shall be clearly legible in the photographs.

-For all packaged components, inspect for manufacturer and Mil- Spec required markings and dimensions (3 parts per date code) (e.g., external visual per Mil-Std-883, Method 2009), and for external counterfeit criteria per IDEA-STD-1010 (100% of parts).

- For all packaged components, 100% of the components shall be tested to all specified limits of all Group A static DC parameters at ambient temperature specified per the applicable drawing or in accordance with the applicable industry/military requirements or manufacturer's data sheet. The Supplier shall hold the lot for this organization's review if 100% (Group A) test failures exceed 10% of the lot quantity. Product containing these components may not be shipped unless authorized in writing by the Buyer.

- For packaged components with internal die cavities, unless the Supplier requests and obtains from the organization's Buyer approval of an exception, both De-Cap and X-Ray are required as follows:

-De-cap internal visual on at least one component for each date code performed in accordance with Mil-Std-883, Method 2014 and IDEA- STD-1010, with digital photograph(s). Supplier shall verify die topology and markings are authentic with the OCM/OEM/AAM or by comparison to other authentic components or images.

-100% X-Ray inspection per Mil-Std-883 Method 2012 (digital format preferred).

Note: Supplier shall verify any mixed construction and/or construction anomalies within a single date code identified in the De-cap or X-ray inspection to be authentic by the OCM/OEM/AAM or validated against a known authentic component prior to shipment.

QUALITY CONTROL REQUIREMENTS FOR SUPPLIERS

Operational Procedure: **QA-157**

Revision: **AAD**

Page **9** of **13**

- For bare die products, inspect for consistent markings on the die and the wafer packaging and verify die size and geometry (visual inspection per Mil-Std-883, Method 2010). The Supplier shall verify die topology and markings are authentic with the OCM/OEM/AAM or by comparison to other authentic components or images. Mixed construction shall be cause for rejection. The Supplier shall maintain verification records and results, including a copy of X-ray and digital photographs, for the components that pass the inspection and tests above. The Supplier shall not ship components which fail these tests/inspections nor utilize such components in circuit card assemblies or other products delivered to this organization, may not be shipped unless authorized in writing by the Buyer.

Product Impoundment and Financial Responsibility

If counterfeit parts are furnished under this purchase agreement, such items shall be impounded. The Supplier shall promptly replace such items with items acceptable to this organization and the Supplier may be liable for all costs relating to impoundment, removal, and replacement. This organization may turn such items over to US Governmental authorities (Office of Inspector General, Defense Criminal Investigative Service, Federal Bureau of investigation, etc.) for investigation and reserves the right to withhold payment for the items pending the results of the investigation.

Federal Penalties Associated with Fraud

This purchase order and activities hereunder are within the jurisdiction of the United States Government. Any knowing and willful act to falsify, conceal or alter a material fact, or any false, fraudulent or fictitious statement or representation in connection with the performance of work under this purchase order may be punishable in accordance with applicable Federal statutes. Supplier employees engaged in the performance of work under this purchase order shall be informed in writing prior to performance of work that there is a risk of Federal criminal penalties associated with any falsification, concealment, or misrepresentation in connection with work performed under this purchase order. Supplier shall include the following statement preprinted on each Certificate of Conformance initiated by the Supplier and provided to the buyer in conjunction with this purchase order.

NOTE: The recording of false, fictitious, or fraudulent statements or entries on this document may be punishable as a felony under Federal statute.

Supplier shall include all provisions of this contract clause, including this sentence, in all lower tier contracts under this order. Any inability or unwillingness of a lower-tier supplier to comply with this provision should be documented in writing and submitted to this organization.

Clause 44. Nonconforming Material

Nonconformance detected during manufacturing or during supplier's inspections shall be dispositioned using one of the following methods:

Rework: Discrepant material can be reworked to full conformance with all drawing specifications. Reworked items must be resubmitted to normal supplier inspection and/or test operations.

Scrap: Discrepant material obviously unfit for use. Items shall be scrapped in accordance with the supplier's scrap procedures.

Submit for this organization Preliminary Review: The organization preliminary review action is required for any discrepant material that cannot be reworked to print, but either is functional or could be made functional via a repair. Such material shall be segregated and controlled to ensure that no further work is performed until a completed Nonconforming Product Report (QA-13-F001) is obtained. The organization review should be requested through Purchasing. Disposition instructions will be selected by the Material Review Board. A copy of the completed Nonconforming Product Report form must accompany each shipment of related parts.

Notification of Escapement (NoE) Process:

Supplier shall provide written notification to this organization when a non-conformance is determined to exist, or is suspected to exist on product already delivered to this organization. Written notification shall include:

- Part Number and description
- Description of the non-conformance and the requirement on the engineering documents
- Quantity and dates of shipments
- If applicable, serial number / or date codes

QUALITY CONTROL REQUIREMENTS FOR SUPPLIERS

Operational Procedure: **QA-157**

Revision: **AAD**

Page **10** of **13**

Notification must occur within three (3) business days of knowing the above information. However, if the condition is a possible safety of flight, vendor shall submit the information immediately.

Clause 45. Lead Free Control Plan

Supplier shall establish and maintain a Lead Free Control Plan.

Clause 46. Request for Certificate of Analysis

When clause 46 appears on the purchase order, the supplier is required to provide objective evidence of raw material verification. This requirement shall be imposed on but not limited to metal, plastic, cast, or thixomolded parts.

Clause 47. Packing Materials

The following forms of packing materials are not allowed when shipping product to this organization:

- Styrofoam Packing Peanuts
- Biodegradable Packing Peanuts
- Cornstarch Packing Peanuts
- Shredded Paper

ELECTROSTATIC PROTECTION

FOR ELECTROSTATIC SENSITIVE DEVICES ASSEMBLIES

When the organization Purchase Order lists clause 15 as one of the QA clauses the following minimum E.S. protective packaging and labeling is required:

1. All microcircuits meeting the requirements of MIL-M-38510 shall be packaged as follows:
DIPS shall be packaged inside conductive vials, then packaged in conductive field shielding material for unit packaging.
2. All non-standard microcircuits shall be packed in antistatic or conductive bags and antistatic cushioning or antistatic-rails used to prevent lead distortion. The protected components shall then be inserted into a conductive bag for the unit package.
3. Components manufactured to MIL-S-19500, crystal oscillator, MIL-O-55310 chip capacitors, MIL-R-55182 film resistors shall be packaged as follows:

Component leads shall be inserted into conductive foam conductive vials or containers which provide electrostatic and physical protection for the unit packaging.

NOTE: All static generating material such as:

Common plastic, bags, wraps, envelopes, bubble pack, popcorn, foams or cartons shall be eliminated from use as inner wrapping. Only conductive material is acceptable as cushioning around the inner wrap.

4. Assemblies containing Electro Static Sensitive devices shall have external connectors fitted with a conductive shunt from pins to the connector shell. The parts shall then be wrapped in a conductive outer wrap for protection from Electro Magnetic fields or Electro Magnetic interface.

QUALITY CONTROL REQUIREMENTS FOR SUPPLIERS

Operational Procedure: **QA-157**

Revision: **AAD**

Page 11 of 13

Use of E.S.D. symbol and caution label.

Unit packs: The initial protective wrap around the components or assembly will be marked with a sensitive Electronic device symbol and the statement "Handle only at static safe work stations". See Figure 1.

Intermediate and exterior packs: the i
label, (See Figure 2), on one side of t



sensitive electronic device caution
quire 2 Sensitive Electronic Devices.

FIGURE 1: SENSITIVE ELECTRONIC DEVICE

The organization receiving inspection will not accept any electrostatic sensitive components received without the minimum protective packaging and labeling above.



**FIGURE 2: SENSITIVE ELECTRONIC DEVICE (TYPICAL EXAMPLE)
CAUTION LABEL**

QUALITY CONTROL REQUIREMENTS FOR SUPPLIERS

Operational Procedure: **QA-157**

Revision: **AAD**

Page 12 of 13

REVISION HISTORY

Rev No.	Description of Change	Originator	Effective Date
A – N	History		
P	Add clause 34	Richard Blower	5/11/2006
R	Add revision history page, update clause 25	Richard Blower	6/20/2006
T	Updated clause 27	Richard Blower	11/20/2006
U	Added clause 35	Brian Jones	12/15/06
V	Add clause 36, update clause 29	Richard Blower	4/3/07
W	Add A thru C to Clause 15.	Deborah Kilpatrick	5/25/2007
W1	Update Clause 20	Maria Palmer	6/12/2007
W2	Update Clause 8.	Maria Palmer	12/10/2007
W3	Update Clause 8. Add "only when populated with active components"	Deborah Kilpatrick	5/30/2008
W4	Update Clause 30. Add "Records must remain legible, readily identifiable and retrievable"	Richard Blower	1/7/2009
Y	Add clause 37	Richard Blower	8/5/2009
AA	Update Clause 29 per attached redlines	David Nordgren / Bob Kasetta	10/9/2009
AB	Update clause 35 to include additional requirements for calibration method; formatted clause 35 to include bullet points. Add clause 38	Richard Blower / Brian Jones	11/23/2009
AC	Updated Clause 22	Deborah Kilpatrick	5/13/10
AD	Add Clause 39, 40, and 41	Mike Demoss	12/9/10
AE	Update clause 22	Richard Blower	7/7/11
AF	Update clause 24	Richard Blower	9/1/11
AG	Added Clause 42	James Newell	10/7/11
AH	Delete clause 28, update clause 37	Deborah Kilpatrick	11/22/11
AJ	Add clause 43	Maria Palmer	2/23/12
AK	Update clause 8	Maria Palmer	5/7/12
AL	Update clause 36, add clause 44	Andy Marulis	10/29/12
AM	Update para 3.1, add clause 45	Maria Palmer	3/7/13
AN	Update clause 44 to add NoE Process	Maria Palmer	5/3/13
AP	Update clause 43	Andy Marulis	9/23/13
AR	Full Revision with ESD Updates	Andy Marulis	4/4/14
AT	Update clause 30 to reflect 20 year retention	David Nordgren	9/10/14
AU	Reinstate clause 24	Danny Morris	3/23/15

QUALITY CONTROL REQUIREMENTS FOR SUPPLIERS

Operational Procedure: **QA-157**

Revision: **AAD**

Page 13 of 13

REVISION HISTORY

Rev No.	Description of Change	Originator	Effective Date
AV	Modify clause 5 and add clause 46	Richard Blower	7/23/15
AW	Added clause 47. "Packing Material"	Daphne Fields	9/21/16
AY	Add subsection "D" to clause 15.	Daphne Fields	6/6/18
AAA	Updated clause 43 for Distributors	Luca Bologna	2/5/19
AAB	Updated clause 1, 15, 43 with flowdown requirements including country of origin, counterfeit, subsupplier Quality requirements	Luca Bologna	2/13/2020
AAC	Updated to reflect Miltope name change	Daphne Fields	7/28/2020
AAD	Updated clause 24 to match AS9102 FAI requirement for minimum time out of production	Luca Bologna	9/1/2020