

QUALITY ASSURANCE CODE REQUIREMENTS DOCUMENT NO. 00-315
EFFECTIVE JUNE 15, 2013

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**100 Certificate of Conformance**

By accepting Purchase Orders with this Quality Assurance Material Code Imposed on it, from BAE Systems ES, the Seller is certifying (Manufacturers and Suppliers including Distributors) that all product being provided to BAE Systems ES to satisfy this Purchase Order is fully compliant to BAE Systems Terms and Conditions and contains only new product and the supplier has in their possession acquisition traceability documentation (C of C's, or Packaging slips, or proof of procurement)\*\* provided by/from the Original Equipment or Component Manufacturer and/or all previous Franchised/Authorized distributors within the supply chain for all material contained in this shipment.

Note: Acquisition Traceability documentation is not required to be delivered with the product unless Material Clause "186" is imposed or required by specification / Drawing,

The supplier shall provide a Certificate of Conformance (C of C) with each delivery of product. This C of C is acknowledgement by the supplier that the requirements of the purchase order/subcontract have been fully met and any required chemical / physical analysis has been performed with substantiating evidence/data on file and available upon request by BAE Systems.

The C of C provided with this order shall identify the name of the authorized representative of the company who is authorized to submit the C of C. The C of C / Packaging documentation must contain the BAE Systems part number listed on the Purchase Order and the supplied part number if different; providing it is per the BAE Systems drawing / specification as called out on the purchase order. The C of C shall also contain the Lot Code(s) / Date Code(s) of the items in the shipment as applicable. The Supplier also certifies that the requirements of the BAE Systems PO and other appropriate requirements have been conveyed to any sub-tier suppliers in the execution of this purchase order / subcontract.

\*\* The supplier shall maintain this documentation for a minimum of 7 years (on PO's placed after June 15th, 2013). (Prior to June 15th 2013 the requirement was 5 years for this code)

**101 Chemical Test Report**

Results of chemical tests conducted on materials submitted must be provided. The report shall identify material specification (including revision level), tests conducted, and identify the material. Analysis reports must be sent with each lot shipped and must be endorsed by a responsible representative. Each report shall positively identifiable to the lot shipped and must show composition and purity of chemicals in percent, or other industry standard units.

**102 Certificate of Special Process**

Supplier must provide a Certificate of Conformance certifying compliance with all special processes required in executing this procurement. All special process suppliers utilized on this purchase order/subcontract require certification by Nadcap or approval by BAE Systems ES. Some examples of special processes are; Chemical Processes (including Plating), Heat Treating, Protective Coatings (Conformal Coat/ Paint/ Epoxy), Welding (EG: Resistance/ EB Fusion),

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Brazing (Vacuum/ Dip), Non-Destructive Inspection or Test (NDI/NDT), Material Testing Laboratories, Composites, Non-conventional Machining & Surface Enhancements, X-Ray Inspection, etc. A list of BAE Systems' approved special process suppliers can be found at www.baesystems.com/suppliercenter

** Supplier records shall be retained for a minimum of 7 years after completion of the purchase order or subcontract. These requirements shall be flowed down to any sub-tier suppliers. (New requirements for 7 year retention applies to PO's placed after 4-1-2012)

103 Software Source Evaluation

Items to be supplied under this Purchase Order are subject to evaluation by BAE Systems Supplier Quality Assurance/Software Quality Assurance representatives at any time during the life cycle of the product. Supplier shall notify the buyer at least five (5) days in advance of inspection and/or acceptance testing. This requirement does not relieve the supplier of the responsibility for final inspection and/or test, nor does it constitute final acceptance by BAE Systems.

104 Chemical/Physical Report

The supplier shall provide results of chemical/physical testing conducted on materials furnished on this purchase order/subcontract. These results shall be in accordance with the purchase order requirements and signed by an authorized representative of the company and sent to BAE Systems. Supplier shall maintain a copy of all procured raw material certifications, which must be readily retrievable and shall include material specifications. In addition, material must meet any other contractual requirements as stated in the Purchase Order, and any applicable DFARs such as Specialty Metals. Supplier records shall be retained for a minimum of 7 years after completion of the purchase order or subcontract. These requirements shall be flowed down to any sub-tier suppliers. (New requirements for 7 year retention apply to PO's placed after (4-1-2012).

105 Technical Data Sheets

The supplier is to provide Technical Data Sheets with each shipment. Technical Data Sheets are not safety requirements but are the manufacturers' instruction of how to mix, cure, and apply deteriorative material, such as paint, primers, and adhesives.

106 Source Inspection

The products or services specified on this purchase order/subcontract require Customer Source Inspection prior to shipment from the supplier's facility. Supplier shall notify the buyer at least five (5) days in advance of inspection and/or acceptance testing. Final acceptance of deliverable items shall be at BAE Systems. In order to facilitate the performance of source inspection, the seller shall furnish the necessary facilities and equipment, supply data, and perform tests as required by applicable drawings, specifications, and inspection instructions. Source inspection may be witnessed by BAE Systems customers or government representatives.

107 Pre-closure Inspection (Pre Cap)

The products or services specified on this purchase order/subcontract require Customer Source Inspection. This inspection shall occur at points agreed to by BAE Systems (i.e. before closure, sealing, foaming, and tuning pot encapsulation). Supplier shall notify the buyer at least five (5) days in advance of inspection and/or acceptance testing. Final acceptance of deliverable items shall be at BAE Systems.

Source Inspection may be witnessed by BAE Systems customers or government representatives.

108 Process Controls

The supplier is expected to institute sufficient process controls to result in consistently meeting the quality requirements for the specific product being ordered. BAE Systems shall have the right to perform process control audits. A process control audit checklist shall be provided to the supplier in advance.

109 Better-Than Part Limitations

Program/System Qualification process has yet to be finalized. Only the exact part number ordered is acceptable. "Better-Than" versions (i.e. failure rates, tolerance, etc.) of any specific part type are not permitted on this purchase order, even in cases where the applicable military specification may allow such practices.

110 Part Traceability

The shipment record provided with each delivery of parts shall identify the Original Equipment, or Original Component, Manufacturer (OEM/OCM) CAGE code / manufacturer identification, device part number and lot number and /or date code. In addition each container shall be marked with the OEM / OCM CAGE code/manufacturer identification, device part number and lot number and/or date.

111 Recorded Supplier Data

The supplier is to provide data with each shipment in accordance with the following requirements. The supplier is required to notify and receive written authorization from BAE Systems, if deviations from the following criteria are desired, i.e. sampling, etc

- The supplier will perform and record the results of mechanical and/or electrical test in accordance with the final acceptance criteria as specified in the applicable specification/drawing, unless otherwise specified in the purchase order.
 - i. When final acceptance is not defined in the controlling documents, the supplier will perform and record results of the mechanical and/or electrical tests that are considered part of the supplier's acceptance criteria.

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- ii. Variable data shall be utilized for 100% of the end item acceptance parameters within a specification or drawing or that are considered part of the supplier's acceptance criteria. Attribute data shall only be utilized for appropriate notes and to identify the condition (i.e. form feed, illumination, etc.)
- When specified in the purchase order, use of critical control characteristics as part of an approved VRP / SPC Control Plan may be substituted for the 100% variable/attributes data VRP / SPC Control should be compliant to AS9103.
- Recorded data shall be traceable to 100% of the parts inspected/tested. Traceability may be controlled through part serialization, tagging, or identification of individual unit packaging unless otherwise specified in the purchase order or specification/drawing
- 100% of the lot shall be inspected and / or tested unless otherwise stated in the purchase order or specification/drawing. When sampling is authorized, it shall be in accordance with ANSI/ASQ Z1.4 or other statistically based plan, with specific lot size, AQL, and sample size identified on each data sheet.

Note: If lot screen and/or burn-in summary test data (Group A screening) is required, use Clause 134,

The seller shall include one copy of the data with each shipment and the summary shall include the conditions of test, quantity tested and quantity rejected at each test or screen.

Note: Group A test data is equivalent to Lot Screen and Burn-in Summary data. If Quality Conformance Inspection (QCI) data is required this must be specifically called out in a QA Note.

**112 Shelf Life Material – Require 80% useful life remaining**

If material is adversely affected by time, the container and/or certification shall be marked with the expiration date and the recommended storage conditions. Information supplied shall be in accordance with any military/BAE Systems specification referenced on the drawing or on the purchase order. Do not deliver material with less than 80% of the useful shelf life remaining.

**113 Designated Supplier**

The use of DSQR PVR is authorized for this purchase order. This requirement does not relieve the supplier of responsibility for final inspection and/or test, nor does it constitute final acceptance by BAE Systems.

**114 First Article Inspect Data Required**

A sample from the first production run of each configuration will be fully inspected for dimensions, characteristics, and notes listed on the drawing or specification as required by AS9102 to verify that the production processes, documentation, and tooling are capable of consistently producing parts and assemblies that meet requirements. All AS9102 forms shall be completed, using the format defined therein. It is preferred that data be typed. Any Non-Conformance will be detailed on a Supplier Variation Request (SVR) for BAE Systems approval, prior to shipment. Any SVR

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number(s) will be placed in the NC column defined in AS9102, Form 3. The First Article piece shall be tagged or identified and submitted to BAE Systems along with a serialized inspection data sheet(s). Special Process validations, Material Certifications, or other data as required (Certificate of Compliance, Specialty Metals, etc.), shall be part of the PPVR/FAIR package. Evidence of passing any applicable functional test requirement, preferably with recorded variable data, shall be attached. For any change in configuration or production process, a partial FAIR may be submitted for those specific changes when a full FAIR is on file. A new FAIR is not required on subsequent shipments of the same revision unless there has been a break in manufacturing of greater than 24 calendar months. The supplier shall notify BAE Systems in advance of any changes in manufacturing locations or processes.

Note; if product has been manufactured by the supplier prior to April 2012 with a PPVR/FAIR submitted that was accepted by BAE even though not in AS9102 format, the supplier may continue to ship product under the existing FAIR as long as there has not been a break in production of greater than 24 months or a change in the production process. Any new or partial FAIR's will be submitted using the AS9102 format.

The following optional fields in the AS9102 FAIR Form 1 are considered mandatory: 11, 12, 21, 22, 23, and 24. All 'Conditionally Required' (CR) fields on FAI Report Forms 2 and 3 shall be completed. In addition, any FAI report form generated shall not contain open fields. To ensure each field of the FAI has been assessed, the supplier shall mark all open or unused fields "N/A".

Data may be required to be sent to the Company Procurement Representative via SharePoint, or equivalent, depending on Security/ITAR restrictions. If Material Certifications or Special Processes are considered proprietary, a certificate of conformance will be attached to the FAI indicating that product conforms to the requirements of the Purchase Order. Data shall be available for review at the supplier's facility, upon request. Records shall be retained for a minimum of 7 years after completion of the purchase order or subcontract.

Prior to completion of the AS9102 forms, the user shall ensure the current version of AS9102 is used. Reference; <http://www.sae.org/aaqg/publications/as9102a-faq.htm> (New requirements for use of AS9102 form and 7 year retention applies to PO's placed after 4/1/12)

115 First Piece Article for Tooling

The first sample produced of each article of tooling, molds, jigs, fixtures, etc., shall be submitted to BAE Systems with a First Article Inspection report (in accordance with AS9102) prior to delivery of any additional quantities. The samples shall have been fabricated using the parts, material and processes proposed for full PO production. Such manufacture shall have taken place at the same location proposed for full PO production. The samples shall be accompanied by complete data demonstrating performance of the equipment in compliance with the drawing and specification requirements. Production prior to written approval from BAE Systems buyer is at the supplier's risk. BAE Systems approval or conditional approval of such samples shall not relieve the supplier from complying with the requirements of this order.

116 Element of Evaluation

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Element of Evaluation to be performed by the Supplier in accordance with MIL PRF 38534 or MIL PRF 38535 or MIL PRF 19500. Supporting documentation shall be retained for 5 years minimum and will be available upon request.

**117 QA Notes**

Other required additional and/or special Quality requirements are specified by the purchase order in the QA Notes field of the Manual Purchase Requisition or the QA Notes field of the QA Clauses.

**119 Lot Code Uniformity**

All parts ordered shall be of one lot and date code.

**120 Record Engineering Revision**

The engineering change level (revision level) for the items included on this order shall be recorded on the shipping documentation.

**121 Software Issue Identification**

If there are any software licenses, restrictions, etc. involved the supplier shall define such restrictions and provide a copy thereof with quotation/proposal response.

**122 Date Code Restriction**

Parts with a date code older than 52 weeks, at the date of shipment, shall not be delivered to BAE Systems

**Note:** Notify BAE Systems procurement and Component Engineer (CE) if date code parts are not available to meet this purchase order requirement. If older parts are to be allowed with re-screen, the date of the re-screen shall be identified on the C of C or attribute data sheet for each shipment.

**123 Obsoleted, 9-15-2012 now contained in packaging codes Packaging of Plastic Encapsulated Parts and Moisture / Oxide Sensitive Devices**

**124 OBSOLETE - Workmanship Per 60060000 (effective 6/3/13)**

**125 Lot Control**

Lot control is required which provides traceability to the records for the processes, inspections, and tests used in the manufacture of the items. Lot number/date code is to be identified on outside of intermediate and/or unit packages. When multiple lot/date codes are shipped together,

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individual lot/date codes are to be segregated (only one date code per reel) and identified on the outside of the intermediate packages.

126 Date of Last Part Screen

The date the last part screen was performed shall be identified on the C of C or attribute data sheet for each shipment.

127 Packaging of Electrostatic Devices OBSOLETE 9-15-2012 Now contained in Packaging codes

128 Serialization

Serial numbering required.

129 Acoustic Microscopy Requirement

Acoustic microscopy shall be performed on all plastic encapsulated components with images identified to individual parts and included in shipment upon delivery to BAE Systems. Specific requirements for scanning modes and applicable standards are provided on the Purchase Order. A source control drawing (SCD) is recommended.

131 Retention of Test Record

Pass/fail data shall be retained and made available upon request. Quality Group "A" electrical test for each date code used to fill this order shall be retained for 5 years minimum. Data shall be identifiable to the items supplied. Parts tested to BAE Systems specifications shall include the drawing number, revision level and software program number revision level. Supplier shall notify BAE Systems 30 days in advance of shipment, of any changes to BAE Systems drawings effecting the electrical specifications.

Parts tested to military specifications shall include the specification drawing Number, revision level plus any amendments.

The above data may be written on the C of C or included as an attached separate Item.

132 Identification of Lot/Date Code

Supplier shall record all delivered lot identification(s) and/or date code(s) on the outside of intermediate and/or unit packages. Multiple lot/date codes shall be individually packaged and labeled. For tape and reel packaged parts, only one date code per reel is allowed.

133 Radiographic Inspection

The material on this purchase order requires radiographic inspection. Each Radiograph shall include the image of the number, part serial number, identification of the area radiographed and

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identification of the view direction. Films shall be interpreted by the seller's laboratory and findings reported on an appropriate form. Copies of the laboratory report and the radiographs shall accompany the material. Each report submitted shall be signed by a certified radiographer, stating the level of certification IAW MIL-STD-410/NAS 410.

**134 Lot Screening Summary**

Seller shall include one copy of Electrical or Screening data and Environmental Stress Screen (ESS) data with each shipment. The summary shall include the conditions of test, quantity tested and quantity rejected at each test or screen.

**Note:** ESS typically involves Centrifuge or Mechanical shock, and/or Vibration, and Temperature Cycle or Shock, and may include Burn In, if applicable to the military specification the part is manufactured / ordered to. Supporting documentation shall be retained for 5 years minimum. Reference the appropriate MIL PRF 38534, MIL PRF 38535, MIL PRF 19500 or MIL STD 810, Mil-Std-883, etc.)

**135 Lot Screening and Variables Data**

Seller shall include one copy of the lot screening and burn-in (if applicable by governing Military Specification) variables data with each shipment.

**136 Destructive Physical Analysis (DPA) per MIL-STD-1580**

Supplier will perform DPA (Destruct Physical Analysis) on parts and accept them based upon passing MILITARY-STANDARD 1580

**137 No Pure Tin, Bismuth or SAC Alloyed Materials Allowed**

No pure tin plating allowed. The use of pure unalloyed tin is prohibited in the construction and surface finish of goods required to be delivered to Buyer under this Purchase Contract. Construction and finish include solders and plating. Tin is considered to be pure if it contains less than 3% alloying elements. The critical concentration of bismuth begins in the range of 3 to 5%, so lead finishes with greater than 3% bismuth are not allowed. BGA's and CCGA's are not allowed with Tin, Silver, Copper (SAC) alloyed Balls.

**138 Mercury Exclusion**

Supplies furnished under this contract or purchase order may be used on US Navy Submarines and therefore shall not be contaminated by mercury or mercury compounds, nor shall they contain functional mercury. If mercury is used in the processing of the supplied material, it shall be separated from the material by a minimum of two barriers. Suppliers shall include a certification of conformance to the above requirement, indicating that the material supplied is mercury free, with each shipment of material on this order.



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139 Unique Identification (UID)

The item(s) supplied under this Purchase Order shall contain a Department of Defense (DoD) approved Unique Item Identification (UID), as specified in MIL-STD-130 (Latest Revision), DoD Standard Practice, Identification Marking of U.S. Military Property.

140 Government Source Inspection (GSI)

The products or services specified on this purchase order/subcontract require Government Source Inspections (GSI) prior to shipment from the supplier's facility. Upon receipt of this order promptly notify government representative who normally services the supplier's facility so appropriate planning for government inspection can be accomplished. All shipments on this PO/Subcontract must be accompanied by objective evidence of government acceptance. The products or services specified may require Government Quality Assurance Surveillance. Therefore, prior to commencement of any special test, notify the government representative. The government representative is requested to verify by signature all reports of testing accomplished, verifying only those portions actually witnessed. Such verification shall signify concurrence with the recorded data, but not necessarily with conclusions derived there from.

141 Independent Distributor Certificate of Conformance.

Traceability Documentation - With each shipment the supplier must provide a Certificate of Conformance that includes the following information:

- BAE Purchase Order and Line Item Number
- Quantity included in shipment
- Part Number as listed on the Purchase Order
- Manufacturer's Name and Address and Cage code
- Manufacturer's Part number (If Different)
- Lot code/Date code
- Product Description
- An authorized representative of the supplier shall sign and date the certificate attesting to the conformance

The supplier shall provide acquisition traceability provided by the original component manufacturer and previous distributors for each shipment.

Military compliant microcircuits and discrete semiconductors shall adhere to the acquisition traceability requirements in Mil-PRF-38534, MIL-PRF-38535 and MIL-PRF-19500. These documents require that manufacturer certifications follow the parts throughout the supply chain. (In no case shall the acquisition traceability documentation be altered or shows signs of alteration. This is grounds for immediate rejection of the lot/shipment.) The original component manufacturer's certification shall include (at a minimum):

- Manufacturer's name and address.

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- Device type
 - Lot identification code (including plant code).
 - Conformance inspection acceptance date.
 - Quantity of devices in shipment from manufacturer.
 - Statement certifying product conformance and traceability.
 - Signature and date of transaction
 - Customer or Distributors name and address

Other device deliveries should include the documentation cited above for military parts as available and applicable. At a minimum these device deliveries shall be accompanied by documentation (for example, packing slips, invoices, certificates of conformance) that confirms acquisition traceability back to the device OEM / OCM.

Acquisition traceability also includes distributor documentation for each distributor in the supply chain:

- Distributor's name and address.
- Name and address of customer as involved in the chain of custody.
- Quantity of devices in shipment.
- Lot/Date code

Copies of acquisition traceability documentation must be maintained by the supplier for a minimum of 15 years. If acquisition traceability is not available the supplier shall perform all testing required by AS5553 to prove heritage to the OCM. Supporting data shall be sent with the product.

142 Required Marking of Lead-Free Components

Lead-free products shall be marked as lead-free to assist assembly, rework, maintenance, and disposal. Marking shall be with the words "Pb-Free" or using the Pb-Free symbol. Refer to J-STD-609 for guidance on marking.

143 Notification Required for BGA/CGA Composition Changes

Changes to solder composition of Ball Grid Array (BGA) components and Column Grid Array (CGA) components are classified as a major change with potential impact to the service life and reliability of the intended application. BAE Systems (the Buyer) shall be notified in writing in the event of solder composition changes at suppliers and sub-tier suppliers providing components in accordance with this Purchase Order.

145 Workmanship

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The product purchased must meet the soldering and workmanship requirements contained in the latest issue of IPC/ANSI J-STD-001, Class 3 or IPC 610 Class 3 unless otherwise specified on the purchase order/subcontract or drawing. In case of a conflict, IPC/ANSI J-STD-001 takes precedence.

**146 Printed Circuit Boards**

The articles specified on the face of this purchase order are printed wiring boards that are to be manufactured to IDS, Military, or IPC specification(s). The following requirements are in addition to those specified:

- Military specification(s): for double-sided and multilayer printed wiring boards, a minimum of two (2) quality conformance micro sectioned test coupons for each production panel utilized on this order must be maintained by the manufacturer. They must be available for review for a minimum of 3 years after delivery, for each lot of printed wiring boards shipped against this purchase order.
- IPC specification(s): for double-sided and multilayer printed wiring boards, micro sectioned coupon acceptance testing and frequency shall be performed as specified for Equipment Class 3. Test coupons for each production panel utilized on this order must be maintained by the manufacturer and available for review for a minimum of 3 years after delivery, for each lot of printed wiring boards shipped against this purchase order.
- All printed wiring boards, unless otherwise specified, shall be packaged in accordance with contract requirements and unit packaged to prevent contamination from humidity.
- The supplier shall provide a Material Report for the raw material supplied or used in the parts supplied. The Material Report shall be from the original raw material supplier and include original supplier, lot number, material specification, tests conducted, composition breakdown by percentage and any other relevant information needed to identify / trace the raw material. Acceptable examples include composition breakdown and supplier of the Prepreg, Laminate, Duroid, etc. certs / composition analysis, dimension / description. The supplier shall maintain the original certification / material reports and any secondary independent test laboratory certification(s) (if any additional process was done to the material altering it from its original state). Supplier records shall be retained for a minimum of 7 years after completion of the purchase order or subcontract. These requirements shall be flowed down to any sub-tier suppliers. (New requirements for 7 year retention apply to PO's placed after (9-1-2012).

**147 Government Inspection at BAE Systems Facility**

The products specified on the face of this Purchase Order/Subcontract are subject to government inspection upon receipt at BAE Systems.

**148 Ammunition Data Card**

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Three ammunition data cards, DD Form 1650 completed in accordance with MIL-STD-1168 must accompany each shipment.

149 Minimum Ordinance Information

The following minimum ordinance information is required from the Supplier and is to be provided with each shipment: manufacturing part and lot numbers, Lot Acceptance Report number (LAR), charge weight, explosive type, and Material Safety Data Sheet (MSDS).

150 FAA/JAA Regulations – General

The material being procured will become part of a BAE Systems end item utilized in commercial or general aviation aircraft and is subject to all FAA regulations and, as applicable, JAA regulations (if specifically stated in the purchase order/subcontract). In addition, the items shall be subject to any other specific requirements stated in the Purchase Order/Subcontract.

Parts or components being processed by an FAA repair station or an approved Supplier must be properly identified by part number and serial number. The Supplier must submit a Certificate of Traceability, which must identify the origin of the last FAA approved operator, surplus stock ownership, condition, and certify that the item has not been subjected to extreme stress or heat (as in an engine failure, accident, or fire).

Each part must be U.S. certified by a manufacturer holding a U.S. Production Certificate or related license agreement with the prime manufacturer, and the certification shall state that the item was manufactured in accordance with the aircraft, engine, or component manufacturer's specification. Failure to supply the requested information will be cause for rejection and return of the material at the Supplier's expense.

151 FAA Regulation – New Parts/Components

This order is subject to the FAA regulations applicable to general and commercial aviation. New Aircraft Parts and Components require FAA Form 8130-3 to be included with shipment in accordance with FAR Part 21. Certificate of Conformance validating FAA requirements are acceptable in lieu of the 8130-3 tag if material is supplied by one of the following:

- Original Equipment Manufacturer (OEM)
- Parts Manufacturing Approval (PMA) holder
- Technical Standard Order (TSO) holder
- Supplemental Type Certificate (STC) holder

152 FAA Regulation – Repaired/Overhauled Parts

This order is subject to the FAA regulations applicable to general and commercial aviation. Repaired/Overhauled parts and components must be identified with FAA Form 8130-3 in accordance with FAR 43.9. Certificate of Conformance validating FAA requirements are

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acceptable in lieu of the 8130-3 tag if material is supplied by one of the following:

- Original Equipment Manufacturer (OEM)
- Parts Manufacturing Approval (PMA) holder
- Technical Standard Order (TSO) holder
- Supplemental Type Certificate (STC) holder

**153 FAA Regulation – Service Tag Required**

This order is subject to the FAA regulations applicable to general and commercial aviation. Repaired/Overhauled parts and components must be identified with a Serviceable Tag from an FAA approved repair facility and returned to service in accordance with FAR 43.9.

**154 JAA Regulations – Repaired/Overhauled Parts**

This order is subject to the JAA regulations applicable to general and commercial aviation. Repaired/Overhauled parts and components must be identified with Joint Aviation Authorities (JAA) Form -1.

**155 Failure Reporting Analysis and Corrective Action System (FRACAS) Required**

The Supplier shall establish a Failure Reporting Analysis and Corrective Action System (FRACAS). This system will consist of a closed loop failure reporting system, procedures for the analysis of failures to determine cause, and documentation for recording corrective action taken.

**156 Government / BAE Systems owned Tooling/Equipment**

Supplier's quality system will include provisions for inventory control, tracking, maintenance, and periodic audit by the supplier and/or BAE Systems of all Government furnished or BAE Systems provided tooling and equipment. Supplier is responsible for the protection, calibration, maintenance, and care of all BAE Systems and/or Government provided tooling and equipment. Supplier shall conform to FAR Part 45 as it relates to Government furnished tooling/equipment under Supplier's control.

If the Supplier is fabricating tooling and/or equipment for BAE Systems, BAE Systems will assign a unique identification number and that number shall be affixed to the tool/equipment. BAE SYSTEMS Quality Assurance (QA) will accept and affix an indication of acceptance or Q. A. stamp to the tool/equipment upon acceptance of tooling/equipment data with the first item produced, and the first article report, material test reports, and/or calibration records.

All tooling and equipment shall be returned in the condition in which it was received by the Supplier, normal wear and tear excepted.

**157 Machined and Sheet Metal Parts Marking**

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Part marking shall be permanent, legible, and located as specified on drawing. If not specified on drawing, locate marking on part's interior surface or contact your BAE Systems procurement representative for additional marking information.

- Parts shall be marked on two lines as follows:
XXXXX - 123456-0001 (Original Design Group's CAGE Code* – Part Number)
MFR – XXXXX (MFR - Manufacturer's CAGE Code**)
- Subassemblies and Assemblies shall be marked on two lines as follows:
XXXXXASSY123456-0001 (Original Design Group's CAGE CODE* "ASSY" Part Number)
MFR – XXXXX (MFR - Manufacturer's CAGE Code**)
- Bag and Tagging of parts or subassemblies with the above information is only permitted under either of the following conditions:
 - Piece parts are too small to individually mark, or
 - The drawing specifically states to bag and tag

* Original Design Group's CAGE Code found in drawing's title block located to left of part number.

** If manufacturer has no CAGE Code, then Manufacturer's Name or Logo shall be substituted for CAGE Code.

158 Equipment Calibration Requirements

Supplier shall maintain a documented calibration system for the calibration and maintenance of tools, jigs, ovens, equipment used in Screening/ESS operations, Inspection and Test equipment. The Supplier's calibration system shall be compliant to industry requirements in accordance with the Supplier's QMS, including without limitation ISO 17025, ISO 10012-1 and ANSI Z540. As the minimum requirements, the Supplier will provide the following:

- Identification or serial number of the BAE Systems standards or test equipment to which the report pertains.
- Relevant condition under which the calibration was performed (temperature, relative humidity, etc.) as required.
- Accuracy of the standard under test (expressed in percentage or other suitable terms).
- Report number.
- Reports for the highest level standards of sources other than National Institute Standards and Technology (NIST) or a Government laboratory must bear a statement that comparison has been made and is traceable to NIST or that the calibration system used is based upon standards equivalent to those of NIST. A NIST test number is one means of substantiating comparison and must be provided with date of issue by NIST to BAE Systems via the Supplier.
- Correction factors which must be applied if standard conditions of temperature, gravity, air buoyancy, etc. are not met or differ from those at the place of calibration.

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- Person(s) performing the test/calibration must be identified by name, stamp (unique number), employee number, or other suitable means.
 - When repair actions are required, the extent of repair(s) must be documented and provided by the Supplier to BAE Systems.
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159 **PIND Testing Required**

Each shipment of devices shall be accompanied by objective evidence of particle impact noise detection (PIND) testing as specified in the purchase order requirements and Mil-STD-883

160 **Prohibited Materials**

Supplies furnished under this contract or purchase order shall not contain any of the following:

1. **Pure Tin:** Unalloyed tin or tin plate where tin is greater than 97% pure and the remainder is lead is prohibited. Tin with less than 97% tin and the remainder is lead is acceptable. Reflowed pure tin plating is not acceptable.
2. **Cadmium:** Pure Cadmium and high Cadmium alloys ($\geq 15\%$ Cadmium) are prohibited.
3. **Zinc:** Pure zinc and high zinc alloys ($\geq 15\%$ Zinc) are prohibited
4. **Mercury:** Pure mercury and high mercury alloys ($\geq 15\%$ Mercury) are prohibited
5. **Selenium:** Pure selenium and high selenium alloys ($\geq 15\%$ Selenium) are prohibited
6. **Corrosive solder flux:** Active rosin and organic acid fluxes are prohibited on "closed" surfaces such as a wire termination (stranded wire).
7. **Magnesium:** Pure magnesium or high magnesium alloys. Magnesium alloy may be acceptable with a maintained protective coating of Dow 17 or equivalent coating. Trace amounts of Mg are acceptable in material systems such as Aluminum and Steel alloys.
8. **Polyvinyl Chloride (PVC):** No forms of PVC are acceptable.
9. Potting and foam formulations that is prone to reversion.
10. **Polyurethane** or silicone compounds that is prone to reversion.
11. **Silicones** that release acetic acid or other corrosive products during the cure process.
12. **Cyanoacrylate** bonding as primary adhesives. In-process bonding is acceptable provided an approved adhesive provides the primary bond support.
13. **Graphite** as filler for lubricants or grease.
14. **Elastomeric materials** that contact hydrazine except for F-E-332 for diaphragms and AF-E-411 for soft valve seats. Materials that have known compatibility by test, usage, or similarity are acceptable.
15. **Silicone greases** intended for thermal bonding for end-item design (not test).
16. **Flammable materials** that are not packaged to preclude accidental fire.
17. **Honeycomb**, metallic or non-metallic, except when perforated or vented.

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18. **Radioactive materials.**

19. **Silver-plated copper** wire with less than 40 micro inches of silver plating.
20. **Polyimide (Kapton) insulated copper/copper alloy wire** used in applications where the voltage is greater than 18 volts and where flexure, tight bend radii, physical or chemical damage, or abrasion could crack the insulation.
21. **Teflon (tetrafluoroethylene-TFE)** insulated hookup wire when not routed or protected to prevent cold flow.
22. **Fluorinated Ethylene Propylene (FEP)** tubing where it provides the sole insulation for a wire conductor and is routed or contacts adjacent metal conductors.

If any of these requirements are not met please provide the specific material and its percentage as applicable.

**161 Tin-Lead Assembly Marking**

The articles specified on the face of this purchase order are component assemblies (such as Circuit Cards, power supplies etc) that are to be manufactured utilizing a tin-lead soldering process. All component finishes used in the assembly of these items must contain a minimum of 3% lead. No pure tin finishes are allowed on the completed assembly. Each finished assembly or packaging must be marked or labeled indicating that the assembly, solder joints and component finishes contain a minimum of 3% lead.

**162 Records Retention - Defined**

Records shall be as defined by ISO9001 and/or AS9100 maintained to provide evidence of conformity to requirements. Records shall remain legible, readily identifiable and retrievable. Supplier records shall be retained for a minimum of 7 years after completion of the purchase order or subcontract. These requirements shall be flowed down to any sub-tier suppliers. (New requirements for 7 year retention applies to PO's placed after 4-1-2012)

**163 Certificate of Calibration**

The Supplier's calibration system shall be compliant to industry requirements in accordance with the Supplier's QMS, including without limitation ISO 17025, ISO 10012-1 and ANSI Z540.

The supplier shall provide a Certificate of Calibration with delivery of product stating that the requirements of the purchase order/subcontract have been fully met and any required chemical/physical/electrical analysis has been performed. Substantiating evidence/data sheets shall be on file and available upon request. The Supplier shall comply with an approved calibration system. The Certificate of Calibration shall also include the following:

- Identification or serial number of the BAE Systems standards or test equipment to which the report pertains.
- Report Number or other unique identifying number.



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- The Certificate of Calibration shall be signed and dated by an authorized representative of the company.

**164 Drawing Revision Identification**

The supplier shall mark the applicable drawing revision on the outside unit packaging of every unit shipped to BAE Systems. The applicable drawing revision is the drawing revision that the supplier used to manufacture the product. Note: The drawing revision may not match the purchase order revision.

**165 Boeing Source Inspection**

Source inspection of the products listed will be performed by the Boeing representative concurrent with the other Government/Buyer source inspection representative(s).

**166 Casting Requirements**

A First Article Inspection (FAI) Report in accordance with AS9102, listing all dimensional results must be supplied with the first lot of the initial order to substantiate conformance to requirements. On repeat orders where there are no revisions that affect the raw casting or casting dimensions a minimum of one casting shall be laid out by the foundry and an inspection report listing all dimensional results must be supplied. Certification of the material's chemical composition shall be submitted for each casting with traceability to BAE Systems Purchase Order, Heat Treat number.

When applicable the heat treat number shall be stamped on the castings in a location other than where BAE Systems part number /nameplate is to be located. Two (2) test bars shall be provided for each casting melt. They will be tested by the supplier to determine compliance with the drawing's mechanical requirements. The bars will be subjected to the same thermal-mechanical treatment as the casting. The test bars may be taken from the casting's risers or gating. The raw data from tensile test results must be supplied to BAE Systems.

**167 Tin-Coated Stranded Wire**

For stranded wire; Tin-coated copper, the date of manufacture can not exceed six (6) months from the date of receipt at the buyer's facility. Each spool of wire procured under this purchase order shall be identified with the date of manufacture. Test reports are required and must be traceable to the wire manufacturer's lot number identified on each spool of wire received.

**168 Group B Test Requirements**

Group B must be performed in accordance with the requirements of the applicable drawings,

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specifications and approved test procedures. A Certificate of Conformance for Group B testing signed by the Supplier's Quality representative must be submitted. Group B tests will be compliant to MIL PRF 38534, MIL PRF 38535 or MIL PRF 19500, as applicable, or as otherwise indicated on the PO.

169 Irradiated Wire Required

The supplier shall provide irradiated wire on this purchase order unless specifically waived by the buyer.

170 Magnetic Particle / Penetrant Inspection

Magnetic particle / penetrant inspection per drawing specification or as specified in the purchase order is a requirement. Personnel performing this inspection must be qualified in accordance with MIL-STD-410/NAS 410.

171 Optical Coatings

A. Anti-reflective coatings (magnesium fluoride) per MIL-C-675 apply. Chamber lot samples will be required to be supplied unless specified otherwise.

B. Reflective coatings, aluminum and silver, per MIL-M-13508, applies to aluminum and is for reference on silver. The supplier must submit a witness sample for each chamber lot with each order. These samples may be subjected to durability tests at BAE Systems.

172 PWB - Net List Testing

PWB Net List Testing Boards are to be net list tested from the customer supplied Gerber data. When the buyer supplied Gerber file includes a "dot" net file, it shall be used for net list testing and not the extract data. NOTE: Net list testing shall be performed after all processing steps have been completed. This includes any plating operations.

173 Variability Reduction (VRP) Statistical Process Control (SPC) Plan

The supplier shall implement a Variability Reduction Plan (VRP) / Statistical Process Control (SPC) plan for those key processes or Key Characteristics (KC's) that affect form, fit, function, reliability or service as defined by BAE Systems or the Supplier. The (VRP) / (SPC) plan will be compliant to AS9103 and must be in place before any deliveries begin.

Each control characteristic listed in the plan must be in statistical control as evidenced by control charts. Out of control conditions shall have corrective/preventive actions documented. Capability for each control characteristic must have been calculated. Minimum Cpk=1.33. For attribute data, at least 99.9% conformance to specification or drawing may identify one or more key characteristics by way of special flag, table or notation. Key characteristics so identified shall comply with the above requirement. The Supplier will perform 100% inspection of any KC's that are determined to be out of control by the SPC charts. Any data sent to BAE Systems will

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document any out of control conditions and corrective/preventive action taken.

Records shall be retained for a minimum of 7 years after completion of the purchase order or subcontract. These requirements shall be flowed down to any sub-tier suppliers. (New requirements for 7 year retention applies to PO's placed after 4-1-2012)

**174 Wire Identification**

Each package or spool of wire on this order must be legibly and permanently identified with (1) purchase order, (2) gauge, (3) Military Specification, and (4) BAE Systems specification number (if applicable).

**Wire with shelf life expiration requirements shall be identified.**

**175 Raw Material Report and/or Certificate of Conformance**

The supplier shall provide a Report or Certificate of Conformance (C of C) 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. The supplier 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). In addition, material must meet any other contractual requirements as stated in the Purchase Order, and any applicable DFARs such as Specialty Metals. Supplier records shall be retained for a minimum of 7 years after completion of the purchase order or subcontract. These requirements shall be flowed down to any sub-tier suppliers. (New requirements for 7 year retention apply to PO's placed after (9-1-2012).

**177 Glass-Reinforced Plastic Laminate (Composite) Workmanship per ASTM D2563 Traceability**

Workmanship for Glass-Reinforced Plastic Laminate (Composite) parts shall meet the criteria of ASTM D 2563 (latest rev), as a minimum.

**180 Lead Tinning per NASA-STD-8739.3**

Supplier shall tin leads with SN63 per NASA-STD-8739.3 ensuring that tinning is no closer than .020 inches from the component body.

**181 Pink Poly Antistatic Bags Prohibited**

Supplier shall NOT package hardware in Pink Poly Antistatic bags due to concerns regarding unreliable ESD event protection and possible contamination due to out gassing.

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182 Date Code Restriction

Parts with a date code older than 3 years, at the date of shipment, shall not be delivered to BAE Systems.

Note: Notify BAE Systems procurement and Component Engineer (CE) if date code parts are not available to meet this purchase order requirement. If older parts are to be allowed with re-screen, the date of the re-screen shall be identified on the C of C or attribute data sheet for each shipment provided.

185 Certificate of Special Process (SP)

Special Processors shall be accredited by *Nadcap*. This requirement shall be flowed down to all sub-tier suppliers. Supplier shall provide a Certificate of Conformance (C of C) certifying compliance with all Special Processes (SP) performed as required by this Purchase Order (PO)/Subcontract and any associated specifications and/or drawings. All Special Process suppliers, and sub-tier suppliers, utilized on this purchase order/subcontract shall have current accreditation by Nadcap. The Certificate of Compliance shall document all processes used in satisfying the PO/Subcontract and the Nadcap accreditation code(s) and date of last audit. SP's are as defined in AS9100 and as defined by Nadcap. All costs associated with Nadcap accreditation shall be borne by the Special Processor. Reference the PRI web site: <http://www.pri.sae.org>

If First Article Inspection (FAI) is also imposed by the PO/Subcontract, the SP C of C and other data, such as material certifications and paint gloss readings, will be attached as part of the FAI report.

Some examples of special processes are; Chemical Processes (including Plating), Heat Treating, Protective Coatings (Conformal/ Paint/ Epoxy), Welding (EG: Resistance/ EB Fusion), Brazing (Vacuum/ Dip), Non-Destructive Inspection or Test (NDI/NDT), Material Testing Laboratories, Composites, Non-conventional Machining & Surface Enhancements, X-Ray Inspection, etc.

This data must be maintained for 7 years by the supplier. (Affective on PO's placed after 6-15-13)

186 Certificate of Authenticity

The Supplier must certify in writing that all product being provided under this Purchase Order (PO) contains only new product and submit with each shipment, the acquisition traceability documentation (Certificate of Conformance (C of C) or Packaging Slip) provided by the Original Component Manufacturer (OCM) for all material contained in the shipment.

The C of C / Packaging Slip shall identify the name of the representative of the company who is authorized to submit the C of C. The C of C / Packaging Slip (acquisition traceability documentation) must contain the BAE Systems part number listed on the PO and the supplied part number if different; providing the supplied Part Number is per the BAE Systems drawing / specification called out on the PO or is compliant to BAE Systems document A71188 (Procurement Guidance for Orderable/Un-orderable Part Numbers).

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The Supplier shall flow this requirement to its subcontractors and suppliers at any tier for the performance of this PO. In addition to the above requirement, the Supplier shall also maintain this acquisition traceability documentation for a minimum of 7 years.

**187    Software Licensing**

Licensing Agreements for procured software on this order must be delivered with the product. Upon receipt the licensing agreement will be forwarded to the appropriate configuration manager identified on the PO.

***Quality Assurance Material "S" Codes are typically used for Supplier Managed Inventory instructions.***

**S01    Electronic Component Packaging**

Handle and package all electronic components in accordance with the original component manufacturers' ESD protection requirements. The Distributor/Supplier shall preserve the conformity of the product during internal processes and delivery. This preservation shall include identification, handling, packaging, storage and protection.

Moisture Sensitive devices shall be packaged in moisture proof, conductive material or packaged in moisture proof antistatic material with external conductive field shielding barrier. The package shall be plainly marked with handling precautions against electrostatic discharge and moisture barrier labels in accordance with J-STD-033 and J-STD-020.

**S02    Lot/Date Code Limitation**

Each item/unit container shall contain no more than two (2) lot/date codes unless authorized by BAE Systems. Distributor/Supplier is to provide all material with a date of manufacture not to exceed Five (5) years.

**S03    Certification of Conformance and Acquisition Traceability**

By accepting Purchase Orders with this Quality Assurance Material Code Imposed on it, from BAE Systems ES, the Seller is certifying (Manufacturers and Suppliers including Distributors) that all product being provided to BAE Systems ES to satisfy this Purchase Order contains only new product and the supplier has in their possession acquisition traceability documentation (C of C's or Packaging slips)\*\* provided by the Original Equipment or Component Manufacturer and all previous distributors within the supply chain for all material contained in this shipment.

The supplier shall provide a Certificate of Conformance (C of C) with the delivery of product

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stating that the requirements of the purchase order/subcontract have been fully met and any required chemical/physical analysis has been performed with substantiating evidence/data is on file and available upon request by BAE Systems.

The C of C shall be endorsed by an authorized representative of the company. The C of C / Packaging documentation must contain the BAE Systems part number listed on the Purchase Order and the supplied part number if different; providing it is per the BAE Systems drawing / specification called out on the purchase order or is compliant to BAE Systems document A71188 (Procurement guidance related to orderable and un-orderable parts.

** The supplier shall maintain this documentation for a minimum of 7 years.

S04 Better-Than- Part Limitation

The Distributor/Supplier is to provide only the exact part number ordered on the Purchase Order. Better-Than" versions (i.e. failure rates, tolerance, lead finish etc.) of any specific part type are not permitted, even in cases where the applicable military specification may allow such practice.

S05 Component Lead Finish Limitation

Distributor/Supplier is **not** to provide BAE Systems with components that have a pure Tin plating (defined as having less than 3% lead content) or component lead plating that contains bismuth (greater than 3%) or SAC Alloyed Materials unless specifically allowed by the specified manufacturers part number.