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## Quality Codes List

Rev A - Date Controlled: June 7, 2018

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- Q1** Quality / Inspection System approved by Kern Engineering – The supplier has been evaluated and is on the Approved Supplier List.
- Q4** Calibration System complying with MIL-STD-45662 or ISO-10012 or equivalent.
- Q5** Quality System complying with:
- Q5A** AS 9100
- Q5B** ISO9001 or AS9100
- If the Supplier is a distributor, it is their responsibility to assure that the original manufacturer maintains a Quality System complying with the requirement.
- Q10** Certificate of Compliance (CoC) required –
- The Supplier shall provide a CoC for each shipment that includes the following as a minimum:
1. Identification of:
    - a) Company submitting Certification
    - b) Kern Engineering PO Number
    - c) Kern Engineering Part Number (Specification and Revision Level, as applicable)
    - d) Customer Part Number (Specification and Revision Level, as applicable)
    - e) Shipped Quantity
    - f) Certification Date
  2. Statement: The Items Supplied Comply with All Purchase Order Requirements
  3. Signature or Initials and Title of a duly authorized company representative
  4. **The Manufacturer's CoC with Traceability to the Supplier's CoC**  
*(Note: Traceability may be in the form of the Manufacturer's Date Code; Heat, Cast, Lot, Batch, Manufacturing or Assembly Order Number; or as specified by Material Specification)*
  5. Other requirements as specified by the Purchase Order
- Q11** Special Process Certification – The Supplier and/or sub-tier suppliers shall have a **NADCAP** Approved procedure for the performance of special processes, i.e. soldering, welding, brazing, plating, anodizing, coating, painting, etc. Procedures are subject to review and / or approval by Kern Engineering or our Customer.
- Q11A** Special Process Certification – The Supplier and/or sub-tier suppliers shall have a **BOEING** Approved procedure for the performance of special processes, i.e. soldering, welding, brazing, plating, anodizing, coating, painting, etc.
- Approved Boeing suppliers can be found at: <http://www.boeing.com/d14426/index.html>.
- Q11B** Special Process Certification – The Supplier and/or sub-tier suppliers shall have a **NADCAP** and **NORTHROP** Approved procedure for the performance of special processes, i.e. soldering, welding, brazing, plating, anodizing, coating, painting, etc. Approved Northrop suppliers can be found at: <https://oasisext.myngc.com/sympreq/aspl/aspl.asp>.

- Q11C** Special Process Certification – The Supplier and/or sub-tier suppliers shall have a **NADCAP and LOCKHEED MARTIN** Approved procedure for the performance of special processes, i.e. soldering, welding, brazing, plating, anodizing, coating, painting, etc. Procedures are subject to review and / or approval by Kern Engineering or LOCKHEED MARTIN. Approved special processors can be found through Exostar / LMC P2P.
- Q11D** Special Process Certification – The Supplier and/or sub-tier suppliers shall have a **NADCAP and RAYTHEON** Approved procedure for the performance of special processes, i.e. soldering, welding, brazing, plating, anodizing, coating, painting, etc. Procedures are subject to review and / or approval by Kern Engineering or RAYTHEON. Approved special processors can be found through Raytheon.
- Q11E** Special Process Certification – The Supplier and/or sub-tier suppliers shall have a **NADCAP and BELL HELICOPTER** Approved procedure for the performance of special processes, i.e. soldering, welding, brazing, plating, anodizing, coating, painting, etc. Procedures are subject to review and / or approval by Kern Engineering or BELL HELICOPTER. Approved special processors can be found through Bell Helicopter Sell2Bell site.
- Q12** Soldering Requirements – ANSI/J-STD-001 or other specification as indicated.
- Q13** Test data required – test data as identified in the specification, drawing, or purchase order must be included with the item.
- Q14** Time or Temperature Sensitive Materials – The material and / or container must be identified with the applicable expiration date or shelf life, special storage conditions (i.e. temperature for storage) etc. All shelf life controlled materials must have a minimum of 60 days or ½ their shelf life (whichever is less) remaining upon receipt.
- Q15** Electrostatic Sensitive Devices – Supplier shall assure that devices are manufactured, identified, and packaged to provide protection against electrostatic damage.
- Q16** Solder ability to the requirements of MIL-STD-202, method 208. Supplier shall provide a certificate stating the solder ability requirements have been met and any expiration time period.
- Q16A** No steam aging
- Q16B** 1 hr. steam aging
- Q16C** 4 hr. steam aging
- Q16D** 8 hr. steam aging
- Q16E** Special requirement: \_\_\_\_\_
- Q21** Wire to be spooled and labeled per WEC INC-10006.
- Q31** First Article Inspection Report – Supplier shall provide an inspection report of all drawing notes, dimensions, and verification of materials used per the BOM. The report may be in the Suppliers format but must contain essential elements of AS9102. Required on new production and if the existing part has been out production more than 2 years.
- Q31A** Suppliers shall use AS9102 First Article Inspection Report.
- Q32** Kern Engineering Source Inspection – WEC QA to be notified 5 days prior to shipment for source inspection instructions.
- Q33** Government and / or WEC Customer Source Inspection required – Notify WEC QA 10 day prior to shipment for source inspection instructions.
- Q34** Special Quality Provisions noted on Purchase Order.
- Q35** UL or CSA Listing / Recognition – items must be identified per UL / CSA requirements.
- Q35A** UL listing or recognition

- Q35B** UL and CSA listing or recognition
- Q36** UL 94V-O required – material supplied must meet the requirements UL 94V-O.
- Q41** Standard Level Packaging
- Q42** Special Packaging requirements noted on Purchase Order.
- Q43** Mercury Contamination – Supplies furnished under this purchase order shall not contain metallic mercury or mercury compounds and shall be free from mercury contamination. Mercury contamination of the supplies will be cause for rejection of the material. The supplier is required to furnish a certificate stating that the supplies furnished under this order contain no metallic mercury or mercury compounds.
- Q50** Delegation of Verification – inspection or tests are delegated to the supplier per the attached detail.
- Q60** Right of Entry – the Supplier shall allow Kern Engineering representatives, our customer, and regulatory agencies the right of entry to facilities as necessary to determine and verify the quality of contracted work.
- Q61** Notification of Transfer of Work – Kern Engineering must be notified when manufacture / assembly of Source Controlled Drawing parts are re-located or other substantial changes to the production line occur. 30 day prior notification is requested.
- Q70** RoHS – Items are required to be RoHS compliant.
- Q75** Requirements for Soldered / Plated Electrical / Electronic components – Items provided on this purchase order SHALL NOT HAVE PURE TIN finishes. Additionally, any tin-lead plating or solder process/processing shall result in a finish of not less than 3% lead composition.
- Q99** Weld per WPS stipulated on purchase order less destructive testing, penetration testing, and metallography testing. Kern Engineering and Mfg. Corp. in chino California will conduct test on a as needed basis per our requirements.
- (QC-99)**
- Q100** Document Retention required. Seller shall retain build, test and inspection, first article inspection, sampling records, material chemical or physical records for a period of (see below) years and are subject to review / audit by Kern Engineering and/or our Customer.
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|------------------------|-------------------------|-------------------------|
| <b>Q100A</b> – 3 years | <b>Q100D</b> – 10 years | <b>Q100G</b> – 30 years |
| <b>Q100B</b> – 5 years | <b>Q100E</b> – 15 years | <b>Q100H</b> – 40 years |
| <b>Q100C</b> – 7 years | <b>Q100F</b> – 20 years |                         |
- Q105** Engineering Changes – No changes to the items purchased are allowed without written approval of Kern Engineering. Contact your Buyer for more information on submission of changes.
- Q106** Waiver or Deviation – A written request for deviation or waiver from contracted drawing or specification is required prior to shipment of product to Kern Engineering. Contact your Buyer for more information on submission of requests.
- Q107** Acceptance Test Plan Approval – An ATP identifying the instrumentation, test conditions, test methods, data sheets shall be submitted for approval prior to start of work.
- Q108** Tooling / Process Controls – Seller shall notify the Buyer if any of the following have occurred; production tooling out of service for 1 year or more; rework, refurbishment or replacement of any tooling used to produce the item; any change in the manufacturing process that alters the configuration, composition, or physical properties of the item.
- Q109** Requirements Flow down – Sellers system shall assure that applicable quality and technical requirements within this purchase order are flowed down to subcontracted supplies and services.

**Q110** Foreign Object Damage (FOD) Prevention – The Seller’s program shall utilize effective FOD prevention practices. NAS412 shall be used as a guideline for development of prevention practices.

**Q111** Supplier Qualification – Seller agrees to maintain controls to assure that after successful qualification, neither any design, material, part, process, procedure, tooling, or test equipment shall be changed in any way without written approval of the Buyer.

**Q112** Notification of Non-Conformances – The Supplier shall notify Kern Engineering of any non-conformance subsequently identified in materials, products shipped. Notification shall be within 24 hours of discovery.

**Q113** Silver Coated Copper Wire – Corrosion Control – Raytheon # P8658300.  
Silver coating material thickness shall be measured and certified in accordance with ASTM B298. Wire and cable materials shall be certified in accordance with specifications which require use of ASTM B298 certified conductor strands.

**Q114** Printed Wiring Board - Shall meet solderability of J-STD-003, Class 3, Category #3 after an 8-hour steam age preconditioning, followed by Edge Dip Method (IPC-TM-650, 2.4.12), using no activated flux Type ROLO; solderability conformance shall include BGA pads on boards when applicable.

**Q115** Rigid PC Boards - Shall be certified to conform and comply with IPC-6012C-2010, Class 3 for manufacturing, inspection, test and acceptance. The purchased lot shall be inspected to IPC-6012C-201, Class 3, AQL 4.0; sampling plan.

**Q116** Boeing Clauses listed below can be found at:  
[http://www.boeing.com/idscommon/cclauses/cclauses\\_index.htm](http://www.boeing.com/idscommon/cclauses/cclauses_index.htm)

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|-----------------------------|----------------------------------|
| Q116A – Boeing clause Q011S | Q116B – Boeing clause Q011P      |
| Q116C – Boeing clause Q020  | Q116D – Boeing clause Q029       |
| Q116E – Boeing clause Q073  | Q116F – Boeing clause Q132       |
| Q116G – Boeing clause Q224P | Q116H – Boeing clause Q224S      |
| Q116J – Boeing clause Q831  | Q116K – Boeing clause GP7 Q116L  |
| – Boeing clause D607        | Q116M – Boeing clause H101       |
| Q116N – Boeing clause H900  | Q116P – Boeing clause H927 Q116R |
| – Boeing clause GP1         |                                  |

**Q117** Raw Material & Certified Material Test Report (CMTR) Submittal – Supplier shall:

1. Provide two raw material specimens from the mill heat or lot of raw material used to manufacture the items supplied and of sufficient size to create two material test coupons in accordance with ASTM-E8.
2. Tag or mark each specimen with the mill heat or lot number traceable to the original mill CMTR.
3. Include a copy of the original mill CMTR.
4. Package the specimens and CMTR in an envelope or separate package marked for QA Receiving Inspection.

**Q118** PCB shall be Sn63 Pb37 (63% Tin / 37% Lead) Solder Type Surface Finish.

**Q119** Ensuring that personnel is aware of: their contribution to product or service conformity; their contribution to product safety; Supplier shall have and adhere to a code of conduct or policy statement regarding business conduct.

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    - e) Shipped Quantity
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  2. Statement: The Items Supplied Comply with All Purchase Order Requirements
  3. Signature or Initials and Title of a duly authorized company representative
  4. **The Manufacturer's CoC with Traceability to the Supplier's CoC**  
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- |                             |                                  |
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