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REVISION HISTORY

Rev	ECO Number	Description	Revision Author
D	ECO-000778	Added clauses Q13A, Q26-29	Charlene Rodarte
E	ECO-001089	Added "NOTE: PWBS that require third party microsection evaluation shall include direction on the respective line item of the PO that specifies "3 rd Party Microsection Evaluation is Required IAW IPC-60XX, Class X, Type X" To Sec 3.0	Paul Durham

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SIZE	CAGE CODE	SHEET
A	See Cover page	2

TABLE OF CONTENTS

SECTION	SHEET
1.0 SCOPE.....	5
2.0 DEFINITIONS AND RESPONSIBILITIES	5
3.0 QUALITY CLAUSES	5
Q-1 Seller Quality Systems.....	5
Q-2 Non-Conforming Material.....	5
Q-3 Configuration Management System.....	6
Q-4 Counterfeit Parts.....	6
Q-5 Traceability	7
Q-6 Records Retention 12 Years	7
Q-6A Retention 10 Years	7
Q-6B Retention 7 Years	7
Q-7 Test Data	7
Q-8 Handling, Packaging, Storage, Shipping and Delivery.....	7
Q-9 Certificate of Conformance	8
Q-9A End-Item Data Package for Printed Wiring Boards (PWBs)	8
Q-10 Electrostatic Discharge (ESD) Prevention and Packaging	9
Q-10A Electrostatic Discharge (ESD) Packaging	9
Q-11 Requirements Flow-Down.....	9
Q-12 Right of Access.....	10
Q-13 Source Inspection.....	10
Q-13A BlueHalo Source Inspection	10
Q-13B Government Source Inspection.....	11
Q-14 Supplier Corrective Action Request	11
Q-15 Calibration Program.....	11
Q-16 Notification of Facility Change	11
Q-17 Prohibited Materials- Tin.....	12
Q-17A Prohibited Material- Cadmium.....	12
Q-17B Prohibited Material- Zinc	12
Q-17C Prohibited Material- Beryllium	12
Q-18 Part Change Notification	12
Q-19 Preference for Domestic Specialty Metals	13
Q-20 Special Processes	13
Q-21 Lot Date Code Requirement - 3 Year	14
Q-22A Lot Date Code Requirement - 4 Year.....	14
Q-22B Lot Date Code Requirement - 5 Year.....	14
Q-23 Shelf Life	14
Q-24 Temperature Sensitive Material.....	14
Q-25 Foreign Object Debris/Damage	15
Q-26 Product Safety.....	16
Q-27 Moisture Sensitive Components.....	16

Q-28 Shock Sensitive Components	16
Q-29 Software	16
4.0 APPENDIX A - QUALITY NOTES	16
QNote-1 First Article Inspection – AS9102.....	16
QNote-2 Dimensional Inspection (NON-AS9102)	17
QNote- 3 Calibration certification	17

1.0 SCOPE

The scope of this document is to establish common communication for supplier quality requirements related to BlueHalo generated PO's.

2.0 DEFINITIONS AND RESPONSIBILITIES

Supplier- Seller or Manufacturer of material to be purchased.

It is the responsibility of the supplier to review the quality clauses stated on the PO and ensure compliance to the specified requirement.

Should there be any confusion or conflict between the identified clauses or other BlueHalo documentation, the supplier shall contact BlueHalo to resolve those issues **PRIOR** to acceptance of PO.

Buyer- BlueHalo Supply Chain personnel is responsible for purchasing material or products.

It is the responsibility of the Buyer to ensure flow down of quality clauses on the PO.

Quality- BlueHalo Quality Group is responsible for issuing quality clauses and/or waivers of quality clauses.

It is the responsibility of the Quality Group to review and issue appropriate quality clauses on the PO.

3.0 QUALITY CLAUSES

Q-1 Seller Quality Systems

Seller compliance and/or certification to AS9100, ISO 9001, or equivalent accreditation is preferred (example Nadcap)

BlueHalo reserves the right to verify compliance of the sellers QMS when compliance or accreditation are not available.

Sub-tier suppliers may also be surveyed or audited, as required by program, to verify compliance.

Q-2 Non-Conforming Material

Seller shall have a documented non-conforming material process compliant with ISO9001 or AS9100. A nonconformance is defined as any product or service that does not meet the

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EXPORT CONTROLLED AND PROPRIETARY.

SIZE	CAGE CODE	SHEET
A	See Cover page	5

requirements specified in the contract, drawing, procurement specification, or other approved description media.

Seller has Material Review Board (MRB) authority ONLY when approved and authorized by BlueHalo Quality in writing.

The Seller shall notify BlueHalo immediately when there is a reason to suspect that products previously supplied to BlueHalo as suspected to be nonconforming. The notification shall describe the nature of the discovered nonconformity, quantity affected, and the impact to the function of the item supplied.

Q-3 Configuration Management System

Seller shall have a configuration management system compliant with ISO9001 or AS9100. Seller is responsible for controlling and tracking changes to a procured configuration item. Changes to a configured item as specified in the purchase order/contract requires notification to BlueHalo for Class II changes and approval by BlueHalo for Class I changes. This includes change of a sub-tier supplier.

Class I: Changes affecting form, fit or function, or initial release of configuration item.

Class II: Technical changes not affecting form, fit or function of a configuration item, configuration item component, and configuration document.

Configured Item: Entity with interrelated functional and physical characteristics of a product defined in the product configuration information.

Q-4 Counterfeit Parts

Seller shall have a counterfeit parts detection and mitigation program compliant to AS5553. All parts and materials shall be procured only through original equipment manufacturers (OEMs), original component manufacturers (OCMs), or their franchised/authorized dealer or distributors. Product or material shall not be purchased from independent distributors or brokers unless approved in advanced and in writing by Quality. Seller shall employ validation methods which assure parts and materials provided are not counterfeit. Seller shall flow this requirement down to all sub-tier suppliers to prevent the purchase, procurement and inadvertent use of counterfeit parts and materials.

Seller shall be responsible for any cost incurred for counterfeit product or material delivered to BlueHalo.

Q-5 Traceability

Seller shall establish a system for documented traceability and control of all raw materials, parts, and assemblies from receipt through manufacturing, test, verification, and delivery unless otherwise specified in the source control drawing or purchase order/contract.

All deliverables shall include date code/lot code/serial number, where applicable, on delivery documentation.

Q-6 Records Retention 12 Years

Records shall be maintained in accordance with ISO9001 or AS9100. They shall be retained for a minimum of 12 years unless otherwise specified in the contract. Records held for the required retention period should not be destroyed without the written concurrence of BlueHalo.

Q-6A Retention 10 Years

Records shall be maintained in accordance with ISO9001 or AS9100. They shall be retained for a minimum of 10 years unless otherwise specified in the contract. Records held for the required retention period should not be destroyed without the written concurrence of BlueHalo.

Q-6B Retention 7 Years

Records shall be maintained in accordance with ISO9001 or AS9100. They shall be retained for a minimum of 7 years unless otherwise specified in the contract. Records held for the required retention period should not be destroyed without the written concurrence of BlueHalo.

Q-7 Test Data

Unless otherwise specified in the source control drawing or purchase order/contract, 100% electrical test data shall be included in the end-item data package.

Q-8 Handling, Packaging, Storage, Shipping and Delivery

Seller shall provide packaging which maintains the quality and integrity of the product or configured item through delivery. The packaging should be designed, tested, and approved to prevent damage and/or deterioration while in transit or long-term storage.

Appropriate labeling shall be securely attached to the package when special handling is required to preserve the integrity of the product.

Labeling shall ensure adequate identification and instructions to prevent loss in transit. Seller shall ensure proper and on-time delivery without damage to the product. Material damaged due to inadequate packaging will be rejected and returned to Seller.

Q-9 Certificate of Conformance

Unless otherwise specified in the source control drawing or purchase order/contract, Seller shall provide shipping documents which identify the following:

- a) BlueHalo Purchase Order/Contract Number
- b) BlueHalo Part Number
- c) Revision
- d) Description
- e) Quantity Ordered
- f) Quantity Shipped
- g) Lot Date Code
- h) Serialization
- i) Handling Instructions
- j) Manufacturer's Name and Address or Commercial and Government Entity (CAGE) Code
- k) Signature and Date by Appropriate Representative of Seller
- l) Applicable Results and Inspection Records and/or References

Q-9A End-Item Data Package for Printed Wiring Boards (PWBs)

Unless otherwise specified in the source control drawing or purchase order/contract, Seller shall provide shipping documents which identify the following:

- a) Certificate of Compliance (C of C) (as defined in Q-9)
- b) Build Data (i.e., traveler, Record of Assembly)
- c) Material Certifications
- d) Test Data
- e) Micro-Section Report

NOTE: PWBs that require third party microsection evaluation shall include direction on the respective line item of the PO that specifies "3rd Party Microsection Evaluation is Required IAW IPC-60XX, Class X, Type X".

- f) First Article Inspection Report
- g) Destructive Physical Analysis Test Report Group A
- h) Cleanliness Test Report
- i) In-Process Hole Size Check Report
- j) Electrical Test Report
- k) Test coupons or board coupons

Q-10 Electrostatic Discharge (ESD) Prevention and Packaging

Seller shall have and maintain an ESD Control Program in accordance with ANSI/ESDS20 20. Product must be packaged in conductive or static-dissipative packaging.

The package must be labeled indicating the content is electrostatic sensitive material.

Q-10A Electrostatic Discharge (ESD) Packaging

Seller shall have and maintain an ESD Control Program in accordance with ANSI/ESD. Product must be packaged in conductive or static-dissipative packaging.

The package must be labeled indicating the content is electrostatic sensitive material.

Pink poly is NOT allowed for ESD packaging. These bags are made from a tinted polyethylene material with an antistatic coating that can wear away. This turns the bag insulative over time, making it noncompliant to ANSI/ESD recommendations.

Q-11 Requirements Flow-Down

Seller is responsible for the quality of all sub-tier products.

Seller is responsible for compliance to all stated Quality Clauses and PO Notes.

Seller shall have a process for identifying and reviewing all BlueHalo technical requirements, including the purchase order/contract, all related purchasing specifications and drawings, and all associated subordinate documents.

This includes approved sources for raw materials, processes, and requirements for delivery. Seller shall flow down all applicable PO/Contract requirements including, but not limited to Terms and Conditions, Federal Acquisition Regulations (FAR), Defense Federal Acquisition Regulations Supplements (DFARs) and Quality Clauses to sub-tier suppliers performing work involved with this PO/Contract.

Q-12 Right of Access

Product or services manufactured under this purchase order/contract are subject to Government, Customer or BlueHalo surveillance of the applicable areas of the facilities and to applicable documented information, at any level of the supply chain. Seller will be notified, in advance, if surveillance is to occur.

Q-13 Source Inspection

Quality reserves the right to conduct routine audits of the work to monitor progress, conformance to design, quality, and testing. Work under a purchase order/contract is subject to BlueHalo surveillance/inspection at Seller's premises or a sub-tier Seller's facility. Seller and/or sub-tier supplier will be notified three (3) days in advance if a surveillance/inspection is to be conducted.

Q-13A BlueHalo Source Inspection

Source inspection shall be conducted by BlueHalo, or BlueHalo representative, at Seller's facility or where designated in the purchase order/contract. A minimum of five (5) working days in advance of the time the articles or materials are ready for inspection or test is required when applicable. Seller shall make available all applicable drawings, specifications, procedures, statements of work, purchase orders/contracts, test software, changes thereto, related inspection and/or test equipment, and such other information as may be required to satisfactorily perform the inspections and tests required under the purchase order/contract.

Q-13B BlueHalo Source Inspection Alternative

Prior to shipment, and in lieu of inspections and/or tests witnessed by a BlueHalo product assurance representative, test data sheets and/or photos may be submitted to BlueHalo QE for review and approval.

Each shipment must be accompanied by legible copies of evidence of Seller's in process and final product verification. Actual measurement, and/or photos, and/or test data may be included.

In addition, if required and listed in the Purchase Order, each deliverable device may consist of any of the following or combination listed: (i.e. required A,D G and I)

- A. Attributes data for all screening tests.
- B. Variable data for all burn-in and operations life tests.
- C. Final electrical parameter test data.
- D. Data specified in the referenced drawing/specification.
- E. Objective evidence of current acceptable testing.

F. Each deliverable device shall be supplied with the following:

1. Data necessary to prove compliance to all electrical performance and group a testing requirement of the specification
2. Summary report of all screening tests performed and testing (as applicable) including dated indication of completion and compliance.

G. Furnish test measurement data (actual readings) covering the functional parameters of the reference drawing and/or specification.

H. Furnish complete dimensional measurement data (actual readings) covering the mechanical parameters of the referenced drawing and/or specification.

I. End item data package and/or as built documentation and traceability.

Q-13B Government Source Inspection

If stated in the PO/Contract source and/or Process inspection shall be required prior to shipment from the sellers' facility.

Q-14 Supplier Corrective Action Request

When a quality problem arises or exists, Quality may forward Seller a Supplier Corrective Action Request (SCAR). Upon notification of the nonconformance seller shall confirm receipt of SCAR and take immediate containment action. The response should be formulated and delivered in a timely manner and in accordance with the instruction furnished by Quality. Failure to respond in a timely manner may result in the removal of the Seller from the Approved Supplier List. Upon notification of the nonconformance, shipments may be suspended until containment processes are performed.

Q-15 Calibration Program

Seller shall maintain a calibration program in accordance with ISO 17025 or ANSI/NCSL Z540 and traceable to the National Institute of Standards and Technology (NIST).. Test and measurement equipment shall be certified to ISO/IEC 17025 and shall be evaluated for suitability to accurately test to stated specifications of BlueHalo. Test setups shall have documented traceability of their accuracy and repeatability against a known standard and a statement of such added to the C of C.

Q-16 Notification of Facility Change

Relocation of production, manufacturing, and/or processing facilities which differ from previously-agreed-to, or approved locations require prior written approval of BlueHalo.

Q-17 Prohibited Materials- Tin

The Supplier shall certify in a provided report or on the C of C that the supplied product does not contain any of the following materials:

- Pure tin and tin alloy coatings and finishes greater than 97% weight tin.

Q-17A Prohibited Material- Cadmium

The Supplier shall certify in a provided report or on the C of C that the supplied product does not contain any of the following materials:

- Pure cadmium and cadmium alloy coatings and finishes greater than 1% weight cadmium.

Q-17B Prohibited Material- Zinc

The Supplier shall certify in a provided report or on the C of C that the supplied product does not contain any of the following materials:

- Pure zinc and zinc alloy coatings and finishes greater than 1% weight zinc.

Q-17C Prohibited Material- Beryllium

Beryllium component blanks shall be subjected to a radiographic inspection per ASTM E 1742 prior to initiating component fabrication. Documentation of this inspection shall be provided.

Material certification shall be obtained from the beryllium supplier. Certification shall include composition, yield and ultimate strength, and precision elastic limit for all parts delivered to BlueHalo.

Q-18 Part Change Notification

Seller shall provide written notification to BlueHalo, prior the manufacturing of changes to the part number, process, or material specified on the purchase order/contract and indicate the classification of the change. This includes supplier owned design items where the design is created from BlueHalo's specifications. Seller is responsible to communicate this to all sub-tier suppliers.

Major Change: May affect the form, fit, or function of the product or adversely affect the quality or reliability of the product.

Minor Change: Does not affect the form, fit, or function, quality or reliability of the product.

Product that changed after approval of the purchase order/contract may not be shipped without written approval from BlueHalo.

The change notification shall contain the information below and Seller shall request written authorization from BlueHalo prior to delivery.

1. Manufacturer Part Number
2. BlueHalo Part Number
3. Reason for Change
4. Impact of Change
5. Quality Concerns
6. Reliability Concerns
7. Affected Documents

Q-19 Preference for Domestic Specialty Metals

Material shall be of domestic origin or from one of the qualifying countries in accordance with DFAR 252.225- 7014. Seller shall provide evidence of compliance, including flow down to all sub-tier suppliers, with all shipments.

Q-20 Special Processes

Special Processes are those outputs that cannot be measured 100% to ensure they meet requirements.

Special processes shall meet the requirements listed in the purchase order/contract and associated documents. The Seller shall have documented procedures (under configuration control) with acceptance criteria and arrangements for how the seller will validate and approve these processes.

BlueHalo considers the following special processes:

- Welding (automatic and manual)
- Heat treatments (brazing, carburizing, nitriding, etc.)
- Electronics (conformal coating, PCB manufacture, PCB assembly, cable and harness assemblies)
- Bonding (gluing)
- Surface treatments (electroplating, anodizing, chemical conversions coatings, passivation, painting, etc.)

- Manual and wave soldering of printed circuit boards
- Material Testing and Inspection (thermal testing, mechanical testing, corrosion testing, hardness testing, etc.)
- Non-destructive Testing (x-ray, magnetic particle, ultra-sonic, dye penetrant, etc.)

Q-21 Lot Date Code Requirement - 3 Year

All deliverable product furnished under this Purchase Order shall have a lot/date code no older than three (3) years prior to receipt of the shipment by BlueHalo. A certificate of origin attesting to lot/date code on supplier's letterhead is required, including part number, lot number, and signature of supplier's authorized representative.

Q-22A Lot Date Code Requirement - 4 Year

All deliverable product furnished under this Purchase Order shall have a lot/date code no older than four (4) years prior to receipt of the shipment by BlueHalo. A certificate of origin attesting to lot/date code on supplier's letterhead is required, including part number, lot number, and signature of supplier's authorized representative.

Q-22B Lot Date Code Requirement - 5 Year

All deliverable product furnished under this Purchase Order shall have a lot/date code no older than five (5) years prior to receipt of the shipment by BlueHalo. A certificate of origin attesting to lot/date code on supplier's letterhead is required, including part number, lot number, and signature of supplier's authorized representative.

Q-23 Shelf Life

All products and materials shipped to BlueHalo requiring shelf-life monitoring must be delivered with no less than 80% of the full shelf-life as determined by the original manufacturer unless previously approved in writing by BlueHalo. The expiration date must be clearly visible on the packaging label and accompanying documentation.

Q-24 Temperature Sensitive Material

In addition to the normal identification requirements of name, type, size, lot/date code, and quantity identification, seller shall identify each shipment of temperature sensitive material with the manufacture date, storage temperature, recommended shelf life, and special handling conditions.

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SIZE	CAGE CODE	SHEET
A	See Cover page	14

Q-25 Foreign Object Debris/Damage

Seller shall implement a foreign object debris/damage program compliant to IPS-WP-116A. Seller shall employ validation methods which assure parts and materials provided are not contaminated with FOD. Seller shall flow this requirement down to all sub-tier suppliers to prevent contaminated materials from being used.

Q-26 Product Safety

Seller must maintain the state of the product so that it is able to perform to its designed or intended purpose without causing unacceptable risk of harm to a person or damage to property.

Seller is responsible for ensuring all personnel under its employ are aware of their role in product and service conformity as it relates to safety. Seller shall comply with all federal, state, and local laws and regulations pertaining to health and safety.

Q-27 Moisture Sensitive Components

For all Moisture sensitive components, the Seller shall properly handle, package, and identify, as required in accordance with IPC/JEDEC J-STD-033 Handling, Packing, Shipping, and use of Moisture/Reflow Sensitive Surface Mount Devices. Components shall be dry packed with the following: Moisture Barrier bag, Desiccant (including gel), Humidity Indicator, Identification label and Caution label.

Q-28 Shock Sensitive Components

Shock sensitive material shall be packaged to protect it from damage and shall be prominently marked, "Handle with care – contents are shock sensitive." (Shock monitoring shall be specified if required).

Q-29 Software

The Seller shall provide and maintain a system for the control of software used in the qualification/acceptance testing of deliverable hardware, software, and firmware to be furnished on this procurement. Seller shall maintain procedures and test records on items delivered to BlueHalo including test software, and these records shall be available for BlueHalo review for no less than 7 years.

4.0 APPENDIX A - QUALITY NOTES

QNote-1 First Article Inspection – AS9102

The seller shall perform a First Article Inspection (FAI) in accordance with AS9102 latest revision. The FAI must be performed when one of the following conditions exist:

- First time build
- Revision changes affecting form, fit, or function.
- Process change used to manufacture the item.
- Change in manufacturing location.

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SIZE	CAGE CODE	SHEET
A	See Cover page	16

- 2 years or longer have passed since the last build.
- Requested by BlueHalo.

All FAIs performed by the seller shall be accompanied by a First Article Inspection Report (FAIR).

QNote-2 Dimensional Inspection (NON-AS9102)

Seller shall perform a dimensional inspection and provide objective evidence with each shipment that all goods furnished under this purchase order/contract were dimensionally inspected for conformance with drawing, specifications, statement of work, and other purchase order/contract requirements. Objective evidence shall consist of records of actual readings taken during the inspection of each part, with the dimension and its tolerance noted.

QNote- 3 Calibration certification

Seller shall provide a certification of calibration along with any documentation asserting to the correct calibration of said equipment.

The sub-contracting or transferring of any activities covered by this PO/Contract to another facility/location or sub-contractor shall be approved by BlueHalo.

The calibration sticker shall be attached to the face of any stackable equipment but cannot obstruct functionality and visibility. The calibration sticker must indicate, at minimum, the next calibration due date at a frequency agreed upon with BlueHalo.

The calibration certificate may contain the following:

- Identification of the Calibration Lab.
- Title – the certificate name.
- Date of the calibration.
- Customer details.
- Unique Identifier/ certificate number.
- The calibrated instrument details.
- Environmental conditions where the calibration took place.
- Calibration date.
- Identification of the calibration method used.
- Traceability evidence.
- Calibration results with units of measurement, where appropriate.

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SIZE	CAGE CODE	SHEET
A	See Cover page	17

- Name, title, and signature of the person performing / authorizing the calibration.
- Accuracy statement.

**Refer to Document Restrictions on Cover Page
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SIZE

CAGE CODE

SHEET

A

See Cover page

18