
 <b>HONEYBEE ROBOTICS</b>	<b>TITLE: Quality Requirements for Suppliers</b>	<b>DOC NO. HBRQR001</b>	
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	<b>SECTION: Purchasing</b>	<b>EFFECTIVE DATE: July 19<sup>th</sup>, 2021</b>	


<b>Approved By: Management Representative</b>	<b>Signature: Sase Singh</b>	<b>Date: 7/19/2021</b>
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<b>SCOPE</b>	The aim of this document is to formally communicate our quality requirements/Clauses to our suppliers and their suppliers.
<b>Acronym</b>	ASL – Approved Supplier List Buyer – Honeybee Robotics HBR – Honeybee Robotics P.O. – Purchase Order or Contract SCAR – Supplier Corrective Action

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## 1.1 INTRODUCTION

We are committed to providing our customers with quality products & services that meet or exceed their requirements. Our aim is to build sustainable supplier capacity by partnering with our supply chain to reduce adverse environmental impacts, improve health, safety and ethical behavior, and to enable responsible supplier growth and raise standards.

## 1.2 SUPPLY OF GOODS AND SERVICES

Our business depends on a reliable network of skilled suppliers to provide the materials, parts and services needed to make our products and deliver them to our customers on time. Goods and services provided by our suppliers have a key impact on the quality of the products, and services we offer our customers. To maintain a high level of quality, we are determined to establish and maintain close and long-lasting relationships with our suppliers.

Terms and Conditions (T&C) shall apply to all P.O.s unless otherwise agreed upon.

## 1.3 QUALITY MANAGEMENT SYSTEM REQUIREMENTS

### 1.3.1 MINIMUM QUALITY REQUIREMENT

Suppliers shall provide and maintain a quality control system to an industry-recognized Quality Standard and in compliance with any other specific quality requirements identified in the Purchase Order.

## 1.4 SUPPLIER APPROVAL

Supplier must be on our Approved Suppliers List (ASL) before a P.O. can be issued. Documents required to complete the approval process are:

- HBR FORM 7.4.1.10 Quality Survey of Candidate Supplier.
- QMS certification, if applicable.
- Confidentiality or non-disclosure agreement (NDA) if applicable.

When appropriate, suppliers shall be subject to on-site audit and/or site visit by the buyer's supplier quality engineer and/or supply chain representative. Scheduled verification audits, site visits and business to business meetings shall be supported when required.

Suppliers shall provide up-to-date copies of quality management system certification including scope of certification. The buyer shall be informed when certificates are reissued or revoked.


Suppliers status on the ASL is determined by the following:

- On-Time-Delivery (OTD) of all items procured
- Quality of the items procured
- Supplier Corrective Action Request (SCAR) issued

## 1.5 INTERACTION WITH THE BUYER

All issues (technical & contractual) relating to the purchase orders shall be communicated to the buyer. Technical issues relating to the P.O. may be directed to the appropriate engineer as well.

All modification shall be captured via a formal revised purchase order (verbal authorization must be

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followed by a P.O. modification).

Supplier's representative shall provide confirmation of receipt of P.O. to the buyer.

Should the agreed upon delivery date change, the supplier shall contact the buyer immediately. Invoices shall be sent to the location identified on the purchase order.

### 1.6 NONCONFORMING PRODUCT

From time to time nonconformities occur in many shapes and forms whether in product, process, service or documentation.

When nonconformities occur, the supplier must perform Root Cause Analysis (RCA) and corrective action activities to prevent recurrence of the problem. For nonconforming product, suppliers shall:


- Carry out containment and evaluate product impact
- Inform the buyer immediately when shipped nonconforming product is suspected
- Establish and form root cause analysis team from stakeholders, experts and others involved
- Identify & understand the problem
- Gather & analyze data
- Find direct cause(s), contributing cause(s) and root cause(s)
- Determine corrective action(s) addressing all causes to prevent recurrence of nonconformity
- Implement corrective action
- Determine risks and opportunities to prevent or reduce nonconformities occurring
- Review corrective action
- Document and provide objective evidence for above actions

### 1.7 SERIALIZATION AND PART MARKING


Serialization and part marking identification format shall be in accordance with any contractually agreed specification or standard.

### 1.8 Quality Clauses Grouping

If a Clause Group is listed on the purchase order, the supplier is required to comply with all individual Quality Clauses within the listed Clause Group; complete instructions for individual Quality Clauses are listed in Section 1.9. As required, the buyer's Quality personnel may add or remove individual Quality Clauses to/from a defined Clause Group on a purchase order (Ex. "Group 5 plus Q49", adds Government Source Inspection to the list of clauses for Machining, or "Group 11 less Q1", removes the Records Retention requirement from the list of clauses for Printed Wiring Assemblies).


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<b><u>Group 0.</u></b>	<b><u>Default:</u></b> Quality Clauses: Q1 Thru Q15, & Q24
<b><u>Group 1.</u></b>	<b><u>Raw Material &amp; Consumables:</u></b> Quality Clauses: Q1 Thru Q24, Q28, Q29, & Q60
<b><u>Group 2.</u></b>	<b><u>Raw Material (DFARS):</u></b> Quality Clauses: Q1 Thru Q24, Q28, Q29, & Q37
<b><u>Group 3.</u></b>	<b><u>COTS Parts:</u></b> Quality Clauses: Q1 Thru Q5, Q7, Q9 Thru Q14, Q17 Thru Q19, Q21, & Q24
<b><u>Group 4.</u></b>	<b><u>EEE COTS Items:</u></b> Quality Clauses: Q1 Thru Q5, Q7, Q9 Thru Q14, Q18, Q19, Q21, Q24, Q30 Thru Q33, & Q60
<b><u>Group 5.</u></b>	<b><u>Machine Only (Supplier-Provided Material):</u></b> Quality Clauses: Q1 Thru Q15, Q17 Thru Q19, & Q21 Thru Q27
<b><u>Group 6.</u></b>	<b><u>Machine Only (Supplier-Provided Material - DFARS):</u></b> Quality Clauses: Q1 Thru Q15, Q17 Thru Q19, Q21 Thru Q27, & Q37
<b><u>Group 7.</u></b>	<b><u>Machine (Supplier-Provided Material) &amp; STD Special Process:</u></b> Quality Clauses: Q1 Thru Q15, Q17 Thru Q27, Q38, Q39, & Q43
<b><u>Group 8.</u></b>	<b><u>Machine (Supplier-Provided Material - DFARS) &amp; STD Special Process:</u></b> Quality Clauses: Q1 Thru Q15, Q17 Thru Q27, Q37 Thru Q39, & Q43
<b><u>Group 9.</u></b>	<b><u>Machine (Supplier-Provided Material) &amp; Nadcap Special Process:</u></b> Quality Clauses: Q1 Thru Q15, Q17 Thru Q27, Q38 Thru Q40, & Q43
<b><u>Group 10.</u></b>	<b><u>Machine (Supplier-Provided Material - DFARS) &amp; Nadcap Special Process:</u></b> Quality Clauses: Q1 Thru Q15, Q17 Thru Q27, Q37 Thru Q40, & Q43
<b><u>Group 11.</u></b>	<b><u>Printed Wiring Assemblies (PWA):</u></b> Quality Clauses: Q1 Thru Q15, Q18 Thru Q26, Q28 Thru Q31, Q33 Thru Q36, & Q43
<b><u>Group 12.</u></b>	<b><u>Heaters/RTDs/Motors/Actuators:</u></b> Quality Clauses: Q1 Thru Q15, Q18 Thru Q34, & Q43
<b><u>Group 13.</u></b>	<b><u>Calibration/Laboratory Services/Nondestructive Testing:</u></b> Quality Clauses: Q1 Thru Q15, Q24 Thru Q26, & Q42 Thru Q44
<b><u>Group 14.</u></b>	<b><u>Calibration/Laboratory Services/Nondestructive Testing (Nadcap):</u></b> Quality Clauses: Q1 Thru Q15, Q24 Thru Q26, Q40, & Q42 Thru Q44

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<b><u>Group 15.</u></b>	<b><u>Flexible Circuits/Raw PWBs:</u></b> Quality Clauses: Q1 Thru Q15, Q18 Thru Q26, Q28 Thru Q32, Q34, Q43, Q57, & Q59
<b><u>Group 16.</u></b>	<b><u>Calibrated Equipment Purchases:</u></b> Quality Clauses: Q1, Q2, Q9, Q11 Thru Q14, Q24, & Q56
<b><u>Group 17.</u></b>	<b><u>STD Special Processing Only:</u></b> Quality Clauses: Q1 Thru Q12, Q14, Q16, Q19, Q21, Q24 Thru Q26, Q38, Q39, Q42, & Q43
<b><u>Group 18.</u></b>	<b><u>Nadcap Special Processing Only:</u></b> Quality Clauses: Q1 Thru Q12, Q14, Q16, Q19, Q21, Q24 Thru Q26, Q38 Thru Q40, Q42, & Q43
<b><u>Group 19.</u></b>	<b><u>Hall Sensors:</u></b> Quality Clauses: Q1 Thru Q5, Q7, Q9 Thru Q14, Q18, Q19, Q24, Q30 Thru Q33, & Q60
<b><u>Group 20.</u></b>	<b><u>Machine Only (HBR-Provided Material):</u></b> Quality Clauses: Q1 Thru Q15, Q17 Thru Q19, & Q24 Thru Q27
<b><u>Group 21.</u></b>	<b><u>Machine (HBR-Provided Material) &amp; STD Special Process:</u></b> Quality Clauses: Q1 Thru Q15, Q17 Thru Q20, Q24 Thru Q27, Q38, Q39, & Q43
<b><u>Group 22.</u></b>	<b><u>Machine (HBR-Provided Material) &amp; Nadcap Special Process:</u></b> Quality Clauses: Q1 Thru Q15, Q17 Thru Q20, Q24 Thru Q27, Q38 Thru Q40, & Q43



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## 1.9 Quality Clause Definition

<a href="#"><u>Q1.</u></a>	<p><b>Q1. Retention of Records:</b></p> <p>Supplier shall retain all records related to the products and/or services furnished under this purchase order; for a minimum of 10 years from date of delivery. The term "records" includes, but is not limited to: build logs, test data sheets, material certification, travelers, equipment run logs/charts, employee training and competency records, and any other documentation created/completed during the execution of this purchase order. These records shall be made available for review, at no additional cost, when requested by the buyer, its customers, or any regulatory authority.</p> <p>Once the retention period has elapsed, should the supplier deem it necessary to dispose of records, the following disposition requirements shall be followed:</p> <ul style="list-style-type: none"> <li>• Hard-copy documented information shall be shredded.</li> <li>• Scrap products and components shall be destroyed, rendered unusable and unrecoverable.</li> <li>• Electronic documented information shall be deleted and purged from the system.</li> </ul>
<a href="#"><u>Q2.</u></a>	<p><b>Q2. Competency and Awareness of Personnel:</b></p> <p>Supplier shall ensure that all employees performing tasks under this purchase order are currently assessed as competent to perform those tasks. The method of competency assessment shall be at the supplier's discretion, and it may be based upon the employee's possession of industry-recognized qualifications, relevant education, documented on the job training, or other acceptable demonstration of their ability to competently perform the tasks assigned. Supplier shall also ensure that all employees are aware of their contribution to product or service conformity, product safety, and the importance of ethical behavior.</p>

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**Q3. Right of Access:**

Supplier shall grant right of access to supplier’s facilities and records, as may be required, to the buyer, its customers, or any regulatory authority for the purposes of supplier audits and non-conformance investigations. This includes:

- The right of access to facilities where parts of the contracted activities are being performed including sub-supplier’s premises.
- Information pertaining to the fulfillment of requirements in the contract.
- Unrestricted opportunity to evaluate supplier compliance with this document.
- Unrestricted opportunity to conduct verification of product conformity to contract requirements.
- Assistance for evaluation, verification, validation, testing, inspection or release of the product to verify that contract requirements have been accomplished at the supplier’s or sub-supplier’s premises.
- Working area and facilities.
- The necessary equipment available for reasonable use for performing verification.
- Supplier and/or sub-suppliers personnel for operation of verification equipment as required.
- Access to information and communication facilities.
- The necessary supplier documentation, to confirm product conformance to specification.
- Copies of necessary documents, including those on electronic media.
- Confirmation of capacity constraints.


**Q3.**

**Q4. Inspection/Test/Verification:**

All materials and workmanship shall be subject to inspection, test, and verification at all reasonable times and places, by the buyer, its designee, or its customers, before, during, and after delivery.

No such inspection shall relieve the supplier of its obligations to furnish and warrant all work in accordance with the requirements of this P.O. The buyer’s final inspection and acceptance shall be at destination.

**Q4.**

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**Q5. Counterfeit Work Prevention:**

Supplier, and sub-tier suppliers, shall ensure that counterfeit work, or suspect counterfeit work is not used or delivered under this purchase order.

- Counterfeit work is work that contains unlawful or unauthorized reproductions, substitutions, or alterations that have been knowingly mismarked, misidentified, or otherwise misrepresented to be an authentic, unmodified part from the Original Component Manufacturer (OCM)/Original Equipment Manufacturer (OEM), or a source with express written authority of the OCM/OEM or current design authority, including an authorized aftermarket manufacturer.
  - Unlawful or unauthorized substitution includes old work represented as new, or the false identification of grade, serial number, lot number, date code, or performance characteristics.
- Suspect counterfeit work means work for which credible evidence (including, but not limited to, visual inspection or testing) provides reasonable doubt that the work part is authentic.


Where appropriate, the supplier shall establish and maintain a counterfeit parts/material prevention and control plan to ensure that counterfeit work is not delivered. The purpose of the supplier’s plan shall be to develop a robust process to prevent the delivery of counterfeit commodities and to control commodities identified as counterfeit.

**Q5.**

Additionally, supplier shall:

- a) Only purchase products to be delivered, or incorporated as work, to the buyer directly from the Original Component Manufacturer (OCM)/Original Equipment Manufacturer (OEM), or through an OCM/OEM authorized distribution channel. Supplier may use another source only if:
  - The sources are unable to deliver required products, and
  - Supplier’s inspection and other counterfeit risk mitigation processes will be employed to ensure the authenticity of the Work, and
  - Supplier obtains advance written approval from buyer.
    - b) Maintain counterfeit risk mitigation processes in accordance with industry recognized standards, and with any other specific requirements identified in this purchase order.
    - c) Immediately notify buyer with the pertinent facts if the supplier becomes aware that it has delivered counterfeit work or suspect counterfeit work. If requested by buyer, supplier shall provide documentation that authenticates traceability of the affected items to the OCM/OEM. Supplier, at its expense, shall provide reasonable

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cooperation to the buyer in conducting any investigation regarding the delivery of counterfeit work, or suspect counterfeit work under this purchase order.

- d) This clause applies in addition to, and is not altered, changed, or superseded by any quality provision, specification, statement of work, regulatory flow down, or other provision included in this purchase order addressing the authenticity of work.
- e) If work delivered under this purchase order constitutes or includes counterfeit work, supplier shall, at its expense, promptly replace such counterfeit work with genuine work conforming to the requirements of this purchase order. Notwithstanding any other provision in this purchase order, supplier shall be liable for all costs relating to the removal and replacement of counterfeit work, including, without limitation, the buyer's costs of removing counterfeit work, of installing replacement work, and of any testing necessitated by the reinstallation of work after counterfeit work has been replaced. The remedies contained in this paragraph are in addition to any remedies the buyer may have at law, equity, or under other provisions of this purchase order.
- f) Provide training in the awareness and prevention of counterfeit parts to all appropriate personnel.
- g) Include paragraphs (a) through (g) of this clause, or equivalent provisions, in all sub-tier subcontracts for the delivery of items that will be included in or furnished as work to the buyer.

**Q6. Flow Down Requirement:**

Q6.

When the supplier uses sub-tier sources to perform work on products and/or services for the buyer, the supplier shall include (flow-down) on their P.O. to its sub-tier sources, all of the applicable technical and quality requirements contained in the buyer P.O., including quality clauses, regulatory requirements, the use of the buyer designated sources, and the requirement to document and control 'key characteristics' and/or 'key processes', and to furnish certifications and test reports as required. The buyer representatives, its customers and/or end users shall be allowed access to the sub-supplier's plant and facilities for surveillance and inspection.

The supplier shall be responsible for meeting all requirements, including work performed by the supplier's sub-tier suppliers (also known as sub-suppliers or subcontract suppliers).


**Q7. Nonconforming Product:**

Q7.


Supplier shall notify buyer, in writing; within one working day of any product nonconformance. Supplier must receive written approval from the buyer on all dispositions relating to nonconforming products.

In the event of a non-conforming delivery, the buyer may, at its discretion:


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	<ul style="list-style-type: none"> <li>• Accept all or part of such work at an equitable price reduction, or</li> <li>• Require the supplier, at supplier’s cost, to make approved repairs, modifications, or replacements, or</li> <li>• Terminate the purchase order without waiving rights to recover damages (including incidental and consequential damages), or to purchase replacement goods or services from another supplier, and</li> </ul> <p>Supplier shall not re-tender previously rejected work without disclosing the nature of the nonconformance, and the corrective action(s) taken.</p> <p>The supplier shall respond to a Supplier Corrective Action Report (SCAR) when raised.</p>
<u><b>Q8.</b></u>	<p><b>Q8. Change Notification:</b></p> <p>Supplier shall notify the buyer of <u>all</u> changes to purchased product or service from that quoted, previously purchased, or as advertised. This requirement also applies to <u>any</u> changes related to status of certification(s) held.</p> <p>(Ex. ISO 9001, ISO 17025, AS9100, or Nadcap accreditation), sub-tier suppliers, location(s) of work performed, or changes of ownership. Supplier must receive written approval from the buyer, on all such changes; prior to shipment of product.</p>
<u><b>Q9.</b></u>	<p><b>Q9. Product Preservation:</b></p> <p>Supplier shall ensure that deliverable product is adequately contained and protected during all processing and handling operations, and that appropriate packaging is used to prevent contamination, deterioration, accidental damage, or loss during shipment and storage.</p>
<u><b>Q10.</b></u>	<p><b>Q10. Foreign Object Damage:</b></p> <p>Supplier shall establish and implement a process to detect and prevent Foreign Object Damage (FOD) in accordance with NAS412 (Foreign Object Damage (FOD) Prevention Guidance Document). At minimum the process shall detail:</p> <ul style="list-style-type: none"> <li>• FOD process overview.</li> <li>• FOD Training requirements for personnel.</li> <li>• Material handling and product protection.</li> <li>• Tool/hardware accountability.</li> <li>• Lost items search and documentation process.</li> <li>• Physical entry control into FOD critical areas.</li> <li>• Inspection for foreign objects prior to closing apertures, covers, and compartments during assembly operations.</li> </ul>

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<a href="#"><u>Q11.</u></a>	<p><b>Q11. Calibration System:</b></p> <p>Supplier shall maintain the calibration of inspection, measuring, and test equipment, used for acceptance of product, in compliance with ANSI/NCSL Z540.3-2006, or ISO 17025.</p>
<a href="#"><u>Q12.</u></a>	<p><b>Q12. Delivery to the Buyer:</b></p> <p>Supplier shall supply only conforming goods and services, on time, and, unless otherwise specified, in full; with all required certifications and documentation. If late delivery, non-delivery, or short delivery is anticipated, supplier shall immediately notify buyer identified on the purchase order.</p>
<a href="#"><u>Q13.</u></a>	<p><b>Q13. Quality Management System:</b></p> <p>Supplier shall maintain a quality management system to an industry-recognized Quality Standard (AS9100, ISO 9001, or ISO 17025 or equivalent) and in compliance with any other specific quality requirements identified in P.O.s issued by the buyer.</p>
<a href="#"><u>Q14.</u></a>	<p><b>Q14. General Workmanship:</b></p> <p>Unless otherwise specified (i.e. drawing requirements, specifications, purchase order) material shipped against this Purchase Order shall be free of dents, gouges, burrs, scratches, sharp edges, foreign matter, or any other evidence of poor workmanship standards that shall create a condition that renders said part unsatisfactory for its intended use. All materials supplied under this purchase order must be fabricated and finished to the highest quality practical and in a workmanship like manner by trained and/or qualified personnel.</p>
<a href="#"><u>Q15.</u></a>	<p><b>Q15. Business Continuity/Disaster Management:</b></p> <p>Supplier shall have in place a business continuity plan. This includes requirements to plan, establish, implement, operate, monitor, review, maintain, and continually improve a documented management system to protect against, reduce the likelihood of occurrence, prepare for, respond to, and recover from disruptive incidents when they arise. The extent of application of these requirements depends on the supplier's operating environment and complexity.</p>
<a href="#"><u>Q16.</u></a>	<p><b>Q16. Safety Data Sheets:</b></p> <p>Safety data sheets (SDS) provide information on chemical products that help users of those chemicals to make an informed risk assessment. They describe the hazards the chemical presents, and give information on handling, storage, and emergency measures to be taken in the event of an accident. Supplier shall provide an up to date SDS if any material supplied/incorporated under this purchase order is classified as dangerous.</p>


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<a href="#"><b>Q17.</b></a>	<p><b>Q17. Certificate of Conformance:</b></p> <p>Supplier shall furnish a certificate of conformance for all products and services furnished under this purchase order. The certificate of conformance shall be deemed as a contractual guarantee that the goods and services referenced thereon meet all drawing, specifications, technical data, and purchase order requirements. At minimum, the supplier's certificate of conformance shall contain the following information:</p> <ul style="list-style-type: none"> <li>• Supplier's business name, address, and CAGE code (as applicable).</li> <li>• Unique certificate identifier.</li> <li>• The buyer's P.O. number.</li> <li>• Part number(s) and revision level(s) of all items supplied under this purchase order.</li> <li>• Supplier's batch number(s), lot number(s), or date code(s) (as applicable).</li> <li>• OEM's batch number(s), lot number(s), or date code(s), (as applicable).</li> <li>• Quantity of each part supplied under this purchase order.</li> <li>• Part serial number(s) (as applicable).</li> <li>• Reference to all concessions, deviations, waivers, and nonconformance reports.</li> <li>• Signature of authorized person signing the certificate.</li> </ul>
<a href="#"><b>Q18.</b></a>	<p><b>Q18. One Manufactured Lot:</b></p> <p>Unless otherwise specified, all items for each purchase order line item shall be from the same manufacturing lot and be of the same batch or date code of manufacture; partial shipments will not be accepted.</p>
<a href="#"><b>Q19.</b></a>	<p><b>Q19. Zero Defects:</b></p> <p>The buyer will perform incoming inspection, in accordance with the drawing(s) provided with this purchase order. One or more inspection failure(s) may be cause for rejection of the entire lot.</p>
<a href="#"><b>Q20.</b></a>	<p><b>Q20. Life-Limited Materials:</b></p> <p>Life-limited materials fall into one of two categories: <u>stand-alone</u> or <u>supplier-incorporated</u>.</p> <ul style="list-style-type: none"> <li>• <u>Stand-alone</u> life-limited materials supplied under this purchase order, shall have at least 75% of the manufacturer's stated shelf life remaining at the time of receipt by the buyer. Supplier shall provide date of manufacture (DOM) and Date of expiration (DOE) information with all stand-alone life-limited material supplied under this purchase order.</li> <li>• <u>Supplier-incorporated</u> life-limited materials supplied under this purchase order shall be within the manufacturer's stated shelf life period (not expired) at the time of incorporation by the supplier.</li> </ul>


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<a href="#"><b>Q21.</b></a>	<p><b>Q21. Conflict Minerals:</b> Supplier shall not provide any product that contains conflict minerals. The term conflict minerals refers to columbite-tantalite/coltan (the metal ore from which TANTALUM is extracted); cassiterite (the metal ore from which TIN is extracted); GOLD; wolframite (the metal ore from which TUNGSTEN is extracted); or their derivatives; or any other mineral or its derivatives determined by the Secretary of State to be financing conflict in the Democratic Republic of the Congo or an adjoining country.</p> <p>Each intermediate distributor in the supply chain must request information regarding the use of conflict minerals from their direct suppliers, who, in turn, must solicit the same information from the next tier of suppliers, &amp; etc. through the entire supply chain. Suppliers shall retain records which substantiate the source of products that contain such minerals and these records shall be made available for review by the buyer, its customers, or any regulatory authority upon reasonable request.</p>
<a href="#"><b>Q22.</b></a>	<p><b>Q22. Raw Material Certificates:</b> Supplier shall furnish as applicable:</p> <p>For metallic parts: complete raw material certificates traceable back to the mill, or original material manufacturer, by lot, batch, block, or HEAT number. Documentation shall demonstrate a solid chain of custody from the mill/original material manufacturer through ALL intermediate distributors to the supplier. For <u>non-proprietary</u> materials, the supplier shall also furnish Physical and Chemical analysis reports, identifiable by lot, batch, block, or HEAT number, <u>and</u> material type, specification (including revision level), and shall include the <u>actual values</u> obtained.</p> <p>For non-metallic items including but not limited to solvents, chemicals, lubricants, adhesives, and coatings, complete material certificates for each item. Certificates shall contain the lot number, date of manufacture, date of expiration, specifications such as chemical composition (unless proprietary), testing data if applicable, the name/number/revision of any applicable industry standards, and any other information relevant to the identification and traceability of the item(s)</p>
<a href="#"><b>Q23.</b></a>	<p><b>Q23. Single Raw Material Lot:</b> Unless otherwise specified, each purchase order line item shall be manufactured from a <b>single lot of raw material</b> (whether provided by the buyer or procured by supplier) which shall be identified by, and traceable to, one lot, batch, block, or HEAT number on applicable records. Mixing raw material lots is <b>not</b> acceptable. If raw material is provided by the buyer, excess raw material shall be returned with shipment; unless otherwise instructed.</p>
<a href="#"><b>Q24.</b></a>	<p><b>Q24. No Pink-Poly:</b> Pink-Poly (pink polyethylene) shall <u>not</u> be used as a packaging medium for any item in supplied under this purchase order.</p>




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<p><a href="#"><u>Q25.</u></a></p>	<p><b>Q25. Approval of Sub-Tier Suppliers:</b></p> <p>Supplier must receive written approval from the buyer, prior to use of <u>any</u> sub-tier suppliers (Ex. grinding, heat treat, plating, specialty machining, etc.) for any work under this purchase order. Written approval to use a specific sub-tier supplier does not absolve supplier of responsibility for meeting all purchase order requirements; regardless of whether the supplier or their sub-tier supplier performed the work.</p>
<p><a href="#"><u>Q26.</u></a></p>	<p><b>Q26. Proprietary and Sensitive Data:</b></p> <p>The buyer's proprietary data, sensitive data, and customer technical data may only be shared with third-party suppliers if:</p> <p>They are approved by the buyer and the owner of the technical data, and</p> <ul style="list-style-type: none"> <li>• They have written confirmation (Ex. hardcopy letter, or email with return address header) from the buyer that they are authorized to receive such data, and as such, understand the implications of, and requirements for, handling proprietary technical data and sensitive data, and</li> <li>• They accept that where data is identified as the buyer's proprietary data, or sensitive data, the following restrictions apply to the control, handling and monitoring of such data: <ul style="list-style-type: none"> <li>○ Restricted data shall be controlled in such a way as to prevent unauthorized transmission or access.</li> <li>○ Suppliers that require the buyer's proprietary data or sensitive data, shall have a procedure in place for its control, handling, monitoring, and disposal.</li> <li>○ Only authorized personnel shall be granted access to restricted data.</li> <li>○ Hard-copy proprietary and sensitive data that is no longer needed must be disposed of in shredder bins or confidential material disposal bins. Scrap products and components shall be destroyed, rendered unusable, and unrecoverable.</li> </ul> </li> <li>• Suppliers who receive technical data may be required to sign a non-disclosure agreement (NDA).</li> <li>• Supplier's sub-tier suppliers, that need access to any the buyer's proprietary data, or sensitive data, <u>must</u> be authorized by, <u>and</u> have an NDA in place with supplier.</li> </ul> <p>Sensitive data includes any data subject to the International Trade in Arms Regulations (ITAR) and Export Administration Regulations (EAR).</p>

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<p><a href="#"><u>Q27.</u></a></p>	<p><b>Q27. First Article Inspection Report:</b> Supplier shall furnish a First Article Inspection Report (FAIR), Forms 1, 2 and 3, as defined in the latest revision of AS9102. The FAIR shall include the buyer’s purchase order number, part number &amp; revision level, identification of all measuring equipment used, their calibration due dates, the actual values recorded, and the name and signature/stamp of the inspector. Unless otherwise specified, documentation in the supplier’s format is acceptable, provided it’s in compliance with AS9102 format.</p> <p>The part used to generate the FAIR must be segregated and identified as such by the supplier.</p> <p>Whenever any of the following applies, a new FAIR shall be performed.</p> <ol style="list-style-type: none"> <li>1. A change in the design characteristics affection form, fit or function of the part</li> <li>2. A change in manufacturing source(s), process(es), inspection method(s), location of manufacture, tooling, or materials that can potentially affect fit, form, or function.</li> <li>3. A change in numerical control program or translation to another media that can potentially affect fit, form, or function.</li> <li>4. A natural or man-made event, which may adversely affect the manufacturing process.</li> <li>5. An implementation of corrective action required to complete a previous FAI.</li> <li>6. A lapse in production for two years shall require an update for any characteristics that may be impacted by the inactivity. This lapse is from the completion of last production operation to the actual restart of production.</li> </ol> <p><b>Note:</b> if this is a Repeat Order and there were no changes to the materials, processes or functional testing used to manufacture the product, the latest submitted and accepted (by HBR) Forms 1 and 2 may be submitted with the deliverable. <b>However</b>, Form 3 must be completed for the new batch of deliverable, if they were not manufacture in the same run as the last batch.</p>
<p><a href="#"><u>Q28.</u></a></p>	<p><b>Q28. Solder:</b> Any solder used or supplied under this purchase order shall be in accordance with J-STD-006 and J-STD-001 Space Addendum, and a statement to that effect shall be annotated on the supplier’s certificate of conformance.</p> <p>Unless otherwise specified, flux-core wire solder shall only contain ROL0 flux. Approval to use other fluxes must first be obtained in writing from Honeybee.</p>
<p><a href="#"><u>Q29.</u></a></p>	<p><b>Q29. Flux:</b> Any flux used or supplied under this purchase order shall be in accordance with J-STD-004, and a statement to that effect shall be annotated on the supplier’s certificate of conformance.</p> <p>Unless otherwise specified, only type ROL0 flux shall be used. Approval to use other fluxes must first be obtained in writing from Honeybee.</p>

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<a href="#"><b>Q30.</b></a>	<p><b>Q30.      EEE Parts Source of Supply:</b></p> <p>Prior to accepting this purchase order, supplier shall disclose, in writing, to the buyer if they do not satisfy at least <u>one</u> of the following two statements:</p> <ul style="list-style-type: none"> <li>• Supplier is the original equipment manufacturer/original component manufacturer (OEM/OCM), of the specific EEE (Electrical, Electronic, and Electromechanical) parts including Cable and wire supplied under this purchase order, or</li> <li>• Supplier is the OEM's/OCM's Authorized/Franchised Distributor of the specific EEE (Electrical, Electronic, and Electromechanical) parts including Cable and wire supplied under this purchase order.</li> </ul>
<a href="#"><b>Q31.</b></a>	<p><b>Q31.      EEE Certificate of Conformance:</b></p> <p>Supplier shall furnish an EEE (Electrical, Electronic, and Electromechanical) certificate of conformance for all EEE items furnished under this purchase order. At minimum, the supplier's EEE certificate of conformance shall contain the following information:</p> <ul style="list-style-type: none"> <li>• Supplier's business name, address, and CAGE code (as applicable).</li> <li>• Unique certificate identifier.</li> <li>• The buyer's P.O. number.</li> <li>• Part number(s), and revision level(s) of all EEE items supplied under this purchase order.</li> <li>• Supplier's batch number(s), lot number(s), or date code(s) (as applicable).</li> <li>• OEM's/OCM's batch number(s), lot number(s), or date code(s) (as applicable).</li> <li>• Quantity of each EEE item supplied under this purchase order.</li> <li>• EEE item serial number(s) (as applicable).</li> <li>• If seller is a distributor, the Seller shall provide OCM/OEM documentation that authenticates traceability and chain of custody of the affected items to the applicable OCM/OEM.</li> <li>• Signature of authorized person signing the certificate.</li> </ul>
<a href="#"><b>Q32.</b></a>	<p><b>Q32.      Stand Alone EEE Parts:</b></p> <p>Unless otherwise specified, all stand-alone EEE (Electrical, Electronic, and Electromechanical) parts <b>including cables and wire</b> shall have a date of manufacture (DOM) <u>not more than</u> 4 years prior to the date of shipment to the buyer.</p> <p>Supplier shall ensure that the exposed ends of all wires and cables, with silver-plated copper conductors, are sealed or capped, and that spools are shipped in moisture barrier packaging with appropriate desiccants and humidity indicator cards.</p>

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<b>Q33.</b>	<p><b>ESD Sensitive Items:</b></p> <p>Items procured under this purchase order are ESD sensitive and/or they will be handled in an ESD protected area. The suppliers shall provide adequate protection measures against ESD damage to goods and the buyer's property. This should be in accordance with ANSI/ESD S20.20. All ESD items shall be packaged according to their classification <u>Active EEE</u> or <u>Passive EEE</u>, as follows:</p> <p><u>Active EEE Components:</u> Supplier shall ensure that all active EEE components (integrated circuits, hybrids, transistors, diodes, LED's, FET's, op-amps, etc.) are packaged in ESD-safe packaging per ANSI/ESD S541. Static-shielded bags and/or conductive boxes shall be used, but may also contain static dissipative trays, tubes, or carriers within them, as needed, to protect the parts. Pink-poly shall not be used. Supplier shall contact buyer if any questions arise about how to properly package active EEE components.</p>
<b>Q34.</b>	<p><b>Supplier-Incorporated EEE Parts:</b></p> <p>Unless otherwise specified, all supplier incorporated EEE (Electrical, Electronic, and Electromechanical) parts <b>including wire</b> shall have a Date of Manufacture (DOM) <u>not more than 7 years</u> prior to the date of incorporation into products under this purchase order.</p>
<b>Q35.</b>	<p><b>Printed Wiring Assemblies Packaging:</b></p> <p>Unless otherwise directed by substantive documentation (Source Control Drawing, Interface Control Document, product specification, etc.) supplier shall ensure that delivered printed wiring assemblies are packaged, at minimum, as follows:</p> <ul style="list-style-type: none"> <li>• PWA sealed inside static shielded bag.</li> <li>• Place the first bag inside a second shielded bag with desiccant pack.</li> </ul> <p>Note: At this stage, multiple "double-bagged" PWAs can be packed, in layers, within a static dissipative inner carton such as a "Corstat" box, separated by static dissipative black or grey foam, to protect each layer and prevent the PWAs from sliding around and/or contacting one another.</p> <ul style="list-style-type: none"> <li>• Inner carton can then be packed in a standard cardboard outer shipping carton lined with standard (clear) bubble wrap.</li> </ul>

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<b><u>Q36.</u></b>	<p><b>Q36. Printed Wiring Assemblies Deliverable Data Package:</b></p> <p>Unless otherwise directed by substantive documentation (Source Control Drawing, Interface Control Document, product specification, etc.) supplier shall ensure that delivered printed wiring assemblies are accompanied by a data package comprised of the following documents:</p> <ul style="list-style-type: none"> <li>• Material certificates for all solder, fluxes, and adhesives/polymeric.</li> <li>• Polymeric logs.</li> <li>• Production travelers.</li> <li>• Ionic contamination (Omega Meter) report.</li> <li>• For “full turnkey” assemblies, a complete “as built” parts list detailing any differences to the buyer-provided engineering bill of materials. Include part designations (Ex. J1, R5, etc.).</li> <li>• For the buyer-supplied kits, results of a kit audit. If extra parts are provided, repackage excess and mark package with the remaining quantity, and request disposition from buyer.</li> <li>• Digital photos of each side of the completed assembly (at least one per side).</li> <li>• X-Ray images of any soldered components where direct visual inspection is not possible (such as grid arrays).</li> <li>• Inspection report.</li> <li>• Failure/MRB/repair records including the buyer’s approval.</li> <li>• Deviations and waivers including the buyer’s approval.</li> </ul> <p>Record of any rework or touch-up.</p>
<b><u>Q37.</u></b>	<p><b>Q37. Specialty Metals Restrictions (DFARS):</b></p> <p>Products delivered under this purchase order shall be compliant with DFARS 252.225-7008 (specialty metals raw material) or DFARS 252.225-7009 (machined parts and other articles containing specialty metals), as applicable.</p>

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**Q38. Special Process Validation:**

A special process (Ex. Alodine, Anodizing, Chemical Cleaning, Chemical Milling, Conversion/Phosphate Coatings, Paint/Dry Film Coatings, Plating, Stripping, Surface Treatment/Passivation, Heat Treatment, Etching, etc.) is a method controlled by a required specification where a product undergoes a physical, chemical, or metallurgical transformation. Therefore, deficiencies cannot be detected until after products are in use. Conformance to the specification cannot be readily verified by normal inspection methods, and the quality of the product depends on use of specific equipment; operated in a specific manner, under controlled conditions, by trained personnel with instructions, procedures, or standards.

**Q38.**

Supplier shall periodically validate all their special processes to prove that they generate planned results.


Periodic validation is usually accomplished with the use of test coupons, verification tests, system accuracy tests, or personnel qualification tests. Suppliers, and their sub-tier suppliers, providing special processes shall have a documented process control system suitable of meeting all requirements prior to the commencement of production; including all preparatory treatments, post treatments, processing, significant surfaces, tests and all other processes and treatments. Supplier's process control schedule may be subject to the buyer's verification and approval.

**Q39. Special Process Certificate:**


Processor shall furnish a special process certificate for each special process (Ex. Alodine, Anodizing, Chemical Cleaning, Chemical Milling, Conversion/Phosphate Coatings, Paint/Dry Film Coatings, Plating, Stripping, Surface Treatment/Passivation, Heat Treatment, Etching, etc.) performed under this purchase order. At minimum, the processor's special process certificate shall contain the following information:

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- Processor's business name, address, and CAGE code (as applicable).
- Unique certificate identifier.
- The buyer's purchase order number.
- Part number(s) and revision level(s) of all parts processed under this purchase order.
- Quantity of each part processed under this purchase order.
- Processed parts' serial numbers (as applicable).
- Process specification(s) and revision level(s) adhered to.
- Final condition of processed parts (Ex. hardness, coating/plating thickness).
- Signature of authorized person signing the certificate.

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<a href="#"><u>Q40.</u></a>	<p><b>Q40. Nadcap:</b> Suppliers performing special processes (Ex. Alodine, Anodizing, Chemical Cleaning, Chemical Milling, Conversion/Phosphate Coatings, Paint/Dry Film Coatings, Plating, Stripping, Surface Treatment/Passivation, Heat Treatment, Etching, etc.), under this purchase order, must have Nadcap accreditation; specific to the type of special processing performed, in place at the time of hardware processing.</p>
<a href="#"><u>Q41.</u></a>	<p><b>Q41. Reserved:</b></p>
<a href="#"><u>Q42.</u></a>	<p><b>Q42. NDT Certificate:</b> Processor shall furnish an NDT certificate for all items nondestructively inspected and/or tested under this purchase order. At minimum, the processor's NDT certificate shall contain the following information:</p> <ul style="list-style-type: none"> <li>• Processor's business name, address, and CAGE code (as applicable).</li> <li>• Unique certificate identifier.</li> <li>• The buyer's purchase order number.</li> <li>• Part number(s) and revision level(s) of all parts processed under this purchase order.</li> <li>• Quantity of each part processed under this purchase order.</li> <li>• Processed parts' serial numbers (as applicable).</li> <li>• Process specification(s) and revision level(s) adhered to.</li> <li>• Results of inspections; indicating quantities that "pass" or "fail".</li> <li>• Signature and/or stamp of the inspector, and their NDT certification level.</li> </ul>
<a href="#"><u>Q43.</u></a>	<p><b>Q43. Special Processing Personnel Certifications:</b> All personnel performing special processes shall be trained and currently assessed as competent to perform those processes. Additionally, supplier shall ensure that personnel performing the following special processes are trained and certified as follows:</p> <ul style="list-style-type: none"> <li>• <u>NDT</u> personnel shall be certified at minimum, to Level II, in accordance with the latest revision of NAS410 (NAS Certification and Qualification of Nondestructive Test Personnel).</li> </ul> <p style="text-align: center;"><i>(This Clause Continues on Following Page)</i></p>

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- Soldering personnel shall be certified at minimum, as *operator*, in accordance with the latest revision of IPC J-STD-001 (Requirements for Soldered Electrical and Electronic Assemblies) and (Space and Military Applications Electronic Hardware Addendum to IPC J-STD-001).
- Solder Inspection personnel shall be certified at minimum, as *inspector*, in accordance with the latest revision of IPC J-STD-001 (Requirements for Soldered Electrical and Electronic Assemblies) and (Space and Military Applications Electronic Hardware Addendum to IPC J-STD-001).
- Polymeric Application and Inspection personnel shall be certified at minimum, in accordance with the latest revision of NASA-STD-8739.1 (Workmanship Standard for Polymeric Application on Electronic Assemblies).
- Wiring and Cabling personnel shall be certified at minimum, in accordance with the latest revision of NASA-STD-8739.4 (Workmanship Standard for Crimping, Interconnecting Cables, Harnesses, and Wiring).
- PWA Rework, Modification, and Repair personnel shall be certified at minimum, in accordance with IPC-7711/7721 (Rework, Modification, and Repair of Electronic Assemblies).


**Q44. Calibration Service/Test Certification:**

Processor shall furnish a calibration/test certificate for all items calibrated and/or tested under this purchase order. At minimum, the supplier's calibration/test certificate shall contain the following information:


- Processor's business name, address, and CAGE code (as applicable).
- Unique certificate identifier.
- The buyer's purchase order number.
- Part number(s) or unique identifier(s) of all parts processed under this purchase order.
- Quantity of each part processed under this purchase order (as applicable).
- Processed parts' serial numbers (as applicable).
- Calibration/test specifications adhered to; including tolerances and criteria.
- Calibrated test apparatus/instruments/standards used.
- Before and after test data, test method, and measurement uncertainty (as applicable).
- Procedures performed in accordance with ISO/IEC 17025 or equivalent (as applicable).
- Statement that standards used are traceable to NIST or equivalent.
- Results of tests and inspections; indicating quantities that "pass" or "fail".
- Signature of authorized person signing the certificate.

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<a href="#"><u>Q45.</u></a>	<p><b>Q45. 100% Inspection:</b> Supplier shall furnish an inspection report for 100% of the parts submitted. The report may be in the supplier's format, and shall include the purchase order number, part number &amp; revision level, all drawing characteristics (requirements) and the actual values recorded (results), the delivered lot/batch quantity, the identification numbers of all measuring equipment used, their calibration due dates, the date the inspection was completed, and the name &amp; signature/stamp of the person who performed the inspection.</p>
<a href="#"><u>Q46.</u></a>	<p><b>Q46. DPAS Order:</b> This is a DPAS rated order certified for national defense use. Supplier is required to follow all the provisions of the Defense Priorities and Allocations System regulation (15 CFR 700). All DPAS rated orders must be accepted or rejected as follows:</p> <ul style="list-style-type: none"> <li>a) "DO" rated orders must be accepted or rejected in writing (hardcopy), or in electronic format, within 15 working days after order receipt.</li> <li>b) "DX" rated orders must be accepted or rejected in writing (hardcopy), or in electronic format, within 10 working days after order receipt.</li> <li>c) Rejection of "DO" or "DX" rated orders must be in writing (hardcopy), or in electronic format, giving the specific reason for therejection.</li> </ul> <p>If, after acceptance of this order, supplier subsequently finds that shipment or performance will be delayed, supplier must notify the buyer immediately in writing (hardcopy), or in electronic format, give reasons for the delay, and advise of a new shipment or performance date.</p>
<a href="#"><u>Q47.</u></a>	<p><b>Q47. In-Process Source Inspection:</b> In-process source inspection is required by the buyer. Supplier shall contact buyer upon receipt of this order to determine required inspection points. Supplier shall notify the buyer at least five (5) working days prior to each intended inspection date to arrange source inspection.</p>
<a href="#"><u>Q48.</u></a>	<p><b>Q48. Final Source Inspection:</b> Final source inspection is required by the buyer; prior to shipment of product. Supplier shall notify the buyer at least five (5) working days prior to intended shipment date to arrange source inspection.</p>
<a href="#"><u>Q49.</u></a>	<p><b>Q49. Government Source Inspection:</b> This purchase order is subject to Government source inspection (GSI). Suppliers, and their sub-tier suppliers, shall grant access to, and accommodate, the Government's representative(s) in the execution of their delegated duties.</p>

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<a href="#"><u>Q50.</u></a>	<p><b>Q50. EEE Procurement Restrictions (DFARS):</b></p> <p>Supplier shall comply with requirements for counterfeit part prevention and sourcing of electronic parts found within Defense Federal Acquisition Regulation Supplement (DFARS) 252.246-7007 (Contractor Counterfeit Electronic Part Detection and Avoidance System) and DFARS 252.246-7008 (Sources of Electronic Parts).</p>
<a href="#"><u>Q51.</u></a>	<p><b>Q51. Buyer-Supplied Material:</b></p> <p>Supplier shall maintain traceability for all buyer-provided material through delivery and fabrication. Records shall summarize the identification of all elements within each assembly.</p>
<a href="#"><u>Q52.</u></a>	<p><b>Q52. Chromate Conversion:</b></p> <p>Any drawing or specification where the finish requirements specify or include MIL-C-5541 or MIL-DTL-5541, all product shall be processed in accordance with Type II requirements – compositions containing no hexavalent chromium. The Class shall be as specified in the drawing or specification.</p>
<a href="#"><u>Q53.</u></a>	<p><b>Q53. Normal Sampling Plan (100% Dimensional):</b></p> <p>Supplier shall furnish an inspection report for the applicable sample size based on the quantity delivered per ANSI/ASQ Z1.4 (latest revision). Unless otherwise specified, supplier shall use General Inspection, Level II; Single Sampling Plans for <i>Normal</i> Inspection, and 1.0% Acceptance Quality Limit (AQL). The report may be in the supplier’s format, and shall include the purchase order number, part number &amp; revision level, all drawing characteristics (requirements) and the actual values recorded (results), the delivered lot/batch quantity, the identification numbers of all measuring equipment used, their calibration due dates, the date the inspection was completed, and the name &amp; signature/stamp of the person who performed the inspection.</p>
<a href="#"><u>Q54.</u></a>	<p><b>Q54. Tightened Sampling Plan:</b></p> <p>Supplier shall furnish an inspection report for the applicable sample size based on the quantity delivered per ANSI/ASQ Z1.4 (latest revision). Unless otherwise specified, supplier shall use General Inspection, Level II; Single Sampling Plans for <i>Tightened</i> Inspection, and 1.0% Acceptance Quality Limit (AQL). The report may be in the supplier’s format, and shall include the purchase order number, part number &amp; revision level, all drawing characteristics (requirements) and the actual values recorded (results), the delivered lot/batch quantity, the identification numbers of all measuring equipment used, their calibration due dates, the date the inspection was completed, and the name &amp; signature/stamp of the person who performed the inspection.</p>

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<b><u>Q55.</u></b>	<p><b>Q55. Reduced Sampling Plan:</b></p> <p>Supplier shall furnish an inspection report for the applicable sample size based on the quantity delivered per ANSI/ASQ Z1.4 (latest revision). Unless otherwise specified, supplier shall use General Inspection, Level II; Single Sampling Plans for <i>Reduced</i> Inspection, and 1.0% Acceptance Quality Limit (AQL). The report shall include the purchase order number, part number &amp; revision level, all drawing characteristics (requirements) and the actual values recorded (results), the delivered lot/batch quantity, the identification numbers of all measuring equipment used, their calibration due dates, the date the inspection was completed, and the name &amp; signature/stamp of the person who performed the inspection.</p>
<b><u>Q56.</u></b>	<p><b>Q56. Calibration Certificate:</b></p> <p>Supplier shall furnish a certificate of calibration for all items delivered under this purchase order. At minimum, the certificate shall contain the following information:</p> <ul style="list-style-type: none"> <li>• Business name and address of entity certifying the calibration.</li> <li>• Part number or unique identifier of the calibrated item.</li> <li>• Serial number (as applicable) of the calibrated item.</li> <li>• Calibration/test specifications adhered to; including calibrated tolerances and criteria.</li> <li>• Calibrated test apparatus/instruments/standards used.</li> <li>• Procedures performed in accordance with ISO/IEC 17025 or equivalent (as applicable).</li> <li>• Statement that all standards used are traceable to NIST or equivalent.</li> <li>• Calibration validity period (Ex. 6 months, 12 months, etc.).</li> <li>• Signature of authorized person signing the certificate.</li> </ul>
<b><u>Q57.</u></b>	<p><b>Q57. Printed Wiring Boards (PWBs):</b></p> <p>In all cases, the specific drawing notes and requirements take precedence over this clause. However, general <u>minimum</u> requirements for PWBs include:</p> <ul style="list-style-type: none"> <li>• All PWBs shall be manufactured to the requirements of IPC-6012 Class 3/A for Space/Military Avionics.</li> <li>• Acceptance Criteria: IPC-A-600, Acceptability of Printed Boards, shall be used for the acceptance criteria using IPC-6011/6012 Class 3/A acceptability level.</li> <li>• Solderability Coupon: The PWB manufacturer’s solderability coupon shall be delivered to HBR with each shipment.</li> </ul> <p style="text-align: center;"><i>(This Clause Continues on Following Page)</i></p>

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- A and B Test Coupons: The principal coupons used for evaluating the quality of the finished PWB shall be the A and B coupons. At minimum, the PWB manufacturer shall plot these coupons on all artwork.
- Microsections per panel (aka x-sections or buttons) shall be prepared and delivered to HBR with each shipment:
  - (X-direction) As-Received.
  - (X-direction) Thermal Stressed.
  - (Y-direction) Thermal Stressed.
- Vias/PTHs in the Coupons: The vias/PTHs in these coupons shall be representative of the actual vias/PTHs found in the PWBs themselves.
- Ionic Contamination Testing: Prior to the application of solder mask, one board per lot shall be cleaned and tested for cleanliness using a suitable ionic contamination tester. The test result shall be documented. The ionic contamination level shall not exceed 10 micrograms per square inch (10 µg/in<sup>2</sup>).
  - A report documenting the actual contamination level shall be delivered to HBR with each shipment.
- Electrical testing: Electrical verification testing shall be conducted at the PWB facility.
  - All electrical testing shall be conducted at 250vdc minimum.
  - For continuity testing, the continuity resistance threshold (CRT) value shall be no more than 10 Ω.
  - For isolation testing, the isolation resistance threshold (IRT) value shall be no less than 100 MΩ.
  - Controlled Impedance Testing (if specified on drawing – perform as required).
- A report documenting the results of all electrical testing shall be delivered to HBR with each shipment.

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**Q58. Critical Dimension Sampling:**

Supplier shall furnish an inspection report for the applicable sample size, for identified Critical Dimensions only, based on the quantity delivered per ANSI/ASQ Z1.4 (latest revision). Unless otherwise specified, supplier shall use General Inspection, Level I; Single Sampling Plans for Normal Inspection, and 1.0% Acceptance Quality Limit (AQL). The report may be in the supplier's format, and shall include the purchase order number, part number & revision level, all drawing characteristics (requirements) and the actual values recorded (results), the delivered lot/batch quantity, the identification numbers of all measuring equipment used, their calibration due dates, the date the inspection was completed, and the name & signature/stamp of the person who performed the inspection.

Note, Critical Dimensions are identified on an HBR drawing by any of the following method:


Q58.

- A black diamond placed adjacent to the critical dimension,
- A stadium shape enveloping the critical dimension,
- All dimensions to the fourth decimal place (e.g., .XXXX)
- All Feature Framed Dimensions
- By hand drawn notation, signed and dated by an HBR Engineer, adjacent to the critical dimension

**Q59. Test Data:**

Supplier shall perform functional testing, per applicable military specification or Source Control Drawing (SCD), on 100% of the delivered lot (unless another quantity is specified in the Purchase Order), and the test report shall be furnished with the hardware. The test report may be in the supplier's format, and shall include the purchase order number, part number & revision level, all test parameters (requirements) and the actual values recorded (results), the tested lot/batch quantity, part serial numbers (if applicable), the identification numbers of all test equipment used, their calibration due dates, the date the test was completed, and the name & signature/stamp of the person who performed the test.

Q59.

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**Q60. Life-Limited Material Certificate:**


Supplier shall furnish a Life-Limited Material Certificate for all life-limited materials furnished under this purchase order. At minimum, the supplier's Life-Limited Material Certificate shall contain the following information:

- Supplier's business name, address, and CAGE code, as applicable
- Unique certificate identifier
- The buyer's P.O. number
- Part number(s), and revision level(s) of all life-limited\* items supplied under this purchase order
- Supplier's batch number(s) or lot number(s), as applicable
- OEM's/OCM's batch number(s) or lot number(s), as applicable
- Date of Manufacture (DOM) or date code(s), as applicable
- Date of expiration (DOE), as applicable
- Quantity of each life-limited item supplied under this purchase order
- Signature, and name, of authorized person signing the certificate

\*The term "life-limited" applies to delivered material such as chemicals, electrical wire, and other EEE (Electrical, Electronic, and Electromechanical) components.

**Q61. Part and Data Marked with Unique Serial Number**

The supplier shall identify each part with a serial number as specified by the drawing or PO. The supplier's control system shall ensure that each serial number is not duplicated. Inspection and test records shall also be identified by the serial number of each inspected or tested part.

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## QUALITY REQUIREMENT AMENDMENT RECORD

Revision	Date	Description
IR	11/07/16	Initial Released.
A	07/10/17	Section 3.1 Updated to add monitoring applied Section 3.3 records disposition requirements added Added Section 7.1 interaction with HBR
B	12/10/18	Complete revision to add quality clauses
C	3/1/19	Removed all references to Honeybee Robotics and replaced with "the buyer", Update the logo to add Avior's, removed references to HBR, added Avior to the Acronym list, Q51 Added
D	7/25/19	Remove Avior, Added Q53 to 55, removed Q41, update all groups except Group 2, & added Group 15
E	9/6/19	Edited verbiage of Q13 and title of Q51. Added new individual clauses: Q56 and Q57. Added new Clause Groups: 16, 17, and 18. Added Q57 to Group 15.
F	12/9/19	Added new Clause Groups: 19, 20, 21, and 22. Added new individual clauses: Q58 and Q59. Removed Q36 from Group 15.
G	3/19/20	Edited verbiage of Q45, Q53, Q54, Q55, and Q58. Edited Title and verbiage of Q59. Added Q59 to Clause Group 15.
H	1/7/21	Added Q60. Added Q60 to Group 1 & 19. Revised Q17, Q31, Q39, Q44 & Q56 to remove date and name Update Q42 to remove the word "Dated" Remove from Q31 "Statement that supplier is either the ... or franchised distributor" and update the sentence "Identification of all ... is not the OEM/OCM)." Remove from Q33 the reference to Passive EEE Components
J	6/29/21	Q22 added "For non-metallic items including but not limited to solvents ..." Q27 added "The part used to generate the FAIR must be segregated and identified as such by the supplier." Q28 & Q29 updated to add Flux type Q30, Q32 & Q34 add cables and wire to the list of EEE parts Q32 changed "not more than 5 years" to "not more than 4 years" Q53 added 100% dimensional Add Q61 Q58 updated to add additional methods for identifying critical dimensions
K	7/19/21	Updated Q27