

Procurement Quality Requirements (Q Clauses)

H-1999Q

Q-CLAUSE REVISION RECORD

Date	Revision Description
10/17/12	<p>Q-1 A: Clarification for distributors regarding relocation of facilities</p> <p>Q-1 J: Removal of Bright Tin Finish Prohibition</p> <p>Q-18: Added reference to JESD 625 Standard</p> <p>Q-53: Updates/clarifications to PWB section</p>
03/19/13	<p>Q-1 K: Updates for Counterfeit Parts Prevention</p> <p>Q-3: Updates for Counterfeit Parts Prevention with Buyer approval required</p> <p>Q-4: Updates for Counterfeit Parts Prevention with cost liability</p> <p>Q-9: Added Counterfeit Parts Prevention – Level A Class 3</p> <p>Q-23: Clarification on items to reference</p> <p>Q-24 B: Added bullet for requesting more info</p> <p>Q-54: Clarification for Electronic Component Packing</p> <p>Q-56: Clarified standard vs. metric regulations</p> <p>Q-59 – Q63: Deleted and moved to definitions</p> <p>Q--74: Deleted</p>
06/05/13	<p>Q-1 E: Measuring and Test Equipment: Sentence added for requirement clarification.</p> <p>Q-1 K: Revised to align with DFAR requirement.</p> <p>Q-3: Revised per flow down from customer contracts. Customer approval is required; not just Harris.</p> <p>Q-4: Revised per flow down from customer contracts. Customer approval is required; not just Harris.</p> <p>Q-10: Removed obsolete standards and added current applicable standards. Removal of the 3-year date code requirement. Date code requirement to be added in a new clause regarding solderable parts requiring 3-year date code restriction. This change requires ALL parts to be solderable; not just within a 3 year date code.</p> <p>Q-11: New clause to add solderability requirements with date code restriction. Also addresses required SDR process to suppliers if the date code requirement cannot be met. Sentence added to note Q-11 will take precedence over Q-10, as applicable.</p> <p>Q-31: New clause added to address NAS-412 FOD flow down requirements.</p> <p>Q-43: Removal of 'or Manufacturer's Part Number', as the Buyers part number is required on container marking.</p> <p>Q-57: Added sentence for clarification.</p> <p>Q-64: Added requirement for programs that have this requirement.</p> <p>Q-77: Removed. Marking must be on drawing.</p>
08/20/13	<p>Q-78: Added new requirement to address Harris interdivisional work.</p>
01/20/14	<p>Q-79: Added new requirement to assist Property Management in being notified of incoming assets that require tagging.</p>
03/17/14	<p>Q-25: Added new Q-clause for Temperature Sensitive Material</p> <p>Q-54: Clarifications on Electronic Component Packaging</p> <p>Q-59: Added new requirement to Tape and Reel only Electronic components</p>

Q-CLAUSE REVISION RECORD

Date	Revision Description
	Q-75: Clarifications on Electronic Data Delivery Requirements Q-76: Clarifications on First Article Inspection Requirements
04/16/14	Q-59: Combined into Q-54 and added clarifications. Q-66: Added new requirement for high reliability space NASA connectors procurement
06/25/14	Q-80: Added new Q-clause for internal use of H-3311 on items that may need calibration.
09/23/14	General: Added title page and Table of Contents for easy reference Q-1B: Added clarification that all Standards/Specifications and flow downs shall be to the latest revision unless otherwise stated on the Purchase Order. Q-57: Expanded guidance to remove "No Cadmium allowed." and add: Cadmium or zinc in the construction and surface finish of space hardware (cadmium alloys or zinc alloys (e.g. brass); Pure, unalloyed cadmium or alloys containing 5 percent by weight or greater cadmium not completely over-plated by an approved material. Pure, unalloyed zinc or alloys containing 10 percent by weight or greater zinc not completely over-plated by an approved material. Q-64: Updated the format of the C of C requirements; added an exclusion for consumable commodities; only require a C of A from a sub tier supplier for product received from a main supplier. Q-75: Updated for clarification
11/05/14	Q-17: New Q-Clause to provide traceability for 3D type printed parts. Q-54: Update requirements for the use of Waffle or gel packs
02/25/15	Q-58: Revised to clarify this is not applicable to RoHS compliant material. Q-64: Revised title to clarify difference of Q-64 versus new Q-81. Q-75: Updated for clarification. Q-81: Added new Q-clause to capture OEM C of C requirements minus the FSCM/CAGE Code requirement.
04/13/15	Q-57: Clarified use of silicone on components internally as long as the product is hermetic in order to not introduce contamination.
09/23/15	Q-10 Removed references to J-STD-002 and Buyer requesting solderability. The product specification or OEM documentation defines solder specification that might not meet J-STD-002. Q-46 updated to be consistent with other command media on determining shelf life (130432). Q-54 PEM packaging references withdrawn/obsolete specifications.
11/17/15	Q-1: Updated shelf life to align with Q-46. Q-29: Clarified requirement for certification requested. Q-54: Clarified electronic component packaging requirements. Q-76: Clarified FAI submittal requirements.
01/18/16	Q-76: Clarified FAI submittal requirements.
03/01/16	Q-1: Correction to include paragraphs A through P.
05/09/16	Q-1: Updated part substitution guidance.. Q-29: Updated control of processes guidance.

Q-CLAUSE REVISION RECORD

Date	Revision Description
	Q-66: Updated title "High Reliability Space NASA NB, NBS, and NLS Connector Procurement" Q-69: Updated guidance Procurment Of Connectors (Hi-Rel Space) Q-82: Updated guidance Procurement Of Wire And Cable (Age Requirements) Q-83: Updated guidance Anti-Tamper Process Requirements
05/26/16	Q-1K: Modified to address escapes of suppliers providing refurbished material. Q-84: New clause to add record retention requirements.
06/21/16	Q-85: New clause for hardware not being packaged individually or in separate packing material to reduce damage during shipment and packaging.
07/11/16	Q-71: Corrected typo in reference to IPC/WHMA-A-620; removed obsolete references.
08/15/16	Q-29: Control of Special Processes updated. Q-86: Added Control of Special Processes: NADCAP Required.
09/15/16	Q-29: Clarification to when accreditation is not required; expanded applicability to Seller's sub-tiers. Q-86: Clarification to when accreditation is not required; expanded applicability to Seller's sub-tiers.
03/22/17	Added new harmonized Q-clause listing and Cross Reference Martix listing QC1 thru QC-1980 and Cross Reference Martix
05/04/17	Para 3.0 revise to include interdivisional transfers Q-53, QC-700: Clarification that all solder samples are marked and shipped separately from the deliverable product
06/21/17	Q-57, QC-1810: clarified the guidance in Q-57 prohibited materials. QC-50: clarify clause is per po line item not the entire po QC-60: clarify title of clause
06/29/17	QC-1: additions for compliance to AS9100 Rev D QC-990-J: update the category to the current industry standard

Note to Suppliers: Refer to [H-1999Q-2](#), Procurement Quality Clause Cross-Reference Matrix (Legacy Q-Clauses), to cross-reference legacy Q clauses on the Harris Existing Suppliers website.

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Procurement Quality Requirements (Q Clauses)

Special Note to Suppliers:

This revision contains a significant update that adds the new harmonized Quality Clauses from all Harris businesses Units. Legacy Quality Clauses (Q-1 through Q-86) will be maintained in this revision as a reference only for Suppliers and internal users.

Refer to [H-1999Q-2](#), Procurement Quality Clause Cross-Reference Matrix (Legacy Q-Clauses), to cross-reference legacy Q clauses on the Harris Existing Suppliers page on the Harris website www.harris.com.

1.0 PURPOSE

This document establishes the Quality Assurance requirements (Q Clauses) which are applicable as specified on the Purchase Order.

2.0 DEFINITIONS

2.1 Buyer

Harris Corporation.

2.2 Seller

The Legal entity which is the contracting party with Buyer with respect to the Purchase Order.

2.3 Item

Products or services contracted for by the Purchase Order.

2.4 HCOTS

Internal quality clause to Buyer and is not applicable to the Seller.

2.5 HXRF

Internal quality clause to Buyer and is not applicable to the Seller.

2.6 Customer Furnished Equipment/Material (CFE/CFM)

Customer-furnished equipment/material acquired by the Customer and delivered or otherwise made available to the contractor as part of a contractual requirement.

2.7 Government Furnished Property (GFP)

“Government-furnished property” means property in the possession of, or directly acquired by, the Government and subsequently furnished to the Contractor for performance of a contract. Government-furnished property includes, but is not limited to, spares and property furnished for repair, maintenance, overhaul, or modification. Government-furnished property also includes contractor-acquired property if the contractor-acquired property is a deliverable under a cost contract when accepted by the Government for continued use under the contract. (FAR 52.245-1)

2.8 Other Plant Equipment (OPE)

Equipment means a tangible item that is functionally complete for its intended purpose, durable, nonexpendable, and needed for the performance of a contract. Equipment is not intended for sale, and does not ordinarily lose its identity or become a component part of another article when put into use. Equipment does not include material, real property, special test equipment or special tooling. (FAR 52.245-1)

2.9 Special Test Equipment (STE)

“Special test equipment” means either single or multipurpose integrated test units engineered, designed, fabricated, or modified to accomplish special purpose testing in performing a contract. It consists of items or assemblies of equipment including foundations and similar improvements necessary for installing special test equipment, and standard or general purpose items or components that are interconnected and interdependent so as to become a new functional entity for special testing purposes. Special test equipment does not include material, special tooling, real property, and equipment items used for general purposes or property that with relatively minor expense can be made suitable for general purpose use. (FAR 2.101)

2.10 Special Tooling (ST)

“Special tooling” means jigs, dies, fixtures, molds, patterns, taps, gauges, and all components of these items including foundations and similar improvements necessary for installing special tooling, and which are of such a specialized nature that without substantial modification or alteration their use is limited to the development or production of particular supplies or parts thereof or to the performance of particular services. Special tooling does not include material, special test equipment, real property, equipment, machine tools, or similar capital items. (FAR 2.101)

3.0 QUALITY ASSURANCE REQUIREMENTS

The following Q Clauses are a requirement of the procurement when specified by number and letter designation paragraph (Q-1-Q-XX or QC-1-QC-XXXX), as applicable on the Purchase Order. The general Quality Assurance requirements, Q-1 or QC-1, apply to all procurements including Buyer Interdivisional procurements.

Requests shall be submitted to the Buyer on a Supplier Support Request (SSR) through the EXPO Portal.

Additional Purchase Document Clauses/Notes

Additional Program or Specification clauses or notes form a part of an order as defined in the Purchase Order.

4.0 Q CLAUSES

Q-1 GENERAL QUALITY ASSURANCE REQUIREMENTS

Includes paragraphs A through P below

A. PROHIBITED PRACTICES

Unauthorized Repairs/Rework

No repair or rework shall be allowed outside of the specific specification limits, (i.e., welding, reheat-treat, insert removal, re-installation, etc.) unless prior approval is obtained by the Seller from the Buyer utilizing the Supplier Support Request (SSR) – Deviation. . All deviations shall be submitted for approval by the Buyer. Submission of deviation in no way affects any contractual requirements until an approved disposition is issued by the Buyer. The approved deviation shall be included with the part/documentation package when delivered to Buyer.

Change in Approved Drawings, Processes, Materials or Procedures

Seller shall not change any drawing, process, material, or procedure without prior written Buyer approval, if such drawing, process, material, or procedures were originally approved by Buyer. Approval requests shall be submitted to the Buyer on a Supplier Support Request (SSR) through the EXPO Portal. This requirement is not relevant for Commercial and/or Military Part Numbers.

Seller shall not change any process, material, or procedure from that used to qualify items or which was used by Seller to become a qualified source without written approval by Buyer. Approval requests shall be submitted to the Buyer on a Supplier Support Request (SSR) through the EXPO Portal.

Re-submittal of Rejected Items

Items rejected by Buyer, and subsequently resubmitted to Buyer, shall be clearly identified on Seller's shipping document as resubmitted items. New lot control identification numbers are to be provided, if required by the Buyer.

Unauthorized Submittal of Production

When the Purchase Order requires Buyer acceptance of a "first article," Seller shall not submit items from a production run for Buyer inspection prior to Buyer's acceptance of such "first article."

Part Substitution

Part substitution shall not be allowed; the exact part number as identified on the Purchase Order, or the exact part number identified in the purchase item drawing shall be provided. For Distributors only, if the ordered part is not available, and the Distributor has a replacement part, the Distributor shall submit a Supplier Support Request (SSR) through the EXPO Portal for technical evaluation and approval prior to delivery of the replacement part.

Notification of Facility Change

For OEM/OCM:

Seller shall not use or relocate any production, manufacturing, and/or processing facilities during performance of the work specified on the Purchase Order from those production, manufacturing, or process facilities previously qualified by Buyer without promptly notifying Buyer and affording Buyer an opportunity to examine such facilities for compliance with Quality Assurance requirements. Seller shall notify Buyer of changes by submitting Supplier Support Request (SSR) through the EXPO Portal.

For Distributors:

Seller shall not use or relocate any distribution or value-add facilities during performance of the work specified on the Purchase Order from Seller facilities previously qualified by Buyer without promptly notifying Buyer and affording Buyer an opportunity to examine such facilities for compliance with Quality Assurance requirements. When notified by the OEM/OCM of changes (as detailed in OEM/OCM section), the Seller shall notify the Buyer. Value added services provided by the Seller are subject to the notification as detailed in OEM/OCM section. Seller shall notify Buyer of changes by submitting Supplier Support Request (SSR) through the EXPO Portal.

B. SELLER RESPONSIBILITY FOR CONFORMANCE

The Seller named on the purchase order retains full responsibility for ensuring products, suppliers, or services furnished here under; comply with all applicable specification and standard requirements for design, construction, and workmanship. All Industry Standards/Specifications and flow downs shall be to the latest revision unless otherwise stated on the Buyer Purchase Order.

Acceptance of the Purchase Order and receipt of product at Buyers location certifies that items processed on this order meet all the requirements imposed.

This includes any/all suppliers or services purchased from a secondary (sub-tier) supplier that are incorporated into or are used to produce, inspect, or test products or services under this Purchase Order.

The Seller shall:

- Provide (flow-down) of applicable specification and standards requirements to sub-tier suppliers.
- Ensure, by performing physical and/or functional inspections that sub-tier suppliers have complied with the requirements of this Purchase Order.
- Upon request, Seller shall provide objective evidence to Buyer Quality personnel of compliance to this provision.

Neither surveillance, inspection, and/or tests made by Buyer, or their representatives, or representatives of the Buyer's Customer at either Seller's or Buyer's facility, nor Seller's compliance with all applicable Quality Assurance requirements, shall relieve Seller of the responsibility to furnish items which conform to the requirements of the Purchase Order.

Seller shall control sub-tier procurements to the extent required to assure quality requirements specified in Buyer Purchase Orders are satisfied.

C. BUYER SURVEYS, SURVEILLANCE, AUDITS, AND INSPECTION

Buyer, Buyer's Customer, and Authorities have the right to conduct surveys, audits, and surveillance of Seller's facilities, or those of Seller's subcontractors, or suppliers with prior coordination with Seller to determine the capability to comply and to verify continuing compliance with the requirements of the Purchase Order.

Buyer, Buyer's Customer, and Authorities have the right to perform inspection at Seller's facilities, or those of Seller's subcontractors, or suppliers with prior coordination with Seller during the period of manufacture and inspection prior to shipment.

Final inspection is the Seller's responsibility to complete prior to shipment for validation of contractual requirements. Final acceptance Inspection shall be completed at the Buyers facility, unless otherwise specified on the Purchase Order.

D. CORRECTIVE ACTION REQUESTS

When a quality problem exists with Seller's items, Buyer may forward a Corrective Action Request to Seller. Corrective Action Requests require timely responses and must use the specified Buyer's electronic SCAR portal which includes:

- The short term containment of suspect parts (if applicable);
- Analysis of the cause of the problem;
- Statement of the action taken to prevent recurrence;

- The effectivity of the action.

When corrective action is required for Government Source Inspected items, Seller shall coordinate such action with the Government Quality Assurance Representative assigned to Seller's facility.

E. MEASURING AND TEST EQUIPMENT

Seller shall be responsible for validating the accuracy and stability of tools, gages, and test equipment used to demonstrate that items conform to the Purchase Order. Traceability of calibration equipment and gages shall be to the National Institute of Standards and Technology (NIST) which is in conformance with ANSI/NCSL-Z-540-1 or ISO 10012:2003 unless stated otherwise in the Purchase Order.

Documented schedules shall be maintained to provide for periodic calibration to adequate standards. Objective evidence of calibrations shall be recorded and made available for Buyer review.

If the SOW, specification, or other contractual flow down documents/requirements specify a higher or alternate calibration requirement, it takes precedence over the specification above.

If seller is performing a process or a test where the use of calibrated equipment is not utilized, this clause does not apply.

F. NONCONFORMING MATERIAL

Decisions to accept nonconformances (variances from Buyer drawings and specifications) detected at Seller's facilities must be made by Buyer, unless otherwise specified by the Purchase Order. Shipment of nonconforming items must be accompanied by a Buyer-Approved Supplier Discrepancy Report. The Supplier Discrepancy Report must be dispositioned by the Quality Engineer prior to shipment.

Seller shall provide for control, segregation, and identification of non-conforming material detected at Seller's facilities.

Seller does not have MRB authority without express written authorization of the Buyer. Seller must request MRB authority by submitting MRB board members' resumes and positions currently held.

G. INSPECTION RECORDS

Seller shall maintain records of all inspections and tests performed on items delivered to Buyer. These records shall identify nonconformances and shall be made available for Buyer, Buyer's customer and regulatory review. Period of retention is 3 years from close of order, unless otherwise specified on the Purchase Order.

H. DELETED 03/11/10

I. PACKAGING

Boxes or containers, as applicable, should be selected to the extent necessary to provide protection from physical and environmental damage during shipping and handling. Cushioning materials shall be applied, as required, to protect and to restrict movement of the item(s). Electrical components shall be kept from direct contact with cardboard and other paper products. Electrostatic Discharge sensitive component shall be package per the requirement of Q Clause #18. Perishable items or those with limited shelf life must be handled/preserved in accordance with recommendations of the manufacturer.

J. DELETED 10/10/12

K. COUNTERFEIT PARTS PREVENTION

At a minimum, Seller shall have a counterfeit parts prevention plan that incorporates the following:

1. Assesses potential sources of supply to determine risk of receiving counterfeit parts.
2. Maintains a register of approved suppliers, including the scope of the approval, to minimize the risk of counterfeit parts supply.
3. A documented process to specify contract/purchase order quality requirements to minimize the risk of being provided counterfeit parts.

4. A documented process to assure detection of counterfeit parts prior to formal product acceptance. The rigor of the verification process shall be commensurate with product risk.
5. A documented process to assure that all occurrences of counterfeit parts are reported, as appropriate, to internal organizations, customers, government reporting organizations (e.g., GIDEP), industry supported reporting programs (e.g., ERAI), and criminal investigative authorities.

The Seller, and its' sub-tier suppliers, shall ensure that only new items (EEE parts, components, equipment, hardware, or materials) are used in products required to be delivered to the Buyer. To further prevent the inadvertent use of counterfeit parts, the Seller may only purchase components and parts procured directly from the Original Component Manufacturer (OCMs), the Original Equipment Manufacturers (OEMs), or through the OCM/OEM's authorized distribution chain.

The Seller, and its sub-tier suppliers, shall not provide refurbished or used items (EEE parts, components, equipment, hardware, or materials) unless first approved in writing by the Buyer through the request and approval of an electronic Supplier Support Request (SSR) – Deviation. The Seller, and its sub-tier suppliers, shall not provide items through a non-franchised distributor unless first approved in writing by the Harris Buyer through the request and approval of an electronic SSR-Deviation.

No alterations of requirements are permitted until an SSR-Deviation is issued by the Buyer or Seller and approved by the Buyer. The Seller must present complete and compelling support for its request and include in its request all actions to ensure the parts thus procured are legitimate, authentic, non-counterfeit parts. All C of C documentation shall be on file at Seller's facility and available to Buyer upon request.

The Seller shall segregate and provide full, inclusive of all supply chain intermediaries from the part manufacturer to the direct source of the product, traceability identifiers (i.e., name and location of all supply chain intermediaries, date code/lot code, and serial number) for all items delivered to Buyer which contain an item procured from sources other than OEMs or OCMs or their Authorized Distributors.

MIL Spec parts MIL-PRF-38535, MIL-PRF-19500, and those MIL Spec parts covered under MIL-STD 790 shall include C of C documentation via instructions in Q-75.

Seller shall provide timely (within 14 days) notification to Buyer with the pertinent facts if Seller becomes aware of, or that it has delivered fraudulent, suspect counterfeit, or counterfeit work.

Suspect counterfeit or counterfeit parts will not be returned to Seller nor reimbursed. Seller shall at its expense promptly replace any suspect counterfeit or counterfeit parts with new parts conforming to the requirements of the Purchase Order. Buyer will provide documentation to the Seller with results of investigation indicating suspect counterfeit parts and coordinate any Seller review of suspect counterfeit parts at the Buyer's facility.

Seller and all sub-tier suppliers of Seller shall not use any of the identified suppliers who have been suspended or indicted for counterfeit part reasons and are on the "Prohibited Suppliers Suspected of Delivering Counterfeit Parts" list located on the [EXPO Supplier Portal Document List](#). Refer to "Prohibited Suppliers" in the Public Folder.

Items without traceability to OEM (purchased through Non-Franchised Distributors/Brokers) shall be tested/inspected per 7037298 (found under the Public Folder in [EXPO](#)). OCM/OEM may use alternate procedures provided they are based on industry standards (IDEA-STD-1010, AS6081, etc.). Test and inspections shall be performed in accordance with clearly delineated accept/reject criteria provided or approved by Buyer. The Seller shall prepare and provide, via the [EXPO Supplier Portal Document List](#), records evidencing test and inspections performed and conformance of the product to specified acceptance criteria.

Federal Penalties Associated with Fraud—This purchase order and activities herein are within the jurisdiction of the United States Government. Any knowing and willful act to falsify, conceal or alter a material fact, or any false, fraudulent or fictitious statement or representation in connection with the performance of work under this purchase order may be punishable in accordance with applicable Federal statutes. This clause applies in addition to any quality provision, specification, statement of work or other provision included in this Purchase Order addressing the authenticity of work. To the extent that such provisions conflict with this clause, this clause prevails.

Seller shall include flowdown of equivalent provisions in all lower tier procurements for items that will be included in or furnished as items to the Buyer.

L. TEST SAMPLES/REJECT/REWORK PART PACKAGING AND IDENTIFICATION

All test samples and/or reject parts to be shipped to Buyer shall be packaged in appropriate packaging medium to protect parts from damage. These items shall be packaged separately from compliant product and shall be identified/labeled with part number, date/lot code, and identified as test samples/rejected and/or reworked parts (if applicable).

M. CONFIGURATION MANAGEMENT REQUIREMENTS

The Seller is required to establish engineering and manufacturing controls to ensure that the configuration of the end item(s) comply with the specification requirements. The configuration end items (hardware, software) delivered under this contract shall conform to those configuration management and engineering documentation requirements implicit in the specification. The Seller shall impose the same configuration requirements on their vendors and suppliers in concert with the above requirements. The following configuration management functions are basic to good practices:

- Product Identification
- Configuration change control
- Material traceability

N. ELECTROSTATIC DISCHARGE PROTECTION

For the contractual requirements of parts that are ESD sensitive, the Seller shall have an Electrostatic Sensitive Discharge (ESD) control program subject to review and approval by Buyer in compliance to the requirements of the applicable standard specified by the Purchase Order.

O. SHELF LIFE

Each shipment of material with a finite shelf life shall be accompanied by documentation to determine expiration date based on the OEM method for determining useful life (date of manufacture, date of shipment or expiration date as applicable). Product that has a shelf life requirement shall be marked with this information, and shall have 75 percent remaining total available shelf life from the initial date of certification when received by the Buyer. The latest SDS/MSDS for all chemical shall be supplied to Buyer upon request.

P. SOLDERABILITY / MOISTURE SENSITIVE PARTS

Product that have leads, terminations, wiring, etc. intended to be soldered by the Buyer shall meet the requirements of Q-10.

Plastic Encapsulated Microcircuits (PEMs) that exhibit moisture sensitivity in relation to the surface mount reflow soldering processes shall meet the PEM packaging requirements specified in Q-10.

Q-2 QUALITY PROGRAM REQUIREMENTS (AS9100)

Seller shall maintain a Quality System which meets the requirements of SAE AS9100, Quality Management Systems – Aerospace.

Q-3 COUNTERFEIT PARTS PREVENTION WITH HARRIS CUSTOMER APPROVAL REQUIRED

When applicable to this Purchase Order, this clause amends Q-1, paragraph K to include the following:
Customer written approval is required prior to use of any Non-Franchised Distributor/Broker.

Q-4 COUNTERFEIT PARTS PREVENTION WITH COST LIABILITY

When applicable to this Purchase Order, this clause amends Q-1, paragraph K to include the following:
Harris' Customer written approval is required prior to use of any Non-Franchised Distributor/Broker.

Seller shall provide timely (within 14 days) notification to Buyer with the pertinent facts if Seller becomes aware of, or that it has delivered Counterfeit Work. At no increase in price, Seller shall, at its expense, promptly repair or replace Counterfeit Work with genuine Work conforming to the requirements of this order in accordance with the warranty clause of this Purchase Order, except that the period for providing notice of a defect in Counterfeit Work under the warranty clause shall be within eight (8) years of delivery,

and Seller shall not be responsible for any repair or replacement of Counterfeit Work after that time period has expired. Notwithstanding any other provision in this Order, Seller shall be liable for all costs relating to the removal and replacement of Counterfeit Work, including without limitation Buyer's costs of removing Counterfeit Work, of reinserting replacement Work and of any testing necessitated by the reinstallation of Work after Counterfeit Work has been replaced.

Q-5 INSPECTION AND TEST QUALITY SYSTEM (AS9003)—NHB 5300.4(1C)

Seller shall provide and maintain an inspection system which is in conformance with SAE AS9003, Inspection and Test Quality System.

Q-6 SAFETY AND MISSION SUCCESS —NPD 8700.1

Seller shall provide and maintain a quality program which is in conformance with NASA Policy Directive for Safety and Mission Success.

Q-7 CONTROL OF NONCONFORMING PRODUCT, AND CORRECTIVE AND PREVENTIVE ACTION (ISO 9001)

Seller shall provide and maintain a program for control of nonconforming product, and for corrective and preventive action, which is in conformance with ISO 9001.

Q-8 QUALITY PROGRAM REQUIREMENTS (ISO 9001)

Seller shall maintain a Quality System which meets the requirements of ISO 9001, Quality Management Systems – Requirements.

Q-9 COUNTERFEIT PARTS PREVENTION – LEVEL A

When applicable to this purchase order, this clause amends Q-1, paragraph K, to include the following:

At a minimum Seller shall have a counterfeit parts prevention plan that incorporates the following practices:

- Maintains a Quality System which complies with, and/or is certified to the requirements of SAE AS 9100, Quality Management Systems – Aerospace, AS9120, ISO 9001, and/or AS9003.
- Maximizes availability of authentic, originally designed and/or qualified parts throughout the product's life cycle, including management of parts obsolescence.
- Assures that approved/ongoing sources of supply are maintaining effective processes for mitigating the risk of supplying counterfeit electronic parts.
- A documented process to address the detection, verification, and control of in-process (post acceptance) and in-service suspect and confirmed counterfeit parts.
- A documented process to:
 - Control excess and nonconforming parts to prevent them from entering the supply chain under fraudulent circumstances
 - Control suspect or confirmed counterfeit parts to preclude their use or re-entry into the supply chain.

Buyer written approval is required prior to use of any Non-Franchised Distributor/Broker.

Seller shall provide timely (within 14 days) notification to Buyer with the pertinent facts if Seller becomes aware of or that it has delivered Counterfeit Work. At no increase in price, Seller shall, at its expense, promptly repair or replace Counterfeit Work with genuine Work conforming to the requirements of this order. Notwithstanding any other provision in this Order, Seller shall be liable for all costs relating to the removal and replacement of Counterfeit Work, including without limitation Buyer's costs of removing Counterfeit Work, of reinserting replacement Work and of any testing necessitated by the reinstallation of Work after Counterfeit Work has been replaced.

Q-10 SOLDERABILITY

Solderability of leads and terminations shall comply with requirements imposed by the procurement document (military specification, industry standard, etc.) or Original Equipment Manufacturer standard practices for hand and machine soldering.

PEM Packaging Requirements (Moisture Sensitive Parts)

Seller shall “dry” pack all moisture sensitive devices in a Moisture Barrier Bag (MBB) with desiccant and humidity indicator card (HIC) I.A.W. J-STD-033 or equivalent.

Seller shall label all moisture sensitive devices with level, seal date, shelf life and baking instructions I.A.W. J-STD-033 or equivalent. Received items shall have a minimum of nine months of shelf life remaining upon receipt.

Q-11 SOLDERABILITY WITH DATE CODE

Solderability of leads and terminations shall comply with requirements imposed by the procurement document (military specification, industry standard, etc.) or Original Equipment Manufacturer standard practices.

Any parts with solderable leads/terminations, delivered that are over 3 years old from date of manufacture shall be accompanied by supporting documentation that parts have been re-certified to meet solderability requirements. If Seller is unable to meet the solderability requirements, a Supplier Discrepancy Report (SDR) shall be submitted to the Buyer and approved prior to any shipment of product.

The Buyer reserves the right to require testing to ensure solderability of leads. Recertification testing/acceptability, when required, shall be in accordance with J-STD-002, Category 3 (or applicable military/industry standard). Steam aging for wire and cable shall be limited to 1 hour with insulation removed. Shipments must be accompanied by supporting documents that parts have been re-certified to meet above requirements.

This Q-clause takes precedence over Q-10.

Q-12 SOFTWARE DEVELOPMENT PROGRAMS (ISO90003)

Seller shall provide and maintain a software development program, which is in conformance with ISO 90003.

Q-13 SOFTWARE CONFIGURATION CONTROL

Seller shall utilize a software version control tool to maintain configuration control of the delivered software including source code. Software version shall be assigned to the deliverable baseline and be provided as part of the end item data or final test documentation. Firmware is considered as software.

Seller shall maintain archived backups of the deliverable software including source code.

Q-14 BUYER SOFTWARE AUDITS

Buyer and Buyer’s Customer shall have the right to perform audits, reviews, and/or verifications at Seller’s facilities during the development and test of software to be furnished on this procurement.

Q-15 SOFTWARE DELIVERY DOCUMENTATION

Seller shall deliver documentation of software as specified in the Purchase Orders. Software documentation shall be sufficient to establish that:

- All requirements are achieved or waivers submitted and approved.
- Configuration is correct and deliverables are properly identified or marked for version.
- Planned level of acceptance is achieved and/or deviations/waivers are made part of the deliverable documentation package.
- Operating instructions accompanying the developed software are sufficient to enable loading, initialization, and operation by Buyer’s personnel.

Q-16 CONTROL OF TEST SOFTWARE

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 Buyer including test software, and these records shall be available for Buyer review.

Q-17 ADDITIVE MANUFACTURING PART CERTIFICATION

The Seller shall record each lot/date code of material (may use the date as the unique identifier) used in the production of the Buyer's product and shall provide a copy of the manufacturer's certification(s) of such for each order shipped to the Buyer. Parts shall be segregated and identified by the material lot/date code manufactured and machine used. The Seller shall provide documented evidence of lot/date codes used to their process specification with each shipment to ensure compliance and traceability.

Q-18 ELECTROSTATIC DISCHARGE CONTROL (MIL-STD-1686 , ANSI/EIA-625, ANSI/ESD S20.20, or JESD 625)

Seller shall provide and maintain a program for electrostatic discharge control for applicable ESD sensitive hardware items to be furnished on this procurement. Buyer requirements are as specified in the Purchase Orders. The Seller's electrostatic discharge control program is subject to review and approval by the Buyer. As a minimum, MIL-STD-1686, ANSI/EIA-625, ANSI/ESD S20.20, or JESD 625 shall be complied with.

Packaging techniques using MIL-B-81705 Type I, or Type II barrier material or equivalent shall be used in device shipment. A label identifying that the parts are static sensitive shall be attached to the package.

Q-19 BUYER SOURCE INSPECTION

Inspection by Buyer must be performed at Seller's facility prior to shipment. Seller shall provide reasonable inspection facilities for Buyer to verify conformance to requirements. Buyer Source Inspection may include validation of Seller's automatic test programs, procedures to Buyer specification requirements, witnessing Seller's performance of acceptance testing, and review of acceptance test data to Buyer's specification/drawing.

Seller shall notify the Buyer not less than 3 working days prior to the time items are ready for Buyer Source Inspection.

Buyer Source Inspection points may include, but are not limited to:

- First Article
- In-process (i.e., Pre-Cap, Pre-Pot, Inner-Layer)
- Major/Critical Tests
- Final Acceptance

After Buyer Source Inspection, any rework or test of the item, including any nonscheduled entry, such as removal of a panel, cover, or enclosure will void the source inspection, unless otherwise specified on the Source Inspection Report. In case of any nonscheduled entry, rework, or test, Seller shall request Buyer to repeat source inspection.

Q-20 GOVERNMENT SOURCE INSPECTION

Government inspection is required prior to shipment from Seller. Upon receipt of this order, promptly notify the Government Representative who normally services your plant so that appropriate planning for Government inspection can be accomplished.

On receipt of this order, promptly furnish a copy to the Government Representative who normally services your plant, or, if none, to the Army, Navy, Air Force or Defense Supply Agency inspection office. In the event the representative or office cannot be located, our purchasing agent should be notified immediately.

During performance on this order, your quality control or inspection system and manufacturing processes are subject to review, verification and analysis by authorized Government representatives. Government inspection or release of product prior to shipment is not required unless you are otherwise notified.

All work on this procurement is subject to inspection and test by the Government at any time and place. The Government representative who has been delegated Quality Assurance functions on this procurement shall be notified immediately upon receipt of this Purchase Order. If the Government representative is in residence, he shall be notified 2 working days in advance of the time the items are ready for inspection or test; 7 working days otherwise. In the event that the Government representative cannot be contacted, Buyer shall be notified immediately. The Seller, without additional charge, shall provide all reasonable facilities and assistance for the safety and convenience of the Government Representatives in the performance of their duties.

Q-21 MATERIAL AND PROCESS CONFORMANCE—C OF C

Certification of Compliance and/or Certificate of Conformance (C of C) defined by Military Specifications (Military Standards, Federal Specifications, AN, NAS Documents, etc.), or Standard Military Drawings (SMD's) may be kept on file by the supplier in lieu of being supplied with each shipment. The C of C shall be traceable to the Buyer part number and Purchase Document number and shall identify the date of shipment. The file copy held by the Seller shall be subject to audit by Buyer personnel and discrepancies found will be an input to the Supplier Rating System.

A statement of compliance to the specification is to be included on the Seller's shipping document. An example of an acceptable statement of certification of conformance is as follows:

This is to certify that items processed on this order meet all the requirements imposed.

Q-22 CERTIFICATION OF ANALYSIS—C OF A

A certificate of analysis must accompany material.

The C of A shall reference the following:

- Manufacturer's name
- Specification number
- Material Grade
- Material condition
- Size
- Heat Lot
- Date Code
- Chemical Analysis
- Physical properties as applicable to material procured.

Q-23 CERTIFICATION OF COMPLIANCE—C of C

A certificate of compliance shall be supplied with each shipment of material supplied against this Purchase Order. The certificate shall be signed and dated by the responsible Seller personnel and shall certify that the material meets all applicable Buyer specification requirements or military/industrial specification requirements.

The C of C is to reference the following:

- Purchase Document number
- Manufacturer and/or Buyer Part Number and Dash Numbers
- Any number the Seller's facility uses for material traceability (ie: Lot/date code number, job/shop order #, etc.)
- Serial number (if applicable)

Q-24 RAW MATERIAL DOCUMENTATION REQUIREMENTS

- A. Shipment of metallic raw material must be accompanied by:
- B. Manufacturer or mill inspection/test report for the raw material containing:
 - Name and location of the raw material manufacturer or mill.
 - Material identification by specification number and material condition.
 - Manufacturer or mill lot identification number of the raw material.
 - Actual chemical and physical test results as specified in the applicable specification.
 - Actual size and form of billets if required by the applicable standard.
- C. Certification from Seller containing:
 - Name and location of the raw material manufacturer or mill.

- Material identification by specification number and material condition.
 - A statement that the raw material meets applicable specification requirements.
- D. Shipment of finished or semi-finished items manufactured from raw materials must be accompanied by a certification from Seller containing:
- Name and location of the manufacturer(s) of the raw material(s) and the lot number(s) of the raw materials(s) used in the manufacture of the finished, or semi-finished, item(s).
 - A statement, that the raw material(s) used in the manufacture of the finished or semi-finished item(s) meet applicable specification requirements.
- E. Shipment of nonmetallic raw material must be accompanied by:
- F. Chemical inspection/test report for the raw material containing:
- Name and location of the raw material manufacturer.
 - Material identification by specification number.
 - Manufacturer lot or batch number of the raw material.
 - Actual chemical test results as specified in the application specification.
- G. Certification from Seller containing:
- Name and location of the raw material manufacturer.
 - Material identification by specification manufacturer.
 - A statement that the raw material meets applicable specification requirements.
 - Certification of shelf life.

Q-25 TEMPERATURE SENSITIVE MATERIAL

Each shipment of temperature sensitive material shall include a packing slip with a statement that the material is temperature sensitive and/or perishable. The packaging shall also have a label affixed indicating that material is temperature sensitive. This label shall be affixed to any/all external packaging. The label shall also identify the temperature storage requirements. All temperature sensitive/perishable material to be shipped shall be packaged and stored in accordance with the manufacturer's specification. Material will not be accepted without this evidence.

Q-26 PROCUREMENT OF FASTENERS (Hi-Rel)

All component hardware (including nuts, bolts, washers, screws, pins, rivets, inserts, etc.) shall be procured from the following approved distributors only:

- Hardware Specialty Co., Norcross, GA (CAGE Code 7R019)
- Century Fasteners Corp., Tampa, FL (CAGE Code 8R639)
- ServTronics, Inc., Winter Park, FL (CAGE Code 0D2B8)

All fasteners supplied to the Purchase Document shall be lot segregated in sealable static shielding bags or sealed polyethylene bags and labeled as a minimum with:

- Part Number
- Quantity
- Manufacturer's Name and/or Manufacturer's CAGE Code Identification Number
- Manufacturer's Lot Number

Packing slip must contain the information below, at a minimum.

- Part Number
- Quantity
- Manufacturer's Name and/or Manufacturer's CAGE Code Identification Number

- Manufacturer's Lot Number
- Distributor's Name (if applicable)
- Purchase Document Number

Only domestic (Made in USA) manufacturers, which have a past history of supplying reliable fasteners, shall be utilized. No re-work or alteration shall be performed on any fasteners (i.e., reducing overall length, increasing thread lengths, plating changes, etc.) without prior written approval by the Buyer. Approval requests shall be submitted to the Buyer on a Supplier Discrepancy Report. No alterations of requirements are permitted until a dispositioned and signed SDR is issued by the Buyer. Original fastener manufacturers are authorized to alter their parts without SDR when they assign new part numbers and lot numbers to these altered parts. Lot testing shall be performed after all alterations are complete on parts.

Required Documentation:

- Certificate of Compliance (C of C) or supporting evidence stating all requirements specified in the fastener's specification, and purchasing document, have been met.
- Certificate of Analysis from manufacturer specifying chemical composition, and heat treatment, if applicable (excluding washers and excluding fasteners with an ultimate tensile strength less than 100,000 PSI (100 KSI) at standard room temperature).
- Lot test data (tensile strength and/or hardness, etc.) from the manufacturer showing test results required in accordance with the applicable fastener procurement specification (excluding washers and excluding fasteners with an ultimate tensile strength less than 100,000 PSI (100 KSI) at standard room temperature).

Q-27 PROCUREMENT OF GATE ARRAYS—STANDARD PRODUCT

- Container Marking

Each individual container containing the articles to be delivered hereunder, must be clearly and permanently marked with:

Quantity, batch, or lot number; specifications or material control information number; Buyer's designation; Purchase Document Number as a minimum.

- Packaging

Boxes or containers, as applicable, should be selected to the extent necessary to provide protection from electrostatic discharge and physical or environmental damage during shipping and handling. Cushioning materials shall be applied, as required, to protect and to restrict movement of the item(s).

- Inspection System

Seller shall provide and maintain an inspection system, which is in conformance with ISO 9001.

- Milestone Monitoring

Thirty days after acceptance of the order, the following milestone completion dates on every lot of parts required to satisfy the order quantity are to be submitted to the Buyer:

- ATP approval

Q-28 PROCUREMENT OF GATE ARRAYS—FULLY SCREENED

- Container Marking

Each individual container containing the articles to be delivered hereunder must be clearly and permanently marked with:

Quantity, batch, or lot number; specifications or material control information number; Buyer's designation; Purchase Document Number as a minimum.

- Packaging

Boxes or containers, as applicable, should be selected to the extent necessary to provide protection from electrostatic discharge and physical or environmental damage during shipping and handling. Cushioning materials shall be applied, as required, to protect and to restrict movement of the item(s).

- Quality System

Seller shall provide and maintain a quality system, which is in conformance with ISO 9001.

- Milestone Monitoring

Thirty days after acceptance of the order, the following milestone completion dates on every lot of parts required to satisfy the order quantity are to be submitted to the Buyer:

- ATP approval
- Wafer lot acceptance testing
- Start lot assembly
- Preseal visual inspection
- Lot assembly complete
- Start screening
- Preburn-in electrical testing
- Postburn-in electrical testing
- Screening complete
- Ship screened devices

The Seller shall advise the Buyer of each completed milestone step defined within 3 days. A summary of the lot status shall be submitted every 2 weeks, starting with the week the first milestone is completed. This status is to define the current location of the lot and its relationship to the milestone schedule. The Buyer is to be advised immediately of any milestone slip, which results in a schedule slip of greater than 3 days from the schedule as defined by the original milestone schedule. Upon definition of a milestone slip, a revised milestone schedule is to be communicated to the Buyer with an explanation for the slip and definition of the action to the Buyer.

- Test Data Requirements

The Supplier is required to generate an acceptance test procedure (ATP) in accordance with the Buyer specification.

The following documentation shall be provided in the data package with each shipment of deliverable parts:

- Screening attributes summary data, including the quantity in and out at each step and the quantity failed.
- Control samples electrical test data by serial number, variable test data, and deltas over burn-in.
- Failure analysis reports for any catastrophic rejects.
- All deviations or waivers granted by the Buyer.

- Buyer Source Inspection

Inspection by the Buyer must be performed at the Seller's facility prior to shipment. Seller shall notify the Buyer not less than 3 working days prior to the time that items are ready for Buyer Source Inspection. Source inspection is required at the following points:

- Preseal Visual Inspection
- Final Inspection After Screening

After Buyer Source Inspection, any rework or test of items, including any nonscheduled entry, will void the source inspection. In case of any nonscheduled entry, rework, or test, Seller shall request Buyer to repeat source inspection.

Buyer reserves the right to onsite monitoring of any process steps by its designated representative.

In the event of a lot rejection, the Supplier must notify the Buyer and provide new lot control identification numbers as soon as assigned.

- Control Samples

Where parameter drift testing (drift calculations) is required, serialized control samples shall be used for all electrical tests requiring drift calculation. These samples (minimum of three per device type) shall not receive any environmental or power conditioning tests, but shall receive the electrical tests only to validate repeatability of the test equipment. These samples shall not be shipped against this order. The electrical tests on the samples shall be read and recorded data included in the data package.

Q-29 CONTROL OF SPECIAL PROCESSES

Seller shall ensure all special processes employed during the manufacturing of deliverable hardware is processed by a Nadcap accredited or Harris special process approved supplier for each special process performed. Special process as defined by Nadcap includes, but is not limited to, brazing, welding, magnetic particle inspection, etching, dye penetrant inspection, plating, casting, heat treating, radiographic inspection, etc. The personnel that perform the special process(es) shall be military standard or industry standard certified, as required. Commercial off the shelf/MIL-SPEC hardware is an exception to this clause and does not require NADCAP accreditation.

Unless otherwise specified by the Purchase Order, test results and test coupons required by the process specification, shall be retained on file by the process supplier per Q-84 or for a minimum period of 3 years if Q-84 is not applied. If the special process is Nadcap accredited, the Certificate of the Nadcap accreditation to the specification requirements including expiration date and the Scope of Accreditation shall be prepared for each special process and accompany the hardware or electronically uploaded into the EXPO portal, if electronic data upload is required. This is required for each shipment.

If the Seller (or its sub-tiers) has processed material and then determined their supplier was not accredited or pre-approved then a Supplier Support Request (SSR)–Deviation shall be submitted to the Buyer and approved prior to any shipment of product. Submission of an SSR–Deviation in no way affects any contractual requirements until an approved disposition is issued by the Buyer and the approval of any process the supplier performs does not in any way relieve Seller of their responsibility for delivering items conforming to the requirements of the Purchase Order.

If the Seller (or its sub-tiers) has been audited for the specific special process by Harris (self-survey/onsite) and has been approved for use of the special process (with no findings), the Seller does not need to submit an SSR deviation request for each shipment. The audit is documented within Harris internal system of the approval. The audit of the special process is valid for two years, the Seller will need re-certification from Harris when the expiration date has passed.

Q-30 CONTROL OF SUB-TIER SUPPLIERS

The Seller shall maintain a supplier control system ensuring all sub-tier suppliers are capable of meeting the requirements of the Purchase Order. The Buyer retains the right to approve any sub-tier suppliers considered for use on deliverable hardware. The Seller shall notify the Buyer of any intentions to subcontract work required to complete the Purchase Order requirements.

Q-31 FLOWDOWN OF NAS-412 FOD REQUIREMENTS

The Seller shall maintain a Foreign Object Damage and/or Debris control system ensuring materials provided shall conform to the NAS-412 FOD requirements per the industry standards.

Q-32 TEST DATA

When Buyer specifications require test data to be reported during the performance of acceptance testing, a copy of the recorded data showing evidence of Seller's inspection and verification of conformance shall accompany shipment of items to Buyer.

Record Retention:

After approval by the Buyer's representative, the test report shall be maintained on file by the Seller and shall be available for review for a minimum period of 3 years from date of final payment, unless otherwise specified by the Purchase Document.

Q-33 DELETED

Q-34 DELETED

Q-35 DELETED

Q-36 DELETED

Q-37 DELETED

Q-38 TENSILE TEST SAMPLES

Separately cast test bars, coupons, or appendages as defined by the applicable specification or drawing shall be submitted with each lot delivered.

Q-39 DELETED

Q-40 DELETED

Q-41 DELETED

Q-42 DELETED

Q-43 CONTAINER MARKING

A container is any packaging containing one or more articles to be delivered that must be clearly and permanently marked with:

- Quantity
- Batch or Lot Number
- Date of Manufacture or Shipping Date, whichever controls shelf life limitation
- Hazardous Material Marking, (if applicable-reference Q-46)
- Specifications or Material Control Information Number (if applicable)
- Buyer's Part Number* *

*Purchase Document Number, plus the Buyer's P/N and the Manufacturer's P/N must be on the Packaging slip as a minimum. Product that has a shelf life requirement shall be marked with this information and shall have remaining 75 percent of the time from the initial date of certification.

Q-44 DELETED

Q-45 DELETED 03/11/10

Q-46 CHEMICAL MATERIAL(S)

Each shipment of material with a finite shelf life shall be accompanied by documentation to determine expiration date based on the OEM method for determining useful life (date of manufacture, date of shipment or expiration date as applicable). Material shall have a minimum of 75 percent of the total available shelf life when received by Buyer. The latest SDS/MSDS for all Chemicals shall be supplied to Buyer upon request.

Q-47 DELETED 08/17/99

Q-48 DELETED

Q-49 DELETED 08/17/99

Q-50 DELETED 03/11/10

Q-51 DELETED 08/17/99

Q-52 DELETED 10/1/01

Q-53 PRINTED WIRING BOARDS

- To be used for PWB Designs designed and procured after March 1998 Compliance Requirements
Printed Wiring Boards shall comply with Buyer Drawing 2012559 and the master drawing. It is the responsibility of the Seller to assure that the design data and documentation is acceptable to produce a product that is compliant to this purchase order and the master drawing. Identification of non-compliant design data or documentation shall be transmitted via the Supplier Support Request (SSR).
- Date of Manufacture

All materials delivered shall have a manufacturer date code no older than 3 months prior to date of shipment. Exceptions shall be approved by the Buyer through the use of the Supplier Support Request (SSR).

- Deliverables

The supplier shall deliver the following along with the final material: One as-received unmounted coupon strip from each panel so identified to the parent panel (coupons will be retained at the Buyer's facility for the purpose of solderability testing in the event future testing is required). The coupon configuration must support solderability testing to be performed at the Buyer's facility. Coupons shall be individually packaged as specified for the final boards. (These coupons are not required for IPC Class 1 procurements).

The following exception applies when parts are procured from Supplier's Stock (overage parts from a previous order). Under this procurement condition, unmounted coupons from the same manufacturing lot have already been sent in on a previous order. The Supplier is not required to send additional unmounted coupons if coupons from the same parent panel were already shipped in a previous order. The Supplier must make note on the C of C that the unmounted coupons were shipped on a previous order. The Supplier shall list the following information on the C of C with the parts being shipped from stock:

- Standard C of C information [Supplier Name, Purchase Order Number, Part Number, Revision, Quantity and Serial Number(s)]
- One as-received unmounted coupon from each panel has already been provided on previous P.O.# (Reference previous Purchase Order number)
- Solderability Tested Results, "RETESTED AND PASSED" (only required if shipping date is past 90 days from date code).
- Any Buyer approved Supplier Support Request (SSR) - Information.
- Any Buyer approved Supplier Support Request (SSR) - Deviation.
- Copy of applicable Source Inspection Reports.
- Copy of applicable Source Inspection Waiver Authorizations.
- Certificate of Conformance (if applicable, see Q-23)
- Electronic Data Deliverable Requirements (if applicable , see Q-75).
- Impedance test results (if applicable).
- Gold measurement data (if applicable).
- IPC-6012 & 6013 Class 3 orders require the following additional deliverables:
- Group A Report – Vendor format may be used (see 2012559 section 5.0 for all applicable reference information)
- Microsection Report – Vendor format may be used (see 2012559 section 5.0 for all applicable reference information)

- Solder Samples

All solder samples shall be shipped separately from the deliverable product and be addressed to the attention of the PCB Buyer. All solder samples will be identified (by the supplier) by marking a black "X" in indelible ink on the front side of the PCB. The bag must also be marked with a label indicating "Solder Sample". The Buyer will inspect the solder sample for marking prior to releasing to the program.

Q-54 ELECTRONIC COMPONENT PACKAGING

- Packaging
 - Bulk packaging is prohibited

- Packaging shall be in accordance with acceptable commercial practices and as indicated i.e., tubes, tape and reel, JEDEC matrix trays, etc. Parts will be packaged in such a manner as to prevent damage to components.
- All SMT Quadpacks provided in JEDEC matrix trays shall have pin 1 oriented and loaded into the tray in the same direction.
- Packages shall be marked with part number, lot/date code, and suppliers Name or CAGE CODE as a minimum
- Packing Slip shall contain the Purchase Order number, part number, suppliers name and CAGE code as a minimum.
- Q-54 applies to any level of packaging that directly contains one or more articles to be delivered.
- Electronic components tape and reel
 - For devices required to be in carrier tape.
- **Note:** Parts shall not be provided loose.
 - SMD devices shall be packaged in accordance with EIA standard 481. Each line item should have a continuous strip of carrier and cover tape with at least 6 inches of free carrier tape (not spliced) on the leading end. Tape may be supplied on a reel however for passive parts procured in quantities of less than 200 per line item the tape may be packaged in sealed ESD Bags. When supplied on a reel, the part marking shall be provided on the reel and meet the Purchase Order and specification requirements. When supplied as strip (qtys < 200) the required part marking shall be provided on the outside of the bag the parts are contained in.
- Surface Mount Packaging
 - Surface Mount Technology (SMT) components shall be provided on Tape and Reel IAW EIA-481. In addition to this EIA standard, the following items apply. Reel material must be made of plastic. All reels shall have a minimum of 7 inches of blank carrier and cover tape as a leader and a minimum of 2 inches of carrier and cover tape at the end. High capacity 13 inch reels are recommended when order quantities justify large volume purchases.
- Tube Components
 - Dual Inline Packages (DIP's) and SMT Flatpack may be provided in anti-static tubes. Pin 1 must be loaded consistently for all parts in the tubes. SMT Flatpacks may also be provided on Tape and Reel IAW EIA-481 and the SMT note above. Parts must be secured from movement. Tubes must be greater than 7 inches in length.
- PEM Packaging Requirements (Moisture Sensitive Parts)
 - Seller shall "dry" pack all moisture sensitive devices in a Moisture Barrier Bag (MBB) with desiccant and humidity indicator card (HIC) I.A.W. J-STD-033 or equivalent.
 - Seller shall label all moisture sensitive devices with level, seal date, shelf life and baking instructions I.A.W. J-STD-033 or equivalent. Received items shall have a minimum of nine months of shelf life remaining upon receipt.
- Waffle or Gel Packed Components
 - All bare die components and passive components requested in Waffle or Gel pack shall be packaged in 2"x2" ESD protective Waffle or Gel pack tray with a minimum of 2 sheet of sulfur-free tissue paper between base and cover. Each single stack Waffle tray shall be secured using clip and labeled with part number, quantity, and applicable details of specification. Tape or adhesive label shall not overlap cover to waffle tray.
 - Any components under .050" x .050" shall be placed in a pocketed conductive 2" tray Waffle pack with three sheets of sulfur-free tissue paper (Tyvek paper) as spacer between lid and tray
 - Components ranging from >0.050" in any dimension may be placed in a pocketed 2" conductive Waffle tray or vacuum release Gel Pack tray with a tackiness grade ranging from ER0 (Low) to ER4 (Medium). Die placed on vacuum release Gel Pack tray must be

removable from external protective packaging. Die placement directly on Gel Pack containers is not permitted. No sulfur-free tissue paper is required for Gel packaging.

- For components not fitting in 2" square tray, 4"X4" tray packaging is acceptable. Use of 2" trays when possible is preferred.
- o Waffle or Gel Packed components shall be placed into a nitrogen backfilled ESD protective bag and sealed. Product marking shall be placed on the exterior of ESD bag or be visible through ESD bag on waffle tray.
- o Components shall be oriented the same direction within Waffle or [vacuum release](#) Gel pack.

Q-55 USE OF NICHROME BASED FILMS

The use of thin film Nichrome based resistive films on MIL-PRF-55342 Resistors is not acceptable for this procurement. For any product supplied against this procurement, a Certification of Compliance or documented evidence is required specifying that the product was not manufactured using Nichrome Film. The use of Tamalox is acceptable.

Q-56 PROCUREMENT OF FASTENERS (NON HI-REL)

All fasteners supplied to the Purchase Document Requirements shall be lot segregated in sealable static shielding bags or sealed polyethylene bags labeled as a minimum with:

- Part Number
- Quantity
- Packing slip must have the following information:
 - Part Number
 - Quantity
 - Manufacturer's Name and/or Manufacturer's CAGE Code Identification Number
 - Distributor's Name (if applicable)
 - Purchase Document Number

Only domestic (USA) manufacturers, which have a past history of supplying reliable standard (English) fasteners, shall be utilized. Metric fasteners may be domestic (USA) or foreign manufacturers.

No rework or alternation shall be performed on any fasteners (i.e., reducing overall length, increasing thread lengths, plating changes, etc.) without prior written approval by the Buyer. Approval requests shall be submitted to the Buyer on a Supplier Support Request (SSR). No alterations of requirements are permitted until a dispositioned and approved SDR is issued by the Buyer. Original fastener manufacturers are authorized to alter their parts without SDR when they assign new part numbers and lot numbers to these altered parts. Lot testing shall be performed after all alterations are complete on parts.

Q-57 PROHIBITED MATERIALS

The following materials shall not be contained in any deliverable product except where specified on drawing by note or material specification: Verification will be required; such as a C of A or XRF testing results included with documentation packet. These apply to parts procured as applicable.

- Cadmium or zinc as the surface finish (plating)
- Unplated cadmium alloys or unplated zinc alloys (e.g. unplated brass)
- Pure, unalloyed cadmium or alloys containing 5 percent by weight or greater cadmium not completely over-plated by a Buyer approved material.
- Pure, unalloyed zinc or alloys containing 10 percent by weight or greater zinc not completely over-plated by a Buyer approved material.
- Zinc greater than 1 percent (weight/weight) unless dry film lubricant or a specific zinc alloy is present and expected.
- Magnesium or Selenium except internal to hermetically sealed devices.

- Unalloyed tin with less than 3 percent (by weight) alloy material.
- Corrosive solder fluxes (Type RA, etc.) unless detailed cleaning procedures are specified, along with appropriate verification methods to ensure removal of residue contaminants.
- Mercury or compounds of mercury.
- All radioactive materials including uranium, potassium, radium, thorium, and/or any alloy thereof.
- Incompatible dissimilar metals shall not be used in conjunction with each other unless specified in drawings or specifications'.
- Vinyl and Polyvinyl chloride (PVC) shall not be used as wire insulation or in any other product usage.
- No silicone is allowed on exterior component surfaces. If silicone is used internally by design, the product shall be hermetic to not introduce silicone contamination.

Q-58 PURE TIN PROHIBITED MATERIAL

All Products Supplied on this Purchase Order shall be free of solder, platings, coatings, and claddings that exhibit either of the following:

- Material composition greater than 97% tin by weight.
- Tin alloy with composition of less than 3% lead by weight.

This requirement is applicable to the internal and external configuration of the products.

The Seller shall notify the Buyer prior to any solder, plating, coating and cladding change by the Seller or its Sub-Tier Supplier (s) that would result in said products becoming noncompliant with this Q Clause.

Compliance with this restriction is subject to review by the Buyer at anytime during the performance of this order.

Noncompliance to this requirement must be approved in writing prior to acceptance of this Purchase Order. The Seller shall notify the Buyer and submit the noncompliance to the Buyer for approval.

Required Documentation: A Certificate of Compliance (C of C) shall be supplied with each shipment of material supplied against this Purchase Order. The C of C shall be signed and dated by the responsible Seller personnel and shall certify that the material meets all requirements specified above, all applicable Buyer specification requirements, and all requirements in the Purchase Order. The C of C shall reference the Purchase Order Number, Part Number, Lot/Date Code and Serial Number as applicable.

Note: This Q-clause is not applicable to RoHS compliant material.

Q-59 DELETED 4/10/14. Moved to Q-54.

Q-60 DELETED 03/19/13. Moved to definitions.

Q-61 DELETED 03/19/13. Moved to definitions.

Q-62 DELETED 03/19/13. Moved to definitions.

Q-63 DELETED 03/19/13. Moved to definitions.

Q-64 CERTIFICATION OF COMPLIANCE—C OF C FROM ORIGINAL EQUIPMENT MANUFACTURER (OEM) WITH FSCM/CAGE CODE

A certificate of compliance from the manufacturer (OEM) shall be provided with each shipment of material supplied against this Purchase Order. The certificate shall be signed and dated by the responsible manufacturer representative and shall certify that the material meets all applicable Buyer specification requirements or military/industrial specification requirements.

The C of C is to reference the following:

- Original manufacturer FSCM/CAGE Code Identification Number
- Purchase Document Number
- Manufacturer and/or Buyer Part Number and Dash Numbers
- Serial Number (if applicable)

- Any number the OEM's facility uses for material traceability (i.e.: Lot/date code number, job/shop order number, etc)

Variation to this clause will include consumable commodities (ie Metal stock or Chemicals). Certificate of Analysis with OEM Cage Code reference is acceptable in lieu of the C of C.

Q-65 PURE TIN PROHIBITED MATERIAL—WITH ANALYSIS

All Products Supplied on this Purchase Order shall be free of solder, platings, coatings, and claddings that exhibit either of the following:

- Material composition greater than 97% tin by weight.
- Tin alloy with composition of less than 3% lead by weight.

This requirement is applicable to the internal and external configuration of the products.

The Seller shall notify the Buyer prior to any solder, plating, coating and cladding change by the Seller or its Sub-Tier Supplier (s) that would result in said products becoming noncompliant with this Q Clause.

Compliance with this restriction is subject to review by the Buyer at anytime during the performance of this order.

Noncompliance to this requirement must be approved in writing prior to acceptance of this Purchase Order. The Seller shall notify the Buyer and submit the noncompliance to the Buyer for approval.

Required Documentation: A finish verification report shall be supplied with each shipment of material supplied against this Purchase Order. The report shall reference the Manufacture, Part Number and Lot/Date Code as a minimum. The report shall have objective test results for each lot and shall have a sample size of at least 2 parts for each lot.

Q-66 HIGH RELIABILITY SPACE NASA NB, NBS, AND NLS CONNECTOR PROCUREMENT

Procurements shall be made directly to Amphenol Aerospace (CAGE Code 77820) and/or ITT Cannon (CAGE Code 71468) for continental USA built and tested Connectors (no Procurement allowed thru Distribution). Metal piece parts, platings, assembly and testing shall be from the continental USA.

Buyer Receiving Inspection shall verify that the CofC and PO was placed directly with Manufacturer (no Distributor).

All aluminum piece parts shall be impact extruded and/or machined (die casting Prohibited). Electroless nickel plate, 500 microinches minimum, over aluminum piece parts. A double Zincate coating shall precede the nickel plating. The double Zincate coating shall be applied after the aluminum is cleaned to eliminate aluminum oxide formation which improves nickel plating adhesion.

Prohibited Finishes. Cadmium, zinc, and pure tin (>97 percent tin by weight) finishes are prohibited. Zincate coating under nickel plating is allowed.

NASA NLS (40M38277) Space Connectors shall be placed directly with Amphenol Aerospace (CAGE Code 77820) in Sidney, NY and/or ITT Cannon (CAGE Code 71468) in Irvine, CA.

ITT Cannon Reference only: NLS0T (CDSA#40020891), NLS6GT (CDSA#40020896) and NLS7T (CDSA#40020898).

NASA NB (40M39569) and NASA NBS (40M38298) Space Connectors shall be placed directly with ITT Cannon (CAGE Code 71468) in Irvine, CA.

ITT Cannon Reference only: NB0E (CDSA#40020869), NB6GE (CDSA#40020876), NB7E (CDSA#40020882), NBS6GE (CDSA#40020878), NBS7E (CDSA#40020883), NBS8GE (CDSA#40020889) and NBS9GE (CDSA#40020886).

Q-67 ELECTRONIC TEST DATA

All test data shall be submitted on CD ROM medium. All files shall be in a format compatible with Microsoft Office products.

Q-68 ONE LOT/DATE CODE

All product shipped against this purchase order line item shall be from one manufacturer's lot/date code.

Q-69 PROCURMENT OF CONNECTORS (Hi-Rel Space)

All Connectors (Crimp Contacts, Solder Cup Contacts, PCB/PWB Leads, Hermetic, etc.) shall have metal piece parts, platings, assembled and tested/screened in continental USA. All aluminum piece parts shall be impact extruded and/or machined (die casting Prohibited). A double Zincate coating shall precede the plating(s). The double Zincate coating shall be applied after the aluminum is cleaned to eliminate aluminum oxide formation which improves plating adhesion.

Prohibited Finishes. Cadmium, zinc, and pure tin (>97 percent tin by weight) finishes are prohibited. Zincate coating under plating(s) is allowed.

Supply all crimp contact connectors less (without) crimp contacts. Crimp contacts are ordered separately. Buyer Receiving Inspection to remove any crimp contacts supplied as part of connector kit and scrap.

Q-70 DESTRUCTIVE PHYSICAL ANALYSIS

Destructive physical analysis (DPA) shall be performed in accordance with Buyer Specification 2016745.

Q-71 CABLE AND WIRE HARNESS ASSEMBLIES, ACCEPTANCE REQUIREMENTS

Requirements and Acceptance for Cable Assemblies shall be in accordance with IPC/WHMA-A-620, Class 3 (except solid conductor wire shall not be crimped regardless of any manufacturer/document allowance; solid conductor wire shall be soldered coated and soldered to de-golded contact). This requirement does not apply to COTS Cable Assembly Suppliers, Fiber Optic Cable Assembly Suppliers, and Flex Circuit (Polyimide "Kapton" Laminate) Cable Assembly Suppliers.

Q-72 BUYER CONTRACTUAL REQUIREMENTS FOR PROVIDED ELECTRONIC DATA OR CAD FILES

- Standard Drawings

Electronic Data or CAD neutral files (STP, IGES, DXF etc.), when provided by the Buyer – are offered only as an aid to manufacturing. No guarantee of compatibility or correctness of the file in relation to the drawing is given. The drawing and the Purchase Order are the only contractual documents for the requirement. If the Fabricator should find a conflict between the CAD file and the drawing, they are to immediately contact the Buyer and submit a SDR/SIR for clarification as it may be an indication of a drawing issue.

- Simplified Drawings

Electronic Data or CAD neutral files (STP, IGES, DXF etc.), when provided by the Buyer on Simplified Drawings, are a component of the contractual requirements. As referenced on the drawing, both the CAD file and the drawing are to be used to manufacture the part. If the Seller should find a conflict between the CAD file and the drawing, they are to immediately contact the Buyer and submit a SDR/SIR for resolution.

Q-73 CRITICAL FINISH HANDLING

Hardware finish/plating is sensitive to contamination during handling. The Seller shall appropriately handle the hardware to prevent contamination during handling. The Seller shall include the following label on all packaging:

"Warning: Hardware must be handled with ESD compliant gloves or finger cots."

Q-74 DELETED 03/19/13**Q-75 ELECTRONIC DATA DELIVERABLE REQUIREMENTS**

Documentation Package:

Documentation shall be uploaded to the Buyer's data portal in a format which is acceptable to Buyer/Industry standards prior to deliverable product being inspected at the Buyer's facility. See link: [EXPO Supplier Portal Document List](#)

Harris Corporation will provide access (login and password) to this secure site.

Note: If the only required documentation, is the Certificate of Conformance, and the C of C is provided on the Seller's packing slip, it is not required to upload the C of C in the electronic format.

Documentation provided on digital media does not have to be uploaded to the Harris EXPO Supplier Document List.

Q-76 FIRST ARTICLE INSPECTION REQUIREMENTS

The First Article Inspection (FAI) Report shall be in accordance with the Buyer specified First Article Requirements set forth herein.

The format of the report shall meet the standard and requirements of *FAI AS9102 Forms 1, 2, 3.

*If FAI AS9102 Forms 1, 2, 3 are not required per the Buyer Purchase Order, then Buyer Form H-1999Q-1 FAI Data Report—Measurements or Seller provided equivalents if agreed, will be the report format to be submitted with the FAI document package. This shall be completed as per the drawing/specification for all specified dimensions, tolerances, referenced standards, material specifications (including test and measurement data as specified in the Buyer drawing(s) or referenced specifications).

The First Article Inspection Report should be submitted to the Buyer prior to proceeding with fabrication of remaining units. Seller shall assume the risk if all parts are made prior to Buyer approval of the FAI Report.

The FAI Report shall be submitted to the Buyer for approval through submission of an SSR - FAI (Supplier Support Request – First Article Inspection) upon completion of the FAI Report or, if Source Inspection is invoked per the Purchase Order (Q-19), the Seller may request source inspection for review and approval of the FAI Report. The FAI Report and all deliverable documents shall be submitted via the Harris EXPO Supplier Portal upon completion of the FAI. See link: [EXPO Supplier Portal Document List](#) (See First Article submission instructions). The file name shall include the term First Article Inspection (or FAI), the Part Number, Part Revision, and Supplier Lot/Date Code for traceability.

If a First Article Inspection Report was already submitted and the revision level of the drawing and/or parts list has changed then a Delta FAI shall be submitted for any changes affected due to the revision level change. A Delta FAI submittal is required prior to shipment for all Harris drawings and all supplier and sub-tiers drawing and/or parts list changes where design authority has been delegated.

Q-77 DELETED 06/05/2013

Q-78 HARRIS INTERDIVISIONAL WORK QUALITY SYSTEM REQUIREMENTS

This Q-clause supercedes Q-1 for any Harris interdivisional work. The Harris business providing goods and services to Harris shall maintain a documented quality system, including a counterfeit parts mitigation, detection, and reporting system, that will ensure all goods and services conform to the contract requirements whether manufactured or processed by the Harris business or procured from the Harris business' subcontractors. The Harris business is responsible for performing or ensuring all inspections and tests necessary to substantiate that the goods or services furnished conform to contract requirements. Records of conformance shall be maintained on file at the Harris businesses' facility and, upon request, these records will be made available or provided for review. The Harris business shall take prompt action to correct conditions that have or could result in goods or services that do not conform to contractual requirements. In the event of a product or service issue that might have a detrimental impact to a Harris program/project ability to meet contractual requirements, Harris reserves the right to visit and assist the Harris business in the resolution of the issue.

Q-79 ASSET TAG – FOR HARRIS INTERNAL USE ONLY

An asset tag for Harris Property Management is required upon receipt. The item will be diverted to the identified asset tag area, where the asset tag will be applied and item sent for distribution.

Q-80 POTENTIALLY CALIBRATED ASSET – FOR HARRIS INTERNAL USE ONLY

This asset has been evaluated and has the the potential to be used for the measurement and acceptance of product. The item will be diverted to the identified asset tag area, where the Calibration Evaluation Notice Label, H-3311, will be applied to internal and external packaging then sent for distribution.

Q-81 CERTIFICATION OF COMPLIANCE—C OF C FROM ORIGINAL EQUIPMENT MANUFACTURER (OEM)

A certificate of compliance from the manufacturer (OEM) shall be provided with each shipment of material supplied against this Purchase Order. The certificate shall be signed and dated by the responsible manufacturer representative and shall certify that the material meets all applicable Buyer specification requirements or military/industrial specification requirements.

The C of C is to reference the following:

- Purchase Document Number
- Manufacturer and/or Buyer Part Number and Dash Numbers
- Serial Number (if applicable)
- Any number the OEM's facility uses for material traceability (i.e.: Lot/Date Code number, job/shop order number, etc.)

For consumable commodities (e.g., Metal stock or Chemicals) a Certificate of Analysis is acceptable in lieu of the C of C.

Q-82 PROCUREMENT OF WIRE AND CABLE (AGE REQUIREMENTS)

M22759 Wire and M27500 Cable shall have a date of manufacture less than three (3) years from date of shipment to Buyer.

Q-83 ANTI-TAMPER PROCESS REQUIREMENTS

An approved serialized metal tamper seal¹ shall be affixed to all hardened shipment cases. The tamper seal shall be installed in such a way as to prevent the case from being opened. The metal tamper seal¹ serial number shall be recorded on the shipper/packing slip.

Harris will provide approved serialized metal tamper seals¹. Any unused seals shall be returned to Harris.

For Harris Return to Vendor shipments the metal tamper seal¹ serial number shall be confirmed upon receipt. Vendor shall notify Harris immediately via an SSR-Deviation if any seals have been broken/tampered with for Harris disposition.

If tamper metal seal is intact Vendor shall proceed with performing a receiving inspection of the received item(s) and the internal contents.

¹Part Number 1S6161TTT, Tyden Ball Seal – Standard Edge, Mill Finish, Embossed marking "SEALED" with Sequential Numbering (Manufacture: TYDEN SEAL CO Cage Code 0MRW4)

Q-84 RECORD RETENTION

A. RECORD RETENTION – 5 YEARS

Seller shall maintain records of all inspections and tests performed on items delivered to Buyer. These records shall identify nonconformances and shall be made available for Buyer, Buyer's customer and regulatory review. Period of retention is 5 years from close of order. This retention period supersedes retention periods identified in other clauses unless otherwise specified on the Purchase Order.

B. RECORD RETENTION – 7 YEARS

Seller shall maintain records of all inspections and tests performed on items delivered to Buyer. These records shall identify nonconformances and shall be made available for Buyer, Buyer's customer and regulatory review. Period of retention is 7 years from close of order. This retention period supersedes retention periods identified in other clauses unless otherwise specified on the Purchase Order.

C. RECORD RETENTION – 10 YEARS

Seller shall maintain records of all inspections and tests performed on items delivered to Buyer. These records shall identify nonconformances and shall be made available for Buyer, Buyer's customer and regulatory review. Period of retention is 10 years from close of order. This retention period supersedes retention periods identified in other clauses unless otherwise specified on the Purchase Order.

D. RECORD RETENTION – 15 YEARS

Seller shall maintain records of all inspections and tests performed on items delivered to Buyer. These records shall identify nonconformances and shall be made available for Buyer, Buyer's customer and regulatory review. Period of retention is 15 years from close of order. This retention period supersedes retention periods identified in other clauses unless otherwise specified on the Purchase Order.

E. RECORD RETENTION – 20 YEARS

Seller shall maintain records of all inspections and tests performed on items delivered to Buyer. These records shall identify nonconformances and shall be made available for Buyer, Buyer's customer and regulatory review. Period of retention is 20 years from close of order. This retention period supersedes retention periods identified in other clauses unless otherwise specified on the Purchase Order.

Q-85 SUPPLIER ORIGINAL PACKAGING

Each part on this PO line shall be packaged and/or boxed individually so as not to incur damage to the hardware. Each individual package shall be clearly labeled per the contract requirements. Multiple individual packages may be placed safely into a larger package for shipping as long as it does not degrade the individual parts.

Note: When packaging the hardware, maximize the use of the box/container space as to not have any un-needed space.

Q-86 CONTROL OF SPECIAL PROCESSES – NADCAP REQUIRED

Seller shall ensure all special processes employed during the manufacturing of deliverable hardware is processed by a Nadcap accredited process/accredited supplier for each special process performed. Special process as defined by Nadcap includes, but is not limited to, brazing, welding, magnetic particle inspection, etching, dye penetrant inspection, plating, casting, heat treating, radiographic inspection, etc. The personnel that perform the special process(es) shall be military standard or industry standard accredited, as required. Commercial COTS/MIL-SPEC hardware is an exception to this clause and does not require NADCAP accreditation.

Unless otherwise specified by the Purchase Order, test results and test coupons required by the process specification, shall be retained on file by the process supplier per Q-84 or for a minimum period of 3 years if Q-84 is not applied. If the special process is Nadcap certified, a Certificate of the Nadcap accreditation to the specification requirements including expiration date and the Scope of Accreditation shall be prepared for each special process and accompany the hardware or electronically uploaded into the EXPO portal, if electronic data upload is required. This is required for each shipment.

5.0 HARMONIZED Q CLAUSES (FOR USE ON ALL NEW PURCHASE ORDERS)

QC-1 QUALITY CONTROL GENERAL

Unless otherwise specifically stated in the Purchase Order, design media, or Statement of Work (SOW) the following conditions apply. In the event there is a conflict between the requirements of this clause and design media, SOW, or other Supplemental Quality Purchase Order Conditions (Q-Clause); the design media, SOW, or other Q-Clauses take precedence.

If the Seller is unable to comply with this or any other Supplemental Quality Purchase Order Condition (Q-Clause) they shall contact the buyer immediately and not accept the Purchase Order until they have either received a written deviation/waver from Harris Supply Chain or have achieved compliance through changes within their processes and or subcontractors. Approval requests shall be submitted to the Buyer on a Supplier Support Request (SSR) through the EXPO Portal

If requirements within this, or any other, Supplemental Quality Purchase Order Condition (Q-Clause) do not apply to the products, services, or materials supplied by the seller a written deviation/waver is not required. When the Seller is not sure about Q-Clause applicability they should contact Harris Supply Chain for clarification/ consensus.

Definitions

- Material – Materials used to create products typically raw metals, plastics, elastomers, adhesives, etc.
- Service – Services are manufacturing operations, consulting, skilled labor, utilities and other commodities,
- Product – Products are an aggregate of material and services transformed into components, assemblies, and other tangible items.
- P.O. – Purchase Order. The contractual vehicle used to procure services, products, and materials from a seller.
- Seller – The entity in which a Purchase Order for services, products, or materials is awarded.
- Buyer - Harris Corporation
- Purchaser – The Harris representative that originates the Purchase Order with the Seller.
- Harris Supply Chain – The collection of Harris procurement, supplier quality, commodity management, and subcontracts management personnel.
- Supplier/Sub tier Supplier – An entity that supplies services, products, or materials to the Seller
- OEM – Original Equipment Manufacturer. OEMs manufacture others designs.
- ODM - Original Design Manufacturer. ODMs manufacture their own designs.
- OCM – Original Component Manufacturer
- Franchised Distributor - An entity that supplies services, products, or materials to the Seller under expressed authorization by the OEM/ODM.
- Non-Franchise Distributor - An entity that supplies services, products, or materials to the Seller without expressed authorization by the OEM/ODM.
- SSR – Supplier Support Request – A form (record) within the EXPO Supply Chain portal used for the submission of a SIR, SDR, SCN and to submit and FAI to Harris.
 - SIR – Supplier Information Request – Information request for a print change or clarification to Purchase Order requirements such as drawings, specifications, etc.
 - SDR - Supplier Deviation Request – Deviation request if the parts/product do not meet the Harris contractual requirements.
 - FAI - First Article Inspection- Notice submitted by supplier indicating FAI is being submitted to Harris for review.
 - SCN - Supplier Change Notification – Notice submitted by Supplier notifying Harris changes which will affect the contractual requirements of the Purchase Order.

UNAUTHORIZED REPAIRS/REWORK

- No repair or rework shall be allowed outside of the specific specification limits, (i.e., welding, reheat-treat, insert removal, re-installation, etc.) unless prior approval is obtained by the Seller from Harris Supply Chain. All deviations shall be submitted for approval by Harris Supply Chain and contain root cause and corrective action for each non-conformance. Submission of deviation in no way affects any contractual requirements until an approved disposition is issued by Harris Supply Chain. The approved deviation shall be included with the part/documentation package when delivered to Buyer.

QUALITY MANAGEMENT SYSTEM

The Seller shall maintain a quality program that assures that all supplies and services furnished to Harris conform to contractual requirements. The quality program shall be documented and available for review by Harris throughout the life of the P.O.

CHANGE IN APPROVED DRAWINGS, PROCESSES, MATERIALS OR PROCEDURES

- Seller shall not change any drawing, process, material, or procedure without prior written Buyer approval, if such drawing, process, material, or procedures were originally approved by Buyer. This requirement is not relevant for Commercial and/or Military Part Numbers.
- Seller shall not change any process, material, or procedure from that used to qualify items or which was used by Seller to become a qualified source without written approval by Buyer.
- Any change in chemical compounds shall be communicated to Harris to determine if a chemical compatibility study is required.
- In the event of a change, Harris, under this Article, reserves the right to request and receive first article samples for evaluation and to examine the associated distributors, facilities, drawings, processes, material, or procedures to access their suitability for provision of compliant products and services.
- No one except the Purchaser whose name appears on the Purchase Order, or their immediate management, has authorization to approve changes to the Purchase Order. The Seller is liable for any changes made without prior written approval from the Purchaser.
- The change approval must be referenced on the Seller's shipping documents and applicable certifications/test reports.
- Failure to notify the Buyer of these changes may result in rejection of the material.

RE-SUBMITTAL OF REJECTED ITEMS

Items rejected by Buyer, and subsequently resubmitted to Buyer, shall be clearly identified on Seller's shipping document as resubmitted items. Materials rejected by Buyer action shall not be reshipped without having corrective action plan being submitted and approved by Buyer prior to shipment. References to the Buyers rejection document and new lot control identification numbers are to be provided, if required by the Buyer.

UNAUTHORIZED SUBMITTAL OF PRODUCTION

- When the Purchase Order requires Buyer acceptance of a "first article," Seller shall not submit items from a production run for Buyer inspection prior to Buyer's acceptance of such "first article."
- Part Substitution shall not be allowed unless otherwise specifically authorized in the Purchase Order; the exact part number as identified on the Purchase Order, or the exact part number identified in the purchase item drawing shall be provided. For Distributors only, if the ordered part is not available, and the Distributor has a replacement part, the Distributor shall request, from the Buyer, a technical evaluation and approval prior to delivery of the replacement part.

NOTIFICATION OF FACILITY CHANGE

- For OEM/OCM: Seller shall not use or relocate any production, manufacturing, and/or processing facilities during performance of the work specified on the Purchase Order from those production, manufacturing, or process facilities previously qualified by Buyer without promptly notifying Buyer and affording Buyer an opportunity to examine such facilities for compliance with Quality Assurance requirements.

- For Distributors: Seller shall not use or relocate any distribution or value-add facilities during performance of the work specified on the Purchase Order from Seller facilities previously qualified by Buyer without promptly notifying Buyer and affording Buyer an opportunity to examine such facilities for compliance with Quality Assurance requirements. When notified by the OEM/OCM of changes (as detailed in OEM/OCM section), the Seller shall notify the Buyer.

SELLER RESPONSIBILITY FOR CONFORMANCE

The Seller named on the Purchase Order retains full responsibility for ensuring products, Suppliers, or services furnished here under; comply with all applicable specification and standard requirements for design, construction, and workmanship. All Industry Standards/Specifications and flow downs shall be to the latest revision unless otherwise stated on the Buyer Purchase Order.

Acceptance of the Purchase Order and receipt of product at Buyers location certifies that items processed on this order meet all the requirements imposed. This includes any/all Sellers or services purchased from a secondary (sub-tier) Supplier that are incorporated into or are used to produce, inspect, or test products or services under this Purchase Order. The Seller shall:

- Provide (flow-down) of applicable specification and standards requirements to sub-tier suppliers.
- Be aware of their contributions to product safety
- Be aware of the importance of ethical behavior
- Ensure, by performing physical and/or functional inspections that sub-tier Suppliers have complied with the requirements of this Purchase Order.
- Upon request, Seller shall provide objective evidence to Buyer Quality personnel of compliance to this provision.

Inspection and testing of materials, work in process and end items shall be described by clear and complete instructions. These instructions shall include acceptance and rejection criteria.

Neither surveillance, inspection, and/or tests made by Buyer, or their representatives, or representatives of the Buyer's Customer at either Seller's or Buyer's facility, nor Seller's compliance with all applicable Quality Assurance requirements, shall relieve Seller of the responsibility to furnish items which conform to the requirements of the Purchase Order.

Seller shall control sub-tier procurements to the extent required to assure quality requirements specified in Buyer Purchase Orders are satisfied. All relevant Purchase Order requirements (key characteristics, supplemental quality Purchase Order notes, etc., as applicable) required to assure that the buyer's quality requirements are satisfied shall be flowed down to their sub-tier suppliers.

Seller shall notify Buyer promptly when nonconformance is discovered that may affect delivered products. Notification shall include sufficient traceability information to identify and locate affected parts/material.

The Sellers quality program shall assure that completed items are tested and inspected. Inspection status shall be known at all times. When all characteristics cannot be verified at final inspection or test, in-process verifications shall be utilized. If the product is reworked or repaired, any characteristics affected must be verified as conforming to requirements by test and/or inspection as appropriate. Rework that is not totally compliant with the drawings and specifications are not permitted unless specifically authorized by Harris Supply Chain. All products successfully completing final inspection and test shall be positively controlled and identified as well as traceable to inspection and test records.

BUYER SURVEYS, SURVEILLANCE, AUDITS, AND INSPECTION

- Buyer, Buyer's Customer, and Authorities have the right to conduct surveys, audits, and surveillance of Seller's facilities, or those of Seller's subcontractors, or Suppliers with prior coordination with Seller to determine the capability to comply and to verify continuing compliance with the requirements of the Purchase Order.
- Buyer, Buyer's Customer, and Authorities have the right to perform inspection at Seller's facilities, or those of Seller's subcontractors, or Suppliers with prior coordination with Seller during the period of manufacture and inspection prior to shipment.

- Final inspection is the Seller's responsibility to complete prior to shipment for validation of contractual requirements. Final acceptance Inspection shall be completed at the Buyers facility, unless otherwise specified on the Purchase Order.
- Neither surveillance, inspection and/or tests made by the Buyer or his representatives at either the Seller's or Buyer's facility, or the Seller's compliance with all applicable Product Assurance Requirements shall relieve the Seller of the responsibility to furnish items which conform to the requirements of the Purchase Order.
- The Buyer reserves the right to use Structured Sampling for the acceptance or rejection of supplies.

CORRECTIVE ACTION REQUESTS

The Seller and their sub-tier suppliers are to take prompt action to correct conditions that have or could result in the shipment of nonconforming material. When a quality problem exists with Seller's items, Buyer may forward a Corrective Action Request to Seller. Corrective Action Requests require timely responses and must address the following at a minimum:

- The short term containment of suspect parts (if applicable);
- Analysis of the root cause of the problem;
- Action(s) taken to prevent recurrence and effectivity of said action(s);

When corrective action is required for Government Source Inspected items, Seller shall coordinate such action with the Buyer and Government Quality Assurance Representative assigned to Seller's facility.

MEASURING AND TEST EQUIPMENT

- Seller shall be responsible for validating the accuracy and stability of tools, gages, and test equipment used to demonstrate that items conform to the Purchase Order. Traceability of calibration of equipment and gages shall be performed in accordance with an industry recognized calibration standard unless stated otherwise in the Purchase Order.
- Documented schedules shall be maintained to provide for periodic calibration to adequate standards. Objective evidence of calibrations shall be recorded and made available for Buyer review.
- If the SOW, Specification, Purchase Order, or other contractual vehicle specify a higher or alternate calibration requirement, it takes precedence over the specification above.

NONCONFORMING MATERIAL

- The Seller shall maintain a system for controlling nonconforming material, including procedures for the identification, segregation and disposition of reworked or repaired material. All nonconforming material must be positively identified to prevent use, shipment and intermingling with good material. Nonconforming material shall be held in a designated area. Any request for acceptance of nonconforming material shall be coordinated by Harris Supply Chain.
- Seller shall be aware of their contribution to product or service conformity.
- Decisions to accept nonconformances (variances from Buyer drawings and specifications) detected at Seller's facilities must be made by Buyer, unless otherwise specified by the Purchase Order. Shipment of nonconforming items must be accompanied by a Buyer-Approved Supplier Discrepancy Report. The Supplier Discrepancy Report must be dispositioned by the Quality Engineer prior to shipment.
- Seller does not have MRB authority without express written authorization of the Buyer. Seller must request MRB authority by submitting MRB board members' resumes and positions currently held. The Seller, or lower-tier Suppliers, is not authorized to disposition Minor nonconformances as "repair" or "use as is" unless Material Review Board (MRB) authority has been delegated. For this purpose, materials shall be defined as all parts, materials, components, or assemblies of the Seller or lower-tier Supplier.
- No repair or rework shall be allowed outside of the specific specification limits, (i.e., welding, reheat-treat, insert removal, re-installation, etc.) unless prior approval is obtained by the Seller from the Buyer. All deviations shall be submitted for approval to the Buyer. Submission of deviation in no way

affects any contractual requirements until an approved disposition is issued by the Buyer. The approved deviation shall be included with the part/documentation package when delivered to Buyer.

- The Seller shall take prompt and effective action to correct and prevent recurrence of all nonconformities, inclusive of those that occur at the Supplier's subcontractors.
- The Seller is authorized to perform material review board (MRB) disposition for departures from the Seller's engineering data package only, where requirements do not conflict with the Buyer's Requirements.
- Prior to submittal of products that do not conform to the Buyer's procurement requirements (nonconformities that require "Use-As-Is" or "Repair" disposition), the Seller shall complete a waiver request form and submit it to the Buyer for approval. Nonconforming material must be preapproved for submission, must be shipped separate from conforming material, identified (tagged, labeled, etc.) and must be accompanied by the approved waiver.

INSPECTION RECORDS

The Seller and their sub-tier suppliers shall maintain records of all essential inspections and tests for a minimum period of 3 years unless otherwise stated on the Purchase Order. These records shall indicate what was observed, the number of observations, the number and type of deficiencies, the quantity accepted and rejected and the nature of any corrective action taken. Records shall also include material, process and finish certifications when applicable. Records are to be maintained and made available to Harris and other regulatory entities upon request.

PACKAGING

- The Seller is responsible for assuring that all items are delivered without damage or deterioration and are efficiently and economically packed for the method of transportation and type of handling involved. Unit and intermediate packaging shall be employed as necessary to prevent damage or deterioration.
- Material shall be packaged or segregated in such a way as to assure lot integrity. Tags, labels or test data may be used to assist in this process.
- IDENTIFICATION: Each shipping container and intermediate package shall be identified with:
 - Procurement document number
 - Part Number/Drawing Number and Revision (when applicable)
 - Quantity
 - Manufacturer name (if known)
 - Manufacturer date (if known)
 - Serial number (when applicable)
 - Batch or Lot number (when applicable)
 - Cure date (when applicable)
 - Expiration date (when applicable)
 - Static sensitive warning (when applicable)
 - Moisture sensitivity identification (when applicable)
 - Cautionary Handling Instructions (when applicable) Boxes or containers, as applicable, shall be selected to the extent necessary to provide protection from physical and environmental damage during shipping and handling. Cushioning materials shall be applied, as required, to protect and to restrict movement of the item(s).
- Electrical components shall be kept from direct contact with cardboard and other paper products. Electrostatic Discharge sensitive component shall be packaged in static shielding packaging which meets the requirements of MIL-PRF-81705, EOS/ESD S11.31, or equivalent. A label identifying that the parts are static sensitive shall be attached to the package.

- Perishable items or those with limited shelf life must be handled / preserved in accordance with recommendations of the manufacturer.
- The Sellers Quality Control organization shall be responsible for ensuring that items provided under this contract/Purchase Order are packaged in such a manner that the dimensional integrity is preserved, contamination and corrosion are prevented, and no physical damage occurs or, substitution or loss in transit. When specified, packaging shall be in accordance with the drawing, appropriate ASTM, MIL, or other applicable customer specified requirement.
- The Seller shall ensure that special labeling requirements shall also be listed in the appropriate shipping documents and on each package.
- All text markings whether on product or on packaging shall be legible in accordance with the following guidance:
 - Target
Markings legible when viewed without magnification. Markings are distinct, of uniform height, and of a color that contrasts with the background.
 - Defect
 - Marking not legible/blurred.
 - Any missing letter segments are considered a defect
- All international wooden shipping crates and pallets must meet the latest ISPM-15 specification (International Standard for Phytosanitary Measures Number 15). All domestic wooden shipping crates and pallets are strongly encouraged to meet the latest ISPM-15 specification (International Standard for Phytosanitary Measures Number 15).
- All solvents must be supplied in new containers that have not been used before to prevent contamination by residual material.
- A packing slip listing the Purchase Order number must accompany all shipments. Absence of a packing slip shall be justification for rejection of the shipment.
- Unless specifically detailed on the Purchase Order, packaging materials shall not be returned.

PART MARKING

- Marking of the item is required in accordance with the Harris drawing and/or specification. Pay particular attention to nearside or far side marking locations symbols.
- If a National Stock Number (NSN) is noted on this Purchase Order, all parts delivered against this order must be marked with the listed NSN. The appropriate number, if applicable, shall be shown below the Harris part number on this order. If no NSN is shown, NSN marking is not required. Applicable NSN marking is required in addition to any other labeling as identified on the reference drawings, specifications, standards, and guidelines. NSN marking shall be placed in a location that shall not harm or interfere with the operation or use of the delivered items.
- When Harris supplied drawings specify marking parts with Cage Code Numbers 14482, 17903, 33472, 60214 or 62065 the product shall only be marked with Cage Code number "62065". The only exception to this requirement, when a Cage Code of "53711" is specified, that number shall be marked on parts. If a company name other than Harris is required to be marked on any part, contact Harris Supply Chain for clarification.
- If marking is to be identified with a Harris serial number, as required per drawing, the Seller shall contact Harris Supply Chain for serialization assignment.
- Seller shall maintain serialization and/or other identification on Harris furnished parts and/or materials.
- Seller shall serialize parts and/or materials at the Seller's facility when serialization is designated by the Purchase Order. No two items of the same part number (on this or any other Harris Purchase Order) are to be assigned the same serial number.
- In cases where the P.O., Design Media, or SOW do not address part marking

- Buyer's specification-controlled parts: Mark with the Buyer's Source Control Drawing (SCD) number.
 - Other parts: Mark with the manufacturer's part number.
 - When insufficient room for marking is available, the container shall be marked with the part identification.
 - Custom (Harris design) made items valued over \$25.00 each shall be permanently marked with Seller Identification (not Cage Code) and date of manufacture when size and finish allow (do not stamp painted surfaces). Items too small to be marked shall have part number and date marked on the package.
- Marking permanency shall meet solvent resistance requirements per MIL-STD-202, Method 215.
 - Semiconductors must meet the marking permanency requirements of MIL-STD-750 Method 1022.5
 - Microcircuits must meet the marking permanency requirements per MIL-STD-883 Method 2015.13

COUNTERFEIT PARTS PREVENTION

"Counterfeit Item" is defined to include, but is not limited to, (i) an item that is an illegal or unauthorized copy or substitute of an Original Equipment Manufacturer ("OEM") or Original Component Manufacturer ("OCM") item; (ii) an item that does not contain the proper external or internal materials or components required by the OEM or OCM or that is not constructed in accordance with OEM or OCM design, but is represented as such; (iii) an item or component thereof that is used, refurbished or reclaimed but the Seller represents as being a new item; (iv) an item that has not successfully passed all OEM or OCM required testing, verification, screening and quality control but that Seller represents as having met or passed such requirements; or (v) an item with a label or other marking intended, or reasonably likely, to mislead a reasonable person into believing a non-OEM or OCM item is a genuine OEM or OCM item when it is not.

"Authorized Supplier" is defined as a Franchised Distributor, OEM, OCM or After Market Manufacturer with whom the Original Manufacturer has a contractual agreement to stock, repackage, sell and distribute its product lines as defined in SAE AS6174, AS6081 and AS5553. Authorized Suppliers must offer the product for sale with full manufacturer flow-through warranty.

At a minimum, Seller shall have a counterfeit parts prevention plan modeled after SAE AS6174, AS6081 and AS5553 recommendations and requirements that incorporates the following:

- Assesses potential sources of supply to determine risk of receiving counterfeit parts.
- Maintains a register of approved suppliers, including the scope of the approval, to minimize the risk of counterfeit parts supply.
- A documented process to specify contract/Purchase Order quality requirements to minimize the risk of being provided counterfeit parts.
- A documented process to assure detection of counterfeit parts prior to formal product acceptance. The rigor of the verification process shall be commensurate with product risk.
- A documented process to assure that all occurrences of counterfeit parts are reported, as appropriate, to internal organizations, customers, government reporting organizations (e.g., GIDEP), industry supported reporting programs (e.g., ERAI), and criminal investigative authorities.

The Seller, and its' sub-tier suppliers, shall ensure that only new items (EEE parts, components, equipment, hardware, or materials) are used in products required to be delivered to the Buyer. To further prevent the inadvertent use of counterfeit parts, the Seller Shall only purchase components and parts procured directly from the Original Component Manufacturer (OCMs), the Original Equipment Manufacturers (OEMs), or through the OCM/OEM's authorized distribution chain. OCM / OEM Certificates of Conformance shall be available upon request.

The Seller, and its sub-tier suppliers, shall not provide refurbished or used items (EEE parts, components, equipment, hardware, or materials) unless first approved in writing by the Buyer.

If a Qualified Products List (QPL) exists for the items to be supplied under this Purchase Order, the items must have been previously qualified and the manufacturer's name or symbol must appear in the QPL.

The manufacturer's name or symbol must also appear on the item supplied or within the associated shipping container. Qualification data shall be made available to Buyer upon request.

If seller is an OEM, any materials approved by Harris for procurement from non-authorized suppliers shall not release the seller from any product warranty or service obligations as defined in the terms & conditions in effect at the time of the request.

Seller shall include flow-down of equivalent provisions in all lower tier procurements for items that shall be included in or furnished as items to the Buyer.

The Seller, and its sub-tier suppliers, shall not provide items through non-franchised distributors unless first approved in writing by Harris Supply Chain. If procurement from non-franchised suppliers is the only viable option; Items without traceability to OEM (purchased through Non-Franchised Distributors/Brokers) shall be tested / inspected per Harris procedure 7037298 or 10075-3800 and 10075-3500 as determined by the Buyer. Sellers are required to submit validation reports for Harris material disposition instructions prior to shipment.

No alterations of requirements are permitted until a Deviation is issued by the Buyer or Seller and approved by the Buyer. The Seller must present complete and compelling support for its request and include in its request all actions to ensure the parts thus procured are legitimate, authentic, non-counterfeit parts. All CofC documentation shall be on file at Seller's facility and available to Buyer upon request.

The Seller shall segregate and provide full, inclusive of all supply chain intermediaries from the part manufacturer to the direct source of the product, traceability identifiers (i.e., name and location of all supply chain intermediaries, date code/lot code, and serial number) for all items delivered to Buyer which contain an item procured from sources other than OEMs or OCMs or their Authorized Distributors. Upon Harris request, Seller shall provide all documentation regarding the chain of custody of material back to the original manufacturer or an Authorized supplier.

MIL Spec parts MIL-PRF-38535, MIL-PRF-19500, and those MIL Spec parts covered under MIL-STD 790 shall include CofC documentation to the Buyer's in a format which is acceptable to Buyer/Industry standards prior to deliverable product being inspected at the Buyer's facility

Seller shall provide notification to Buyer, as soon as practicable, with the pertinent facts if Seller becomes aware of, or that it has delivered fraudulent, suspect counterfeit, or counterfeit work. Seller shall obtain Harris acknowledgement within 24 hrs after providing the notification.

Suspect counterfeit or counterfeit parts Shall not be returned to Seller nor reimbursed. Seller shall at its expense promptly replace any suspect counterfeit or counterfeit parts with new parts conforming to the requirements of the Purchase Order at no additional cost. Buyer Shall provide documentation to the Seller with results of investigation indicating suspect counterfeit parts and coordinate any Seller review of suspect counterfeit parts at the Buyer's facility. Harris reserves the right to request formal corrective action from the Seller and require additional 3rd party testing to supplement evidence obtained by the seller to confirm authenticity of material. Harris may turn such items over to US Governmental authorities (Office of Inspector General, Defense Criminal Investigative Service, Federal Bureau of investigation, etc.) for investigation and reserves the right to withhold payment for the suspect items pending the results of the investigation. Confirmed counterfeit parts Shall be rendered inoperable and discarded in accordance US Government legislation NDAA 2012 section 818 "counterfeit material shall not be reintroduced into the supply chain"

Seller and all sub-tier Suppliers of Seller shall not use any of the identified Suppliers who have been suspended or indicted for counterfeit part reasons and are on the "Prohibited Suppliers Suspected of Delivering Counterfeit Parts" list maintained by Harris.

OCM/OEM may use alternate procedures provided they are based on industry standards (IDEA-STD-1010, AS6081, etc.). Test and inspections shall be performed in accordance with clearly delineated accept/reject criteria provided or approved by Buyer. The Seller shall prepare and provide records evidencing test and inspections performed and conformance of the product to specified acceptance criteria.

Federal Penalties Associated with Fraud—This Purchase Order and activities herein are within the jurisdiction of the United States Government. Any knowing and willful act to falsify, conceal or alter a material fact, or any false, fraudulent or fictitious statement or representation in connection with the performance of work under this Purchase Order may be punishable in accordance with applicable

Federal statutes. This clause applies in addition to any quality provision, specification, statement of work or other provision included in this Purchase Order addressing the authenticity of work. To the extent that such provisions conflict with this clause, this clause prevails.

Compliance with these requirements in no way is to be interpreted as relieving the Seller from their responsibility to assure that Counterfeit Parts are not contained in products delivered. Procurement manager must approve any deviations from this clause in advance, in writing.

TEST SAMPLES/REJECT/REWORK PART PACKAGING AND IDENTIFICATION

All test samples and/or reject parts to be shipped to Buyer shall be packaged in appropriate packaging medium to protect parts from damage. These items shall be packaged separately from compliant product and shall be identified/labeled with part number, date/lot code, and identified as test samples/rejected and/or reworked parts (if applicable).

CONFIGURATION MANAGEMENT REQUIREMENTS

The seller shall have procedures, which assure that the latest applicable drawings, parts lists (PL), generation breakdown (GB), specifications and P.O. instructions, as well as authorized changes, are used to fabricate, inspect and test the material, supplied, or are use in the fabrication process. The configuration (hardware, software) delivered under this contract shall conform to those configuration management and engineering documentation requirements implicit in the specification. The Seller shall impose the same configuration requirements on their sub-tier Suppliers in concert with the above requirements. The following configuration management functions are basic to good practices:

- Product Identification
- Configuration change control
- Material traceability to the extent identified in the Purchase Order and design media

Seller shall maintain a configuration management system to control the incorporation of Harris drawing and specification changes into the Seller's engineering, manufacturing, and inspection processes. This system shall also control any Seller-generated changes to their design packages that have been referred to in any Harris drawing or specification. Upon Harris approval of a supplier design package, no changes shall be made without submittal to and approval by Harris. This system shall also control any software product delivered to Harris.

The applicable revision of all specifications, military specifications and standards, test practices, guides, technical bulletins, etc. associated with this order is the revision in effect at the time of Purchase Order/last supplement date unless otherwise noted in the requirements.

If an item on the Purchase Order is controlled by a drawing that lists or references a Parts List (PL) or a Generation Breakdown (GB), the seller must assure that have the revisions in effect for the date of this Purchase Order. The seller Shall contact the Procurement Agent whose name is on the Purchase Order for the current drawing revision level listing of the subsidiary drawings on the PL or GB.

The seller shall only accept changes in the revision status of any of these drawings by means of a duly executed Purchase Change Order. The seller shall not accept changes via verbal or email direction from anyone other than Harris Supply Chain.

DATA CONTROL

Sellers shall employ a data control system designed so that data is controlled at a level to assure that integrity of product and/or tooling configuration is maintained throughout the Seller's system from receipt of electronic data through creation of derivatives, to product acceptance and process improvement.

All documents relating to the Quality system are to be reviewed for adequacy and approved by Seller's authorized personnel prior to issue.

Seller documentation and data related to products or services shall be controlled. Obsolete documents Shall be removed from points of issue or otherwise controlled to preclude unintended use.

ELECTROSTATIC DISCHARGE PROTECTION (ESD)

For the contractual requirements of parts that are ESD sensitive, the Seller shall have an Electrostatic Sensitive Discharge (ESD) control program subject to review and approval by Buyer in compliance to the requirements of the applicable standard specified by the Purchase Order.

SHELF LIFE

Each shipment of material with a finite shelf life shall be accompanied by documentation to determine expiration date based on the OEM method for determination useful life (date of manufacture, date of shipment or expiration date as applicable). Product that has a shelf life requirement shall be marked with this information, and shall have 75 percent remaining total available shelf life from the initial date of certification when received by the Buyer. The latest SDS/MSDS for all chemical shall be supplied to Buyer upon request.

Environmentally Sensitive Material (Temperature, Humidity, Barometric Pressure, Ambient Light, other) must be identified with the Storage Conditions (Temperature, Humidity, Barometric Pressure, Ambient Light, other), as applicable on the outside shipping container and the lowest level packages containing the material.

ALL CHEMICALS OR HAZARDOUS MATERIAL shall include a Material Safety Data Sheet (MSDS) with each lot of material delivered, unless the Seller can confirm that the current MSDS is already on file at Harris.

When specified material has variable shelf life periods based on specific storage conditions, (example: 1 year at -40°C and 6 months at 0°C) this storage information must be provided with the shipment documentation.

SOLDERABILITY / MOISTURE SENSITIVE PARTS

Product that have leads, terminations, wiring, etc. intended to be soldered by the Buyer shall comply with the lead termination requirements imposed by the procurement document (military specification, industry standard, etc.) or Original Equipment Manufacturer standard practices for hand and machine soldering.

These articles may be solderability tested within 30 days of receipt, after eight hours of steam aging, to the solderability requirements. If no Solderability requirements are specified on the drawing, the testing shall be performed to MIL-STD-202 Method 208, MIL-STD-883 Method 2003 or MIL-STD-750 Method 2026. Failure to meet these solderability requirements may be cause for rejection.

Plastic Encapsulated Microcircuits (PEMs) and non-IC Electronic Components that exhibit moisture sensitivity in relation to the surface mount reflow soldering processes shall be "dry" packed in a Moisture Barrier Bag (MBB) with desiccant and humidity indicator card (HIC) I.A.W. J-STD-033 or equivalent. Seller shall label all moisture sensitive devices with level, seal date, shelf life and baking instructions I.A.W. J-STD-033 / J-STD-075 or equivalent. Received items shall have a minimum of nine months of shelf life remaining upon receipt.

DOCUMENTATION

All documentation delivered to Harris shall be in English and shall be legible.

If the Harris Drawing(s) specified in this order requires dimensions that may differ from the Seller catalog items referenced on the drawing. The responsibility for verification of dimensional correctness of the items supplied to Harris lies with the recipient of this Purchase Order.

Quality and documentation requirements shall be per applicable design media and any supplemental quality P.O. conditions on this P.O.

Unless otherwise specified in the P.O., SOW, or Design Media; final acceptance is performed at Harris.

ELECTRONIC DATA DELIVERY

Harris Supply chain prefers documentation to be uploaded to the Buyer's EXPO data portal via link (<https://supplychain.harris.com/secure/logon.aspx?FORCE=true>) in a format which is acceptable to Buyer/Industry standards (<https://supplychain.harris.com/secure/logon.aspx?FORCE=true>). Harris shall provide access (login and password) to this secure site at time of order. Harris Supply Chain may request and email notification of data upload.

Test data provision shall be performed electronically either through upload to EXPO or through the provision of CD ROMs. All test data shall be compatible with Microsoft Office product. Exception to this requirement must be obtained through the buyer through a SDR.

Note: If the only required documentation is the Certificate of Conformance, and the CofC is provided on the Seller's packing slip, it is not required to upload the CofC in the electronic format.

SSR (Supplier Support Request) Support request based on when a supplier requires information, review and/or approval to Harris contractual requirements. The SSR should be approved prior to delivery of product.

- SIR (Supplier Information Request) Information request for a print change or clarification to Purchase Order requirements such as drawings, specifications, etc. This request shall be made before parts are built. If an ECO is requested by the supplier and it is determined that the final disposition shall be an ECO, an SIR shall be submitted.
- SDR (Supplier Deviation Request) Deviation request if the parts/product do not meet the Harris contractual requirements from the supplier, an SDR shall be submitted. This request is made when parts/product are in process and/or finished.
- FAI (First Article Inspection) Submit a SSR-FAI First Article Inspection Report (Reference AS9102) when the Drawing specifies or if the Q-1400, 1410, or 1420 Q-Clause is on the Purchase Order (Notes). The FAI documentation can be attached in the SSR-FAI record prior to submitting for approval, then submit the SSR-FAI for approval in the EXPO system.
- SCN (Supplier Change Notification) Submit a SSR-SCN Supplier Change Notification when the supplier wants to notify the Harris Customer of a change which will affect the contractual requirements of the Purchase Order. This may include but is not limited to these examples: Drawing Revision changes, Material changes, Location of Manufacture change, Process and/or equipment change, etc. Dimension and test data shall be provided on electronic media (read-only format via CD or DVD). This media shall contain data of ALL parameters listed on the Purchase Order as well as dimensional data selected by the Seller to demonstrate product conformance. Data MUST reference, at a minimum, PO number, Part Number, Lot identification and Serial Number (if applicable) on media delivered.

REQUIREMENTS FOR PROVIDED ELECTRONIC DATA OR CAD FILES

- Standard Drawings
- Electronic Data or CAD neutral files (STP, IGES, DXF etc.), when provided by the Buyer – are offered only as an aid to manufacturing. No guarantee of compatibility or correctness of the file in relation to the drawing is given. The drawing and the Purchase Order are the only contractual documents for the requirement. If the fabricator should find a conflict between the CAD file and the drawing, they are to immediately contact the Buyer and submit a SSR for clarification as it may be an indication of a drawing issue.
- Simplified Drawings
- Electronic Data or CAD neutral files (STP, IGES, DXF etc.), when provided by the Buyer on Simplified Drawings, are a component of the contractual requirements. As referenced on the drawing, both the CAD file and the drawing are to be used to manufacture the part. If the Seller should find a conflict between the CAD file and the drawing, they are to immediately contact the Buyer and submit a SSR for resolution.

SUPPLEMENTAL QUALITY P.O. CONDITIONS

All supplemental quality conditions incorporated into the P.O. are defined in this document.

TEST 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 Buyer including test software, and these records shall be available for Buyer review.

GENERAL

- Materials furnished by Harris become the responsibility of the Seller. Seller shall maintain an inventory list and processes for material control for all Harris owned materials or tooling if not delivered with the shipment. The Seller is responsible for replacement if parts are rejected without the possibility of rework. All residual material must be returned.
- Changes to this Purchase Order can only be approved by the buyer or authorized agents of Harris.

QC-10 CABLE AND WIRE HARNESS ASSEMBLIES, ACCEPTANCE REQUIREMENTS

Requirements and Acceptance for Cable Assemblies shall be in accordance with IPCWHMA-A-620, Class 3. Solid conductor wire shall not be crimped regardless of any manufacturer/document allowance; solid conductor wire shall be soldered coated and soldered to de-golded contact. This requirement does not apply to Commercial Off The Shelf (COTS) Cable Assembly, Fiber Optic Cable Assembly, bare PWBs, and Flex Circuit (Polyimide "Kapton" Laminate) Cable Assembly.

QC-20 SOLDERING PROCESS REQUIREMENTS

This item requires that all processes, material, cleaning, coating, encapsulation, product assurance, and personnel certification meet the requirements of:

- A. Soldering shall comply with NASA Standard 8739.2. Requirements for Surface Mount.
- B. Soldering shall comply with NASA Standard 8739.3. Requirements for Soldered Electrical Connections.
- C. Soldering shall comply with IPC-A-610 Class 3
- D. Soldering shall comply with IPC-A-610 Class 2
- E. Soldering shall comply with IPC J-STD-001 Class 3
- F. Soldering shall comply with IPC J-STD-001 Class 2
- G. Soldering shall comply with IPC J-STD-001 XS Space Applications
- H. Other Standards as approved by Buyer
- I. Solderability of leads and terminations shall comply with requirements of J-STD-001 Class 3.
- J. Electrical and Mechanical solderable component parts shall meet the solderability requirements of J-STD-002, JESD22-B102 or MIL-STD-202 for a minimum of one year (12-Months) after receipt of parts at Harris.

QC-30 VISUAL INSPECTION

Visual inspection shall be aided by magnification between 4x and 7x or as specified below. Additional magnification shall be used as necessary to resolve suspected defects.

- A. 100% Inspection of all surfaces is required.
- B. Maximum inspection magnification shall be limited to 10x magnification.

QC-40 WORKMANSHIP MIL-HDBK-454

Material supplied on this order shall meet the workmanship guidelines of MIL-HDBK-454 guideline 9.

QC-50 PRODUCT HOMOGENEITY

- A. All product supplied to this Purchase Order line item shall be from manufacturer's single lot and/or date code.
- B. All product supplied to this Purchase Order line item shall be from manufacturer's single lot and/or date code and be less than 5 years old upon receipt.
- C. All product supplied to this Purchase Order line item shall be from manufacturer's single lot and/or date code and be less than 16 months old upon receipt.
- D. All components supplied to this Purchase Order must be assembled from homogeneous lots of subcomponents. subcomponents shall be defined as electrical parts and packages.

The Seller shall obtain the approval of Harris through a SSR prior to shipping goods that do not meet this single lot / date code requirement. When mixed lot / date codes is requested, the SSR shall list individual lot / date codes and quantity. Multiple lot / date codes shall not be co-mingled. In addition, the individual part containers shall be marked with the quantity and lot / date code.

QC-60 PRODUCT TRACEABILITY

- A. The Distributor (a Seller other than the manufacturer) shall identify:
 - Manufacturer

- Manufacturing plant location or cage code (if known)
 - Manufacturer's part number
 - Manufacturer's lot or batch number (if applicable)
 - Lot date code (if applicable) for each item under the procurement.
- B. All parts and/or material and applicable documents must be identified by a manufacturing lot number or batch number by the Seller. A lot is the quantity that has been manufactured during an uninterrupted period of time by essentially the same personnel, following a standard process and using the same equipment/facility. When size does not permit the application of this number on the part, a unique method shall be used that provides traceability to the manufacturer's lot.
- C. Materials must be identifiable by lot number, material type, specification and revision letter(s) or number(s), heat number, etc. and traceable to records of inspection acceptance. Items fabricated by the Seller shall be identified with the lot of material used. When two or more parts are joined in an assembly, the Seller shall prepare an assembly parts list identifying each item in the assembly. Records of traceability shall be available for review by a Harris Corporation quality representative.
- D. Documentation that demonstrates a solid chain of custody from the original manufacturer through all intermediate distributors down to the buyer. Traceability documentation shall be maintained for all hardware.
- E. The material delivered shall require pole date identification for each lot. When multiple pole dates are delivered within a single shipment the material shall be segregated and identified by pole date.
- F. The item ordered per this drawing requires serialization and or other information. Please contact the buyer on this Purchase Order to obtain marking guidance.
- G. Manufacturer is required to serialize parts delivered on this Purchase Order. Unless otherwise stated the manufacturer may use serialization method of their choice.

QC-70 SUB-TIER SUPPLIER MANAGEMENT

This Purchase Order requires that all requirements that are invoked or applied to the customer's purchasing document and its associated documents, including key characteristics where applicable, be flowed down to all sub-tier suppliers.

For Purchase Orders of end items in which it is the responsibility of the Seller to procure components, it is the responsibility of the Seller to obtain any product assurance requirements (i.e.: screening/qualification data, product certifications, DPA reports, PMT reports, PIND reports, source inspection (pre-cap or final), receiving inspection) either dictated by Harris source control drawing, Harris engineering drawing, military/commercial specification, and/or standard internal procedure. These requirements shall be retained at the Seller's facility for a term dictated by the Purchase Order.

The Seller shall maintain a supplier control system ensuring all sub-tier Suppliers are capable of meeting the requirements of the Purchase Order. The Buyer retains the right to approve any sub-tier Suppliers considered for use on deliverable hardware. The Seller shall notify the Buyer of any intentions to subcontract work required to complete the Purchase Order requirements.

QC-80 TRACEABILITY DOCUMENTATION

Traceability documentation shall be provided to the following requirements:

- A. MIL-PRF-19500 (Semiconductors)
- B. MIL-PRF-38534 (Hybrid Microcircuits)
- C. MIL-PRF-38535 (Microcircuits)
- D. Manufacturer's heat, lot, or batch number and the Buyer's Purchase Order number shall be included with the material.
- E. All electronic components or electronic subassemblies are required to be accompanied by OEM/OCM certificate of authenticity, indicating the part number as marked on the component or subassembly. If an OEM/OCM certificate is not available, and if contractual requirements allow, and with the approval of Quality team, a manufacturer/distributor's COC and a counterfeit prevention plan can be substituted in lieu of OEM/OCM Certificate of authenticity.

- F. When items are serialized, the serial number shall be listed on any certifications.
- G. For material with date codes, the Seller must supply documentation detailing the quantities supplied of each date code in each incoming lot or be able to furnish that information within 48 hours of request.
- H. Materials furnished by Harris for production of items shall reference the shipper number on which the materials were received.
- I. In absence of traceability, and with written authorization from Harris Supply Chain prior to shipment, all pertinent test data/authenticity documentation shall accompany each shipment.
- J. Traceability Documentation - Certification indicating compliance with the Specialty Metals clause as defined by DFAR 225.7002. See Clause 44.0 for additional clarifications.
- K. JAN Device Traceability From Mfr. (per MIL-PRF-19500) (Direct Mfr/Distributor) to be supplied with the shipment:
- Manufacturer's name and address
 - Name and address of original customer (Harris Corporation or distributor)
 - Device type and product assurance level (i.e., JAN, JANTX, JANTXV, JANS)
 - Lot identification code (including assembly plant code)
 - Inspection data or latest re-inspection date on the documentation (Must be less than 24 months old on receipt at Harris Corporation)
 - Quantity of devices in shipment (from manufacturer to original customer).
 - Manufacturer authorized signature and date.
 - Other than Device Mfr. - Additional Requirements:
 - Distributor's name and address
 - Harris Corporation name and address and previous distributor's name and address, if applicable
 - Quantity of devices in shipment
 - Latest re-inspection date, if applicable
 - Certification that the shipment is a part of the shipment covered by the manufacturer's documentation
 - Distributor authorized signature and date of transaction.
- L. Seller shall furnish material identification and traceability with the shipment of product. For metals, physical and chemical test reports are required. For non-metals, objective evidence that the correct material was used shall be provided. Seller shall maintain a copy of all supplier's procured raw material certifications, which must be readily retrievable and shall include material specification, dimension/description, alloy and condition.
- M. Shipment must include the approved OEM/Manufacturer's certification document or the distributor's certificate of compliance when lot traceability is maintained.
- N. Seller shall maintain a method of item traceability that ensures tracking of the supply chain back to the manufacturer of all Electrical, Electronic, and Electromechanical (EEE) parts included in assemblies and subassemblies being delivered per this order. This traceability method shall clearly identify the name and location of all of the supply chain intermediaries from the manufacturer to the direct source of the product for the Seller, and shall include the Manufacturer's batch identification for the item(s) such as date codes, lot codes, serializations, or other batch identifications.

QC-90 CERAMIC DATA

Ceramic Data must be retained on file for 100% or 30 pieces whichever is less for each poling lot.

QC-100 CHEMICAL AND PHYSICAL ANALYSIS (TYPICAL VALUES)

The Seller shall submit a Typical Value Test Report with each lot of material shipped. This test report shall list the range of values within which the properties of material used to fill the order. In the case of a drop shipment to other than Buyer's plant, a copy of the report shall also be submitted, together with a copy of the packing slip, at time of shipment.

QC-110 CUSTOMER/ROUTER SPECIFIED TEST DATA

Customer requires shipment of Test data with the hardware. Specifics of data required are on the router.

QC-120 DELIVERABLE INSPECTION/TEST DATA

Subcontractor shall include with each shipment a copy of the results of the lot or item acceptance tests required by the applicable specification. The report shall include the principal specifications including revision numbers or letters which govern the production of the item. Seller records are also to include parts & materials data, certifications, inspection results, and are to be associated with the part or material manufacturer's lot/batch number/and or date codes as well as the seller's lot number. Where quantitative limits are established by the specification, the report Shall indicate the actual values obtained. Required data to be supplied shall be:

- A. Attributes data for all screening tests.
- B. Variable data for all burn-in and operations life tests.
- C. Dimensional measurement data (actual readings) covering mechanical parameters of the referenced drawing and/or specification. This data shall contain readings of the dimensions selected by the Seller to demonstrate item conformance.
- D. Lot specific final electrical parameter test data.
- E. Data specified in the referenced drawing.
- F. Group A Test/Inspection Data
- G. Group B Test/Inspection Data
- H. Group C Test/Inspection Data
- I. Group D Test/Inspection Data
- J. Group E Test/Inspection Data
- K. Each deliverable device shall be supplied with the following: Lot specific data necessary to prove compliance to all electrical performance and Group A testing requirements of the specification. Summary reports of all screening tests performed and Group B, C, D and E (if radiation data is available) as required by the governing specification including dated indication of completion and compliance.
- L. Provide test measurement/inspection data (actual readings) covering the functional (defined as operative inspections, e.g., mechanical, electronic, hydraulic etc.) parameters of the referenced drawing and/or specification. This data shall contain, as a minimum, readings of the parameters listed on the Purchase Order, readings of the parameters selected by the Seller to demonstrate item conformance shall be furnished.
- M. Electronic x-ray or film (Approved by Buyer) must as a minimum be annotated with :
 - Part Number
 - Part Serial Number(s)
 - Identification of the area photographed
 - Identification of the view direction

Radiographic/Photographic film shall be interpreted by the Buyer approved facility and the findings documented in a written report. The radiographic report shall include at a minimum

- Name and location of the radiographic facility performing the inspection
- Radiographic/photographic specification or procedure used
- Quantity of parts inspected

- Quantity of parts accepted
 - Quantity of parts rejected and reason for rejection.
 - Name of the reader and the signature of a responsible agent.
- N. Environmental Test Reports (defined as vibration, temperature, salt fog, dust, etc.). Data must be provided showing that all equipment is capable of meeting specifications when subjected to the environmental extremes/requirements listed on the Harris drawing, R.F.Q., P.O. or S.O.W. with shipment of the material.
- O. Pressure or Leak Test report.
- P. 100% VSWR and Continuity Test. Where testing is not specified by the drawing, test data confirming that 100% VSWR and Insertion Loss Testing was successfully performed for all RF cables and 100% Continuity check was successfully performed for all DC cables, shall be recorded and retained (electronically preferred) by Seller for each shipment and shall indicate acceptance by seller's stamp (or signature) and date performed.
- Q. Inspection documentation stamped by the responsible quality inspector showing 100% inspection for all attributes noted on the drawings, for all parts submitted under this Contract/Purchase Order.
- R. When Buyer specifications require test data to be reported during the performance of acceptance testing, a copy of the recorded data (test report) showing evidence of Seller's inspection and verification of conformance shall accompany shipment of items to Buyer. This test report shall list actual test results obtained from an analysis of representative samples of each lot of material used to fill this order. In the case of a drop shipment to other than Buyer's plant, a copy of the report shall also be submitted, together with a copy of the packing slip, at time of shipment.
- Minimum report data provided shall consist of the part number, revision letter, nomenclature, Purchase Order number, engineering orders, lot numbers, serial numbers, lot date codes, lot quantity, inspection sample size, type of test performed, characteristics/parameters inspected and/or tested, quantity accepted, and quantity rejected, any codes/keys/or other information necessary to interpret Seller's data, and signature/stamp of Seller's inspection/test representative. If Go/No-Go test method is used, test program must be identified.
- S. Items A through R as appropriate to the items being tested and requirements of the Purchase Order

QC-130 DELIVERABLE PRESSURE VESSEL DATA

With each shipment, Seller shall provide two copies of American Society of Mechanical Engineering (ASME) Code Reports showing conformance of the units to the requirements of the Pressure Vessel Code. When required, the hardware markings must be in accordance with the applicable drawing/specification. The pressures tested/certified to and the method used shall be indicated.

QC-140 DESTRUCTIVE PHYSICAL ANALYSIS

The parts procured on this PO require the seller to provide a Destructive Physical Analysis (DPA).

- A. The DPA is to be performed per s311-m-70, using the sample size identified in the PO. The DPA must be performed by an independent lab approved by Harris corporation the DPA is to include RGA testing, where applicable, on at least one part, and include screening for prohibited materials. The DPA report shall be included with shipment of the parts. The Seller shall contact Harris Corporation prior to shipping any lot that fails DPA.
- B. The (DPA) shall be performed in accordance with Buyer Specification 2016745
- C. Buyer approval of Seller's DPA procedure is required prior to implementation. If Seller chooses to have the analysis performed by an outside Supplier, Buyer approval of that Supplier is required.
- D. Buyer approval of the lab to be used for the DPA is NOT required.
- E. The DPA must be done by an independent third party lab which is DSCC certified to perform DPAs on this part commodity. The DPA must be done according to the requirements of MIL-STD-1580 (current revision). A comprehensive DPA report must be supplied as part of the delivered data package for the shipped parts.

- F. The sample quantity shall be those designated as the quantity of parts listed on an RFQ / PO line as "Samples for DPA."
- G. DPA shall be done in accordance with the Buyers Source Control Drawing

QC-150 DIMENSIONAL INSPECTION SAMPLING

For dimensional inspection, sampling per ANSI/ASQ z1.4, level iii, aql xx (except all sample sizes shall be accept on "0" reject on "1") is acceptable.

- A. AQL = 1.0
- B. AQL = 2.5
- C. AQL = 4.0

QC-160 DPA TEST EXCEPTION

Harris corporation acknowledges and accepts the sellers exception to perform actual DPA processing. the responsibility for satisfying this requirement shall be that of Harris corporation.

QC-170 HARRIS SOURCE INSPECTION ALTERNATIVE

Prior to shipment, and in lieu of tests witnessed by an Harris product assurance representative, test data sheets shall be submitted to Harris 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 test data shall be included. In addition, if required by the Purchase Order, each deliverable device shall be supplied with the following:

- 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 Group B, B, and D 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 requirements of the specification.
 - 2. Summary report of all screening tests performed and Group B, C, and D 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.

QC-180 HEAT TREATMENT OVEN CHARTS

The Seller shall supply heat treatment oven charts for all heat treatments specified in the procurement documentation and referenced drawings. Oven charts shall include reference to oven used, date of heat treatment, starting time, and definition of pen scales used to record times and temperatures.

QC-190 INSPECTION AND TESTING DOCUMENTATION

Inspection and testing of materials, work in process and end items shall be described by clear and complete instructions. These instructions shall include acceptance and rejection criteria.

QC-200 MICROCIRCUIT DIE TESTING

- A. Microcircuit die supplied on this order shall be shipped with lot-specific wafer identification along with summary data for all required MIL/883 wafer lot qualification tests and inspections. All information shall be provided as part of the data package supplied with the parts.
- B. Microcircuit die supplied on this order shall be shipped with additional testing and inspections as specified in TOR-2006(8583)-5236, latest revision, Table 960-1 All Subgroups. Summary test results

for the lot to be shipped to the Buyer shall be provided for all subgroups in Table 960-1 as part of the data package supplied with the parts.

- C. Semiconductor dice on this order shall be shipped with lot-specific wafer identification along with summary data for all wafer lot qualification tests and inspections. All information shall be provided as part of the data package supplied with the parts.
- D. Semiconductor dice on this order shall be shipped with additional testing and inspections as specified in TOR-2006(8583)-5236, latest revision, Table 960-2 All Subgroups. Summary test results for the lot to be shipped to the Buyer shall be provided for all subgroups in Table 960-1 as part of the data package supplied with the parts.
- E. Die geometry shall be supplied with each lot shipment.
- F. Element evaluation is to be performed in accordance with Buyer specification provided for each manufacturer's wafer lot.

QC-210 NON-OPTIMIZED PROCESS REQUIREMENTS FOR MICROCIRCUITS PURCHASED AS MIL-PRF-38535 CLASS V:

- A. Non-optimized, Static Burn-in according to MIL-PRF-38535, is required on a 100% screening basis for the lot of parts being purchased. Summary results shall be included with the data package shipped with the lot of parts.
- B. Non-optimized, Internal Visual according to MIL-PRF-38535, is required on a 100% screening basis for the lot of parts being purchased. Summary results shall be included with the data package shipped with the lot of parts.
- C. For CMOS parts: Both pre and post burn-in QIdd measurements shall be read and recorded for all parts in the lot at 25 °C. The Delta QIdd shall be calculated for each part in the lot and reported as part of the data packaged shipped with the lot of parts.
- D. Serialized final test results included with the data package shipped with the lot of parts.
- E. Non-optimized, Gross Leak testing according to MIL-PRF-38535, is required on a 100% screening basis for the lot of parts being purchased. Summary results shall be included with the data package shipped with the lot of parts.
- F. Non-optimized, Final electrical testing shall be performed at three (3) temperatures (Minimum, 25°C, and Maximum) according to MIL-PRF-38535, is required on a 100% screening basis for the lot of parts being purchased. Read and record, serialized, results shall be included with the data package shipped with the lot of parts.
- G. Non-optimized, internal water vapor testing shall be performed on 3 pieces from the part lot being purchased according to MIL-PRF-38535. Summary results shall be included with the data package shipped with the lot of parts.

QC-220 ONE PIECE INSPECTION

Subcontractor shall perform a verification of one piece for each lot delivered under this purchase Order/contract.

QC-230 OUTGASSING REQUIREMENT

Outgassing: All nonmetallic and organic materials shall be tested per ASTM E 595. Materials shall exhibit a total mass loss (tml) of not more than 1.0 percent and a collected volatile condensable material (cvcm) of not more than 0.1 percent. Data listed in the NASA reference publication 1124 for applicable materials may be used in lieu of actual testing. Materials having an outgassing characteristic in excess of these limits shall require Harris approval, in writing, at least sixty (60) days prior to start of assembly of the first lot of parts.

QC-240 PASSIVE ELEMENT EVALUATION FOR HYBRIDS AND ASSEMBLIES

All required test information and data below shall be provided as part of the data package supplied with the parts.

- A. All passive elements shall meet the evaluation requirements of MIL-PRF-38534, Appendix C.
- B. Ceramic chip capacitors shall be M123 per MIL-PRF-123.

- C. Chip resistors shall be M55342 at FR T per MIL-PRF-55342.
- D. Discrete semiconductors shall be JANKC or JANS according to MIL-PRF-19500.
- E. Monolithic microcircuits shall be QML V or JAN Class S according to MIL-PRF-38535.
- F. Silicon substrate, metal element, chip resistors, with wire bond terminals must be compliant with MIL-PRF-55342. The only exception to this is Power Conditioning; which may be done, with Buyer approval of sample size, on a sample basis.
- G. Hybrid packages shall be hermetic and meet all MIL-PRF-38534 package requirements.
- H. Any hybrids contained as elements of a hybrid or assembly ordered from the Seller shall meet all of the requirements of this Quality Code.
- I. Any alternates to the parts specified above, and parts of types not covered above, require Buyer approval and processing according to the tables in TOR-2006(8583)-5236, latest revision, section 960.
- J. The use of commercial parts is strongly discouraged. Buyer approval of such parts shall require strong technical justification and a strong quality assurance / reliability assurance plan from the Seller. The judgment as to the efficacy of the aforementioned justification and plan rests solely with the Buyer.
- K. A complete As-Designed EEEE Parts list shall be provided to the Buyer for approval before purchasing or parts or hybrid / assembly build begins.
- L. A complete As-Built EEEE Parts list shall be provided to the Buyer with the data pack shipped with the finished hybrids or assemblies.
- M. Passive elements supplied on this order shall conform to the requirements of Buyer's specification.

QC-250 PIND TESTING

PIND testing required for microcircuit devices with cavities, when it is not performed during standard product flow. PIND test per MIL-STD-883 TM 2020A PDA less than or equal to 1%. Single pass not allowed.

QC-260 PROCESS CONTROL DATA

Each shipment must be accompanied by legible and reproducible process control data to include statistical charts used to control the work processes involved in preparing the product shipped to Harris Corporation. When "variable" data is required, this shall be stated in a special instruction or the Purchase Order.

QC-270 RADIATION TEST DATA

Radiation test data shall be supplied with order to include TID, DDD, SEE/SEU and RLAT.

QC-280 SCANNING ELECTRON MICROSCOPE (SEM) ANALYSIS

Buyer approval of Scanning Electron Microscope (SEM) Analysis is required for wafer lots to be incorporated in parts supplied to Buyer. The SEM Analysis shall be performed by Seller and must be approved in writing by Buyer prior to incorporation of wafers in parts.

QC-290 SELLER 100% INSPECTION REPORTING REQUIREMENTS

- A. Seller is required to submit with each shipment of items one copy of an inspection report reflecting 100 percent inspection (of all drawing characteristics for each part in the order). Seller shall inspect and report on everything called out on the drawing characteristics.

Items with a total tolerance $>.010$ " or threaded features, shall allow, at the manufacturer's discretion, the use of an attribute gauge for inspection. If an attribute gauge is used the manufacturer may record the dimension as "OK" or acceptable in the inspection report.

The report shall delineate each drawing characteristic, location (sheet and zone), tolerance, and specify actual measurement results for all drawing characteristics including all out-of-tolerance conditions. The only exception to the above procedure applies to items machined under tape control or automated conditions.

The inspection data shall be keyed to unique serial numbers assigned to each item (check the Purchase Order for pre-assigned serialization). Serial numbers shall be affixed to each item with a tag and are not to be physically scribed or stamped into the items unless directed by the Buyer, PO, or drawing.

Suggested report format is as follows:

Dimension Tolerance DWG Location S/N 001 S/N 002

0.250 +0.005 Sheet 1 CC 0.251 0.253

0.005

0.250 +0.010 Sheet 1 CC 0.259 0.253

0.000

0.250 +0.010 Sheet 1 CC 0.257 0.263

0.010

- B. Seller is required to submit with each shipment of items one copy of an inspection report reflecting all drawing characteristics as required in QC-290-A. This report shall be limited to the first, middle and last item produced from one continuous set-up; and the inspection report shall state the items were machined under tape controlled, automated conditions, or if a batch assembly process was used. If a sampling plan is specified by the Buyer's drawing, inspection of a lot to that sampling plan is allowed. The document number of the sampling plan and relevant sampling plan information used shall be recorded on the inspection report. When no sampling plan is specified by drawing and seller is a distributor of catalog parts (i.e., connectors, pins, sockets, plugs, screws, nuts, bolts etc.), inspection of the first and last packaged is allowed
- C. Same as QC-290-A, however, the only documented drawing characteristics required on the inspection report are those characteristics and notes identified as Critical to Function (CTF) and any other nonconforming dimensions. Seller is responsible for compliance to dimensions and notes on the drawing
- D. Provide normal inspection/test data covering parameters identifying conformance to the requirements of the referenced drawing and/or specification
- E. Provide test measurement data (actual readings) covering the functional parameters of the referenced drawing and/or specification.
- F. Provide dimensional measurement data (actual readings) for each part in this order, covering the mechanical parameters of the referenced drawing and/or specification.

QC-300 BUYER SOURCE INSPECTION

Inspection by Buyer must be performed at Seller's facility prior to shipment. Upon receipt of this Order and prior to commencing work, promptly notify the Customer's Procurement Quality Assurance Representative (PQAR) assigned to the Seller's facility so the appropriate inspection plan can be coordinated. In the event that a Procurement Quality Assurance Representative does not normally service the Seller's facility, immediately notify the Customer Procurement representative to obtain a point of contact for the appropriate Procurement Quality Assurance Representative (PQAR) assignment.

Source inspection shall be conducted by the Customer at the Seller's facility or where designated in the Order.

Seller shall provide reasonable inspection facilities for Buyer to verify conformance to requirements and shall make available to the PQAR all applicable drawings, specifications, procedures, statements of work, Customer's Order, test software, and 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 this Order.

Buyer Source Inspection may include validation of Seller's automatic test programs, procedures to Buyer specification requirements, witnessing Seller's performance of acceptance testing, and review of acceptance test data to Buyer's specification/drawing.

Detailed parts of assemblies are subject to inspection by the quality representative prior to assembly and/or testing. However, Inspection of such detailed parts does not negate inspection of the finished item

by the Seller's quality representative prior to shipment. The Seller shall make available his/her inspection records to the Harris Corporation quality representative at the time of presentation of produced items.

At the discretion of the Harris Corporation quality representative, a review/acceptance of the Seller's documentation may be performed at Harris Corporation in lieu of the onsite surveillance.

Seller shall notify the Buyer no less than 5 working days prior to the time items are ready for Buyer Source Inspection.

Buyer Source Inspection points may include, but are not limited to:

- First Article
- Defined machining steps
- Prior to cleaning
- Prior to plating
- Prior to assembly close-up
- Prior to encapsulation/ conformal coating
- In-process (i.e., Pre-Cap, Pre-Pot, Inner-Layer)
- Major/Critical Tests
- Final Acceptance
- Other points specified in the Procurement Document.

After Buyer Source Inspection, any rework or test of the item, including any nonscheduled entry, such as removal of a panel, cover, or enclosure will void the source inspection, unless otherwise specified on the Source Inspection Report. In case of any nonscheduled entry, rework, or test, Seller shall request Buyer to repeat source inspection.

Evidence of Buyer source inspection must accompany or be shown on the shipping documents.

The Buyer reserves the right of final acceptance at Buyer's facility. Items submitted under this clause shall have passed Seller's inspection. In-process and final inspection or tests or both are required. Parts, assembly processes and tests are subject to detailed inspection by the Buyer's Quality Representative prior to assembly, test and/or delivery.

When Government Source Inspection is imposed, the Seller is required to schedule Buyer Source Inspection in advance of presentation to DCMA. The identical data must be presented at the time of review/inspection.

QC-310 GOVERNMENT INSPECTION

All work on this Purchase Contract is subject to inspection, test, or other Government procurement quality assurance activities by the Government at any time and any place.

Government inspection is required on this order prior to shipment from Seller's facility.

Government inspections performed Shall be determined by the delegated Government inspection representative and may be conducted during processing, fabrication, or final inspection.

Upon receipt of this Purchase Contract, promptly notify and provide a copy of the order to the Government representative who normally services your plant so that appropriate Government inspection planning can be accomplished. If your facility is not serviced by Government inspection and/or the area Government inspection representative or agency cannot be located, immediately notify Customer.

NOTE: Do not proceed with fabrication/manufacture processing until Government mandatory inspection points (GMIPs) are added to Seller's manufacturing planning. GMIPs shall not be by-passed unless authorized in writing by the Government inspection representative.

The period and method for the advance notification shall be identified in the Governments delegation letter.

Typically, request shall not require more than 2 workdays of advance notification of the Government representative is in residence in the Contractors plant, nor more than 7 workdays in other instances.

Without additional charge to the Harris the Seller shall provide all reasonably required facilities and assistance (applicable drawings, specifications, change orders, inspection and/or test equipment) for the US Government representative to perform their duties.

The Seller shall ensure that Government inspection acceptance is evident for every individual GMIP and that completion of Government inspection is evident on Sellers shipping document/packing list. Evidence may be the signature of Government inspection representative with printed name and office, or application of the representative's stamp. The Government shall accept or reject supplies as promptly as practical after their activities, unless otherwise provided in the contract.

Government failure to inspect and accept or reject the supplies shall not relieve the Contractor from responsibility, nor impose liability on the Government, for nonconforming supplies.

When manufacturing processing affected by GMIPs is subcontracted by Seller, the provisions of this Clause shall be included in the Seller's Purchase Order verbatim.

QC-320 GOVERNMENT SOURCE INSPECTION

Government inspection is required prior to shipment from Seller. Upon receipt of this order, promptly notify the Government Representative who normally services your plant so that appropriate planning for Government inspection can be accomplished.

On receipt of this order, promptly furnish a copy to the Government Representative who normally services your plant, or, if none, to the Army, Navy, Air Force or Defense Supply Agency inspection office. In the event the representative or office cannot be located, Harris Supply Chain Shall be notified immediately.

The Seller, without additional charge, shall provide all reasonable facilities and assistance for the safety and convenience of the Government representative in the performance of their duties. The Seller Shall also provide the government quality representative with all drawings, specifications, or other documents necessary to satisfactorily inspect the material.

During performance on this order, your quality control or inspection system and manufacturing processes are subject to review, verification and analysis by authorized Government representatives. Government inspection or release of product prior to shipment is not required unless you are otherwise notified.

All work on this procurement is subject to inspection and test by the Government at any time and place. The Government representative who has been delegated Quality Assurance functions on this procurement shall be notified immediately upon receipt of this Purchase Order. In the event that the Government representative cannot be contacted, Buyer shall be notified immediately.

The period and method for the advance notification shall be identified in the Governments delegation letter.

Typically request shall not require more than 2 workdays of advance notification of the Government representative is in residence in the Contractors plant, nor more than 7 workdays in other instances.

All shipments Shall be accompanied by the Seller's shipping documents noting the assembly or drawing number and applicable revisions, quantity, serial number(s) if applicable, and objective evidence of government inspection.

QC-330 HARRIS HARDWARE PROCESS AUDITS/SYSTEM AUDIT

Harris Hardware Process Audits/System Audit is required on this order. Notify Harris Corporation Supplier Quality Department (notification must reference Harris Corporation Purchase Order Number) as to the availability of in process material.

QC-340 HARRIS SOLDER INSPECTION

This component requires a Harris inspector certified to J-STD-001 to perform inspection and acceptance.

QC-350 HYBRID DESIGN REVIEW

Hybrid design review shall be performed and documentation submitted prior to MRR.

QC-360 PRECAP INSPECTION

Items on this procurement require precap inspection by the Buyer Source

Inspector subsequent to 100 percent precap visual inspection performed by the Seller. Seller shall notify the Buyer's Procurement or Quality Organization representative no less than five (5) working days prior to the time that the items are ready for inspection. Evidence of precap inspection shall be included with shipment.

QC-370 PRODUCTION TOOLING ACCEPTANCE

Acceptance of production tooling against this Purchase Order shall be contingent upon inspection and acceptance by Harris, of the applicable characteristics. Dimensional samples, quantity designated by Purchase Order, produced by this tooling must conform to tolerance limits of drawings and specifications specified by this Purchase Order. When duplicate tools are made to the same tool number, each must be proofed separately. Any rework of a tool after proofing (beyond its normal maintenance) shall require subsequent proofing and approval by Harris Seller shall maintain process records for molded parts, including mold release agents used, temperature, pressure, and time cycle data for preheat molding and cure, as applicable.

- A. Tool proofing acceptance shall be under surveillance of the cognizant Harris quality representative at the Seller's facility. Seller shall furnish a legible and reproducible copy of tool proofing approval with the initial shipment. Approval shall list the tool number and inspection variables data, signed or stamped and dated by the Harris quality representative, or
- B. Items produced by production tooling may be shipped to Harris for acceptance inspection, in which case dimensional samples must be identified with the tool number, tool serial number and, when applicable, the individual cavity number.

QC-380 QUALITY PRE AWARD SURVEY

Quality pre Award survey Shall be performed prior to placement of Purchase Order

QC-390 SURVEYS, SURVEILLANCE, AUDITS, AND INSPECTIONS

The Buyer reserves the right to:

- The Seller must identify (without disclosing proprietary information) the intended use (by Seller or Seller's Suppliers) in performance of the Purchase Order of an item material, component or process with respect to which access by Buyer or Government representatives for the purpose of quality assurance by inspection, test or process surveillance is proposed to be restricted. Such identification shall be made in writing to Buyer along with Seller's quotation or offer to Buyer (or if the proposed restricted access involves a Supplier not known to Seller prior to award of the Purchase Order, such written identification shall be made as soon as Seller actively considers award to such Supplier). The written identification shall state generally the basis for such proposed restricted access (e.g., that the process involves proprietary information), and shall include a proposed method of quality control/inspection by Buyer or Government representatives which Seller (or the Supplier) considers acceptable. The absence of such written identification is a representation by Seller that all items (including end items), materials, components, and processes are subject to inspection/test and quality control surveillance at all places and at reasonable times prior to acceptance. If such written notification is given, Seller agrees to negotiate promptly and in good faith with Buyer for agreement arrangement for such inspection/test and quality control surveillance.
- Perform inspections at Seller's facilities or those of Seller's subcontractors or sub-tier Suppliers with prior coordination with the Seller, during the period of manufacture and inspection prior to shipment.
- Establish a resident inspector or contracted inspector at the Seller's facility.
- Use Buyer's selected sampling plans (i.e. MIL-STD-1916 or equivalent) for the acceptance or rejection of items
- Waive the Buyer source inspection by notifying the Seller in writing.
- Make use of Sellers facility, documentation and instrumentation as required
- Buyer Source Inspection may include validation of Seller's automated test programs and procedures to Buyer's specification requirements and witnessing Seller's performance of acceptance tests/ inspections to Buyer's specification/ drawing. Seller may be required to perform additional acceptance test/ inspections when Seller's original acceptance test/ inspections have not been witnessed by the Buyer's Source Inspector. Buyer Source Inspection may also include review of lot qualification (groups B, C, or D) test data to Buyer specification requirements. After Buyer Source Inspection, any

rework or test of the item, including any nonscheduled entry, such as removal of a panel, cover, or enclosure shall void the source inspection. Seller shall provide all facilities, tools, instruments, gauges and support personnel, including office space, for Buyer to verify conformance to requirements. Buyer in-process, source, and/ or surveillance inspection or tests shall not constitute final acceptance by the Buyer; nor shall it in any way replace the Seller's inspection/ test or otherwise relieve the Seller of their responsibility to furnish an acceptable end item. Final acceptance shall be at the Buyer's facility.

- During performance on this order the sellers' or sellers subcontractors' quality control or inspection system and manufacturing processes are subject to review, survey, verification, audit, and analysis by the Buyer or authorized Government/NASA/Regulatory representatives with prior coordination with Seller to determine the capability to comply and to verify continuing compliance with the requirements of the Purchase Order. The Seller shall provide a copy of this Purchase Order to the Government/NASA/Regulatory representatives upon request. Buyer/Government/NASA/Regulatory representative inspection or release of product prior to shipment is not required unless you are otherwise notified. This shall be done at no cost to the Buyer.

QC-400 DELETED 03/17

QC-410 DELETED 03/17

QC-420 PWB IPC-J-STD-003 SOLDERABILITY REQUIREMENTS FOR CLASS 3 (HIGH PERFORMANCE PRODUCT)

Each printed wiring board lot shall meet the latest revision of IPC-J-STD-003 solderability requirements for Class 3 (High Performance Product), Category #3 (maximum Durability Coating) applying 8 hours of preconditioning prior to standard solderability testing.

- Reflowed SnPb and HASL SnPb: Steam Aging.
- ENIG, ENEPIG, and dual Reflowed SnPb/Gold: 720C and 85% R.H.

Thereafter, followed by the Edge Dip Method per IPC-J-STD-003. Harris production flux (Indium NC-SMQ-92J) Shall be used as an exception to the J-STD-003 for solderability testing. Solderability conformance shall include BGA pads on boards when applicable.

QC-430 PACKAGING TEMPERATURE SENSITIVE MATERIAL

Each shipment of temperature sensitive material shall include a packing slip with a statement that the material is temperature sensitive and/or perishable. The packaging shall also have a label affixed indicating that material is temperature sensitive. This label shall be affixed to any/all external packaging. The label shall also identify the temperature storage requirements. All temperature sensitive/perishable material to be shipped shall be packaged and stored in accordance with the manufacturer's specification. Material Shall not be accepted without this evidence.

QC-440 RFID LABEL

RFID Label - Passive Radio Frequency Identification Requirements exist. Check contract for specific requirements.

QC-450 SHIPPING DOCUMENTATION AND MATERIAL HANDLING

Seller shall furnish Commercial Shipping Documents/Packing List, capable of being photographically reproducible through two additional reproductions, showing the following:

- P.O. Number
- Part Number(s)
- Description
- Qty ordered
- Qty shipped
- Lot/Date Code/serialization (as applicable)

Any handling constraints or cautions such as, but not limited to:

- Optics; open only in clean room environments.

- ESD sensitive items opened only at approved ESD workstation
- Moisture sensitive components, open/store only in humidity controlled area.
- Shock sensitive components (shock monitoring Shall be specified if required).

QC-460 CASTING AND FORGING SAMPLES

Seller shall furnish the following with each shipment of castings or forgings:

- A. Two test bars representative of each heat lot and made from the same melt of castings supplied. One spectrographic disc shall be representative of the entire heat or melt.
- B. Two test bars produced from the same heat of material as forgings supplied; test bars must have the same percentage of reduction as the forged items supplied.
- C. Test bars shall be identified with the applicable Purchase Order number, material heat number, lot number, and alloy identification. Spectrographic discs shall also be identified.
- D. Test specimens shall conform to FED-STD-151, "Metal Test Methods."

QC-470 CRIMP TEST SAMPLES

Four extra pins to be provided for of each size pin used in this connector. Internal Harris RI note: Pins to be stocked with connector assembly.

QC-480 ELASTOMER SAMPLES SHIPPED TO THE NAVY

The government Shall perform testing on each batch of the elastomers identified in the baseline document package. The Seller shall provide sample coupons as identified in the baseline documentation directly to the Navy. These samples Shall be identified per the drawing for lot traceability. Additionally with each shipment of product the Seller shall identify the rubber lot number for the items being delivered.

SHIP SAMPLES TO:

Commander

NAVSURFWARCENDIV

Attn: Roger Dickerhoof, Code GXPS

Building 41NE

300 Hwy 361

Crane, IN 47522-5000

QC-490 LOT ACCEPTANCE COUPONS

The Seller shall provide representative Surrogate Test Coupons and/or Qualification Test Articles as defined by the Buyer provided drawings and/or instructions for the purpose of process qualification and/or lot acceptance. Unless otherwise specified, the test specimens shall be processed at the same time and conditions and traceable for each uniform lot or batch processed.

QC-500 MOLDING MATERIAL SAMPLES

Test specimens from each production batch of molding materials shall be supplied to the cognizant government activity as follows: Six (6) buttons - .49"±.02" thk x 1.14"±.02" dia.; and Six (6) test slabs - 6.0"±.125" x 6.0"±.125" x .080"±.008" with thickness parallel within .003". ship to information provided via PO.

QC-510 RUBBER SAMPLES

This PO requires the Seller to be responsible for rubber acceptance testing as required on the drawing or associated reports for each rubber batch. The Seller is to submit the batch test results and a test samples of rubber; (six buttons, 0.45" thick X 1.14" dia. and 3 slabs approximately 6" x 6" x 1/8") from each batch of rubber prior to production. Harris Shall evaluate the results and notify the Seller of any differences in test results.

QC-520 TENSILE TEST SAMPLES

Separately cast test bars, coupons, or appendages as defined by the applicable specification or drawing shall be submitted with each lot delivered.

QC-530 OPERATIONAL TIME DOCUMENTATION

Seller Shall collect and maintain records of operating time or cycles for all items designated as Limited Operating Life Items by Customer's drawings or specifications. Records Shall include the total elapsed time or cycle for each operation, cumulative time or cycles starting with the first functional test, and remaining time or cycles. A copy of this data Shall be included with each shipment traceable to the individual item by part number and serial number.

QC-540 RECORD RETENTION

RECORD RETENTION - Seller shall maintain records of all inspections and tests performed on items delivered to Buyer. Records include, assembly, test, inspection and verification/ validation data identifying conformance to each of the requirements specified in the referenced drawing and/or specification as applicable. Records associate with manufacture of serialized or lot controlled articles Shall provide continued traceability of serial numbers or lot number identified through all phases of manufacture, starting with the raw material continuing through final acceptance of the end item. These records shall including heat and lot number of materials, unit or lot serialization and be traceable to the Buyers Purchase Order number. If identified in Harris design media; The Seller shall keep records of any sampling plan requirements and Shall include lot quantity, sample size, sampling size requirement, and values for each part required by the Harris Design media. All records and test samples shall be made available to the Buyer and/or Government/Regulatory Representative upon request. These records shall identify nonconformances and shall be made available for Buyer, Buyer's customer and regulatory review. Period of retention is XX years (see below) from close of order. This retention period supersedes retention periods identified in other clauses unless otherwise specified on the Purchase Order.

A. RECORD RETENTION – 2 YEARS

B. RECORD RETENTION – 3 YEARS

C. RECORD RETENTION – 5 YEARS

D. RECORD RETENTION – 7 YEARS

E. RECORD RETENTION – 10 YEARS

F. RECORD RETENTION – 15 YEARS

G. RECORD RETENTION – 20 YEARS

H. BUYER-SPECIFIED RECORD RETENTION - Conformity records and QMS records shall be controlled. A documented procedure must define adequate secure storage, retrieval, retention, and disposition of records. It is the responsibility of the Seller to ensure that sub-tier suppliers also control records in accordance with this document. Design records shall be retained for the life of the product. Records related to the product (including manufacturing, purchasing, calibration, inspection) shall be retained for a minimum of years specified by the buyer, in writing, prior to contract award. The Seller shall not accept the P.O. without receipt of the record retention timeframe.

If seller cannot meet selected retention time the buyer shall be notified prior to contract award, In some cases the buyer may be able to allow the Seller to ship all the records with the to satisfy this requirement. All deviations to this requirement must be issued in righting by the buyer.

Seller shall notify the Buyer 30 days prior to expiration of record retention time to allow for the retrieval of all records from Seller. Records held for the required retention periods may not be without Customer's written concurrence.

QC-550 SOFTWARE DELIVERY DOCUMENTATION

Seller shall deliver documentation of software as specified in the Purchase Orders. Software documentation shall be sufficient to establish that:

- All requirements are achieved or waivers submitted and approved.
- Configuration is correct and deliverables are properly identified or marked for version.

- Planned level of acceptance is achieved and/or deviations/waivers are made part of the deliverable documentation package.
- Operating instructions accompanying the developed software are sufficient to enable loading, initialization, and operation by Buyer's personnel.
- Software Version Description Document, which includes, any known problems, target system configuration requirements, build/installation instructions and change history
- Contain ITAR marking (if applicable)
- Compliant to Data Item Description (DID) contents and format per contract

QC-560 COMPLETED ITEM INSPECTION AND TEST

The quality program shall assure that completed items are tested and inspected. Inspection status shall be known at all times. When all characteristics cannot be verified at final inspection or test, in-process verifications shall be utilized. If the product is reworked, any characteristics affected must be verified as conforming to requirements by test and/or inspection as appropriate. Reworks that are not totally compliant with the drawings and specifications are considered a repair and not permitted unless specifically authorized by Harris Supply Chain through a SSR prior to implementation. All products successfully completing final inspection and test shall be positively controlled and identified as well as traceable to inspection and test records.

QC-570 MINIMAL QUALITY MANAGEMENT SYSTEM REQUIREMENTS

The Buyers Quality Organization and Supply Chain may review Sellers Facility and Business Practices to assess Sellers ability to execute the requirements of this Purchase Order/sub-contract.

Seller shall have in place and maintain, a set of processes, procedures, and or business practices that ensure the quality of the products and/or services supplied against this Purchase Order or subcontract.

Seller's processes, procedures and business practices should be in written form to the extent practicable and shall be made available for review/audit by the Buyers Quality representatives at the Sellers facility. Seller's processes, procedures and business practices shall address the following key elements:

Management Responsibility

Seller shall identify a person in the organization that has the responsibility for the Quality of the Sellers products and or Services

Contract Review

Seller shall provide for a review of the buyers Purchase Order, and other documentation including drawings, schedules and referenced specifications and standards. Seller shall maintain evidence of the review.

Control of Design and Documentation

For Purchase Orders that require the seller to design and document products, the Seller shall maintain a system whereby design and documentation evolution is controlled and subjected to appropriate reviews. Seller shall maintain evidence of the reviews

Documentation and Data Control

The Seller shall have established Configuration Management practices that ensure products are built and inspected to the applicable revisions of documentation. Seller shall also implement and maintain a system that controls changes to work instructions and drawings and ensures timely distribution.

Seller shall have established Data Management practices that ensure that all required records pertaining to products and services supplied under this Purchase Order/Sub-contract are maintained and be made available for review upon request.

Purchasing

The Seller shall have established practices that define and control the procurement activities. These practices shall include:

A method of flowing down specific Quality/Buyer Requirements

A method that ensures that Counterfeit or used parts are not introduced into the Sellers products (see also Suspect Counterfeit Part Risk Mitigation below)

Control of Buyer Furnished Product

The Seller shall have provisions for segregation, identification and control of Buyer supplied parts, equipment and supplies to be used in the execution of this Purchase Order/subcontract.

Product Identification, Status Workmanship and Process Control

The Seller shall have established processes and procedures that identify and define the status and requisite quality of products in their facility. These include:

Conforming and Non-Conforming Products

Inspection and Test status

Status of Products "In-Process"

Identification and Handling of Electrostatic Discharge Sensitive (ESD) Components

Workmanship Standards

Control of Inspection, Measuring and Test Equipment

The Seller shall have established processes and procedures that ensure that equipment and tools requiring calibration or certification to ensure their effectiveness are monitored and are removed from use if found to be out of calibration by date.

Seller shall show evidence of the use of an accredited 3rd party calibration service or perform calibration in-house with traceability to NIST as applicable

Corrective Action

The Seller shall have established processes and procedures that ensure that corrective action to resolve any non-conformance identified is communicated to the organization in a timely manner and any impacted items segregated for review.

Handling, Storage, Packing and Delivery

Unless otherwise specified in the Purchase Order/sub-contract, the seller shall have established processes that ensure products are handled, stored in accordance with Best Commercial Practice. Products identified as ESD sensitive shall be handled in accordance with the requirements of Mil-Std-1686 or other industry recognized ESD Standard.

Training

The Seller shall have established processes that ensure that employees have the requisite training before undertaking work in support of this Purchase Order/Subcontract

If the training requires certification of special processes (soldering, welding, heat treating, dye pen inspection, etc.) the Seller shall maintain records of training/certification and make the records available for review by the Buyers Quality Representative

Suspect Counterfeit Part Risk Mitigation

To minimize the risk of the introduction of suspect counterfeit parts into the products the Seller shall only procure products from OEM or Authorized Distributors for the products, to ensure that there is a documented chain of custody from the OEM to the end user. This is particularly important when sourcing obsolete parts.

Should the Seller find that parts intended for use in the execution of this purchase Order/Sub-contract are only available from an independent distributor (Broker) the Seller is required to contact the Buyer to request written direction before proceeding.

QC-590 QUALITY MANAGEMENT SYSTEMS AND INSPECTION PRACTICES

Specification establishes requirements for the Seller's inspection practices. Seller's inspection practices shall be subject to acceptance by Harris Corporation at all times.

- A. Third Party registration is required for the QMS identified below. Copies of the registration certificates shall be provided to the Buyer upon origination or recertification. If the Seller is registered and they lose their registration, changes registrars, or decide to let the registration lapse; the Seller shall notify Harris as soon as practicably.
- B. ISO-9001. Seller shall provide and maintain a system that complies with 9001, "Quality System Requirements." Compliance with the provisions of this clause in no way relieves the Seller of the final responsibility to furnish acceptable supplies or services as specified. This system shall be subject to audit by Harris Corporation representatives.
- C. MIL-I-45208 or Equivalent approved by Harris Supply Chain. This specification applies to all supplies or services when referenced in the Purchase Order. Compliance with the provisions of this clause in no way relieves the Seller of the final responsibility to furnish acceptable supplies or services as specified. This system shall be subject to audit by Harris Corporation representatives.
- D. MIL-Q-9858 or Equivalent approved by Harris Supply Chain. This specification applies to all supplies or services when referenced in the Purchase Order. Compliance with the provisions of this clause in no way relieves the Seller of the final responsibility to furnish acceptable supplies or services as specified. This system shall be subject to audit by Harris Corporation representatives.
- E. CONTROL OF QUALITY SAE AS9100. Seller shall provide and maintain a system that complies with SAE AS9100, "Quality System Requirements." Compliance with the provisions of this clause in no way relieves the Seller of the final responsibility to furnish acceptable supplies or services as specified. This system shall be subject to audit by Harris Corporation representatives.
- F. NHB 5300.4(1C). Seller shall provide and maintain an inspection system that complies with NHB 5300.4(1C), "Quality System Requirements." Compliance with the provisions of this clause in no way relieves the Seller of the final responsibility to furnish acceptable supplies or services as specified. This system shall be subject to audit by Harris Corporation representatives.
- G. NHB 5300.4(1B). Seller shall provide and maintain a quality system that complies with NHB 5300.4(1B), "Quality System Requirements." Compliance with the provisions of this clause in no way relieves the Seller of the final responsibility to furnish acceptable supplies or services as specified. This system shall be subject to audit by Harris Corporation representatives.
- H. MIL-STD-1520 or Equivalent approved by Harris Supply Chain. Seller shall provide and maintain a Corrective Action and Disposition System for Nonconforming Material that complies with MIL-STD-1520. Compliance with the provisions of this clause in no way relieves the Seller of the final responsibility to furnish acceptable supplies or services as specified. This system shall be subject to audit by Harris Corporation representatives.
- I. AQAP-2110 Seller shall provide and maintain a Quality Assurance Program that complies with AQAP-2110. Compliance with the provisions of this clause in no way relieves the Seller of the final responsibility to furnish acceptable supplies or services as specified. This system shall be subject to audit by Harris representatives.

Seller may use, at his option, the higher-level requirements of SAE AS9100 in place of ISO-9001, provided there is no increase in cost to Harris. The most current version of these standards shall apply unless otherwise modified by the Purchase Order.

Waivers to quality system requirements are not valid unless obtained via a SSR.

The government's authorized representative and/or Buyer may review the Seller's inspection system; i.e., documentation to determine conformance with these specifications.

QC-600 SAFETY AND MISSION SUCCESS —NPD 8700.1

Seller shall provide and maintain a quality program which is in conformance with NASA Policy Directive for Safety and Mission Success.

QC-610 SOFTWARE DEVELOPMENT PROGRAMS

- A. Seller shall provide and maintain a software development program, which is in conformance with ISO/IEC 90003.
- B. Seller shall provide and maintain a software development program, which is in conformance with ANSI/IEEE-STD-730.

- C. Seller shall provide and maintain a software development program, which is in conformance with CMMI (Level to be specified in the SOW or Design Media).
- D. Seller shall provide and maintain a software development program, which is in conformance with DO-178C/DO-278A (Level to be specified in the SOW or Design Media).
- E. Seller shall provide and maintain a software development program, which is in conformance with IEEE/EIA 12207.
- F. Seller shall provide and maintain a software development program, which is in conformance with AS9006.
- G. Seller shall provide and maintain a software development program, which is in conformance with DOD STD-2167, or Equivalent approved by Harris Supply Chain.
- H. Seller shall provide and maintain a software development program, which is in conformance MIL-STD-498, or Equivalent approved by Harris Supply Chain.
- I. Software produced to support product development or to be supplied as a line item on this order shall be structured to the model provided by ISO IEC 900003 and/or ANSI/IEEE-STD-730 as required.

QC-620 SELLER QA PLAN

All items on this order are subject to all of the requirements of Harris procedure 122132, "Seller QA Plan", unless relief is granted in writing by a Harris Quality representative.

QC-630 FLEX CIRCUIT COUPON PROCESSING BY GSFC OR DELSON LABS

The seller shall manufacture in accordance with IPC-6013. four (4) test coupons of the most complex pattern of each flex processed that have passed acceptance testing by the seller, are required. Two (2) of these coupons, from opposite ends, shall be provided to GCFC systems assurance manager, or Delson labs for evaluation. seller shall then ship one of the remaining coupons, material, original GSFC or Delsen report, and the analyzed coupons to Harris.

QC-640 G-10 MATERIAL SUBSTITUTION

GEE-F (FR-4) per MIL-I-24768/27 is an approved substitute for GEE (G-10) per MIL-I-18177C for all machined parts

QC-650 INDEPENDENT LABORATORY COUPON PROCESSING IN ACCORDANCE WITH 8252313

PWB supplier shall manufacture and supply independent laboratory coupons in accordance with 8252313. These coupons shall be provided to GSFC system assurance manager for evaluation. Seller shall then ship material, original GSFC report, and the required coupons to Harris Corporation in addition; the seller shall deliver quality conformance test coupons in accordance with 8252313. Ship coupons to the following: Helen Saulino code 541 bldg: 30 rm: 181 NASA/GSFC Greenbelt, MD 20771 phone: 301-286-8793 fax: 301-286-1646 email: helen.e.saulino@nasa.gov.

QC-660 PACKAGING PRINTED CIRCUIT BOARD ASSEMBLIES MIL-STD-2073-1

Printed Circuit Board Assemblies shall be packaged and handled (at a minimum) in accordance with the most current MIL-STD-2073-1F (Method 50 and 51): Standard Practice for Military Packaging and ANSI standard ANSI/ESD-S-20.20: Protection of Electrical and Electronic Parts, Assemblies, and Equipment unless otherwise noted in drawing.

Printed Circuit Board Assemblies Shall be individually packaged to prevent damage and shifting of contents.

Please contact the Buyer and/or Stockroom Material Planning to determine standard pack quantities and suggested package dimensions

All deviations must be approved by Harris prior to shipment.

QC-670 PACKAGING PRINTED WIRING BOARDS INTERCEPT BRAND POLYETHYLENE BAGS

Printed wiring boards must be enclosed in static intercept brand polyethylene bags available from Engineered Material Inc, 113 McHenry Road, Suite 179, Buffalo Grove, IL 60089, (708) 215-1725. Each pwb shall be in a separate bag with desiccant included in packaging. Either flat bags or zipper closure are acceptable.

QC-680 PRINTED WIRING BOARDS CONSTRUCTED AND TESTED IN ACCORDANCE WITH 8252313.

Printed wiring boards shall be constructed and tested in accordance with buyer specification 8252313.

QC-690 PRINTED WIRING BOARDS CONSTRUCTION AND TEST GENERAL

Printed wiring boards shall be constructed and tested in accordance with:

- A. MIL-PRF-31032 (Rigid and Flex) or MIL-PRF-55110
- B. MIL-P-50884
- C. IPC 6010 Series:
 - IPC 6010
 - IPC 6011
 - Rigid Printed Board Fabrication shall be per IPC 6012. If Class is not specified, Class 3 shall apply.
 - Flexible printed boards shall be per IPC-6013/MIL-P-50884. If Class is not specified, Class 3 shall apply.
 - IPC 6014
- D. Buyers drawing 8147294
- E. Buyers drawing 8193759
- F. Buyers Drawing 8190126
- G. Buyers Drawing A3012969 (Multi-Layer)
- H. Buyers Drawing A3018534 (Double-Sided)
- I. Buyers Drawing 8160638
 - The Seller shall provide one coupon from each printed wiring board panel with each shipment. Unless otherwise specified, the test specimens shall be processed at the same time and conditions and traceable for each uniform lot or batch processed.
 - Coupons requirements shall conform to the requirements of Buyer's specification.
 - Each part shall meet solderability requirements of MIL-STD-883 Method 2003, MIL-STD-202 Method 208, and/or IPC-J-STD-003.
 - If required by the Purchase Order, the Seller shall perform Destructive Physical Analysis (DPA). A test report and the test samples shall be delivered to Harris.

QC-700 PRINTED WIRING BOARD REQUIREMENTS DRAWING 2012559

- Compliance Requirements

Printed Wiring Boards shall comply with Buyer Drawing 2012559 and the master drawing. It is the responsibility of the Seller to assure that the design data and documentation is acceptable to produce a product that is compliant to this Purchase Order and the master drawing. Identification of non-compliant design data or documentation shall be transmitted via the Supplier Support Request (SSR).

- Date of Manufacture

All materials delivered shall have a manufacturer date code no older than 3 months prior to date of shipment. Exceptions shall be approved by the Buyer through the use of the Supplier Support Request (SSR).

- Deliverables

The Seller shall deliver the following along with the final material: One as-received unmounted coupon strip from each panel so identified to the parent panel (coupons Shall be retained at the Buyer's facility for the purpose of solderability testing in the event future testing is required). The coupon configuration must support solderability testing to be performed at the Buyer's facility.

Coupons shall be individually packaged as specified for the final boards. (These coupons are not required for IPC Class 1 procurements).

The following exception applies when parts are procured from Seller's Stock (overage parts from a previous order). Under this procurement condition, unmounted coupons from the same manufacturing lot have already been sent in on a previous order. The Seller is not required to send additional unmounted coupons if coupons from the same parent panel were already shipped in a previous order. The Seller must make note on the C of C that the unmounted coupons were shipped on a previous order. The Seller shall list the following information on the C of C with the parts being shipped from stock:

- Standard C of C information [Seller Name, Purchase Order Number, Part Number, Revision, Quantity and Serial Number(s)]
- One as-received unmounted coupon from each panel has already been provided on previous P.O.# (Reference previous Purchase Order number)
- Solderability Tested Results, "RETESTED AND PASSED" (only required if shipping date is past 90 days from date code).
- Any Buyer approved Supplier Support Request (SSR) - Information.
- Any Buyer approved Supplier Support Request (SSR) - Deviation.
- Copy of applicable Source Inspection Reports.
- Copy of applicable Source Inspection Waiver Authorizations.
- Certificate of Conformance (if applicable, see QC-1800)
- Electronic Data Deliverable Requirements (if applicable, see QC-1980).
- Impedance test results (if applicable).
- Gold measurement data (if applicable).
- IPC-6012 & 6013 Class 3 orders require the following additional deliverables:
 - Group A Report – Seller format may be used (see 2012559 section 5.0 for all applicable reference information)
 - Microsection Report – Seller format may be used (see 2012559 section 5.0 for all applicable reference information)
- Solder Samples

All, solder samples shall be shipped separately from the deliverable product and be addressed to the attention of the PCB Purchaser. All solder samples shall be identified (by the Seller) by marking a "X" in indelible ink on the front side of the PCB. The bag shall also be marked with a label indicating "Solder Sample". The Purchaser shall inspect the solder sample for marking prior to releasing to the program.

QC-710 PWB ASSEMBLY REQUIREMENT SOW – Q00006

Sellers that are providing assemblies containing PWBs shall meet the requirements of SOW Q00006 (Latest Revision) or a Supplier prepared and Harris approved document for fabricating PWBs.

QC-720 PWB COUPON PROCESSING BY ROBISAN LABORATORY 1 COUPON PER PANEL

The PWB Seller shall send one coupon from each panel to Robisan Laboratory, Inc. for analysis. Coupons shall contain a representative sample of all plated holes in the PWB, including blind and buried vias. Seller shall hold all material until Robisan acceptance of coupon analysis. Seller shall then ship material, original Robisan report and the analyzed coupons to HARRIS. Final acceptance/rejection of the PWBs shall be upon completion of the real time x-ray inspection performed by HARRIS. The Seller shall send the original report to HARRIS with a completed Seller Information Request form (VIR) if the coupons do not meet requirements. An approved VIR shall be required to ship the PWBs.

Ship coupons to the following:

Robisan Laboratory Inc.,
6502 East 21st St.
Indianapolis, IN 46219-0451

QC-730 PWB COUPON PROCESSING BY ROBISAN LABORATORY 2 COMPLEX COUPONS

Two sets of test coupons, of the most complex pattern of each pwb that have passed acceptance testing by the pwb supplier, are required. These coupons shall be provided to Robisan laboratories or a Harris approved lab for evaluation. Only one coupon shall be analyzed unless a failure is discovered. Seller shall then ship material, original Robisan or approved lab report, and the analyzed coupons to Harris ship coupons to the following or a Harris approved lab. Robisan Laboratory, Inc. Attn: Susan--P.O. _____ 6502 East 21st Street, Indianapolis, In, 6219-0451 or a Harris approved lab.

QC-740 PWB MARKING AND DATA DELIVERY

Sellers FSCM (cage code) number must appear on each board. Test coupons and group A test data shall be included in each shipment.

QC-750 PWB REQUIREMENT DRAWING NUMBER 3132450

The requirements of Harris Drawing Number 3132450 (Independent Laboratory Coupon Evaluation for Printed Wiring Boards.) – latest version, are applicable to this Purchase Order and are to be flowed down to the Independent Laboratory which Shall be performing the coupon evaluation analysis.

QC-760 PWB REQUIREMENT SOW – Q00006

The requirements of Harris Statement of Work (SOW – Q00006, latest revision) applies to this Purchase Order. Harris panel layout approval is required for all new designs as well as CL changes BEFORE FABRICATION. D-Coupon evaluation shall ONLY be performed per paragraph 3.2 when blind, buried, and/or microvias are a part of the build process.

QC-770 PWB TRACEABILITY TO LOT FABRICATION AND TESTING PROCESSES

Provide Quality assurance criteria to PWB Suppliers to assure a quality product is delivered to Harris and provide adequate traceability to lot fabrication and testing processes.

Requirement:

All images are to be serialized.

Each PWB lot delivered to Harris-Reston must be accompanied by the following:

1. Certificate of Conformance, stating that the boards were fabricated in accordance with all requirements and instructions listed on the Purchase Order and applicable Harris documents
2. Micro-Section & Final Inspection Results
3. Certificate of Electrical Test
4. One coupon from each panel if not sent to independent vendor for analysis
5. Material Certificates for all materials used to layup PWBs
6. At least one solder sample per board lot

QC-780 PWB'S PACKAGED IN MOISTURE BARRIER BAGS

PWB's are to be packaged in moisture barrier bags

- MVTR .005g/100 sq in/24 hrs or less
- Puncture resistance of 15 lbs minimum

Package shall contain maximum of ten (10) boards/panels per package if boards/panels are equal to or greater than 10 square inches. Package shall contain a maximum of fifty (50) boards per package if boards are less than 10 square inches. Each package shall contain a desiccant package and a humidity indicator (30%- 50%). Pinholes/rips/tears to the packaging are NOT acceptable. A slip-sheet shall be placed between each board. All packages of boards must be labeled with the Harris P/N, and QTY.

The date code on PWB's shipped to Harris must be within 6 months from the date of manufacture. If boards have a date code older than 6 months from date of manufacture they require an approval prior to shipment, otherwise they shall be returned for replacement.

For each production lot, the Seller must complete the referenced tests and maintain on file, for a minimum period of four years (unless otherwise stated on the P.O.) from date of manufacture, a data package consisting of:

- Solderability testing per IPC-S-804, ANSI/J-STD-003, or equivalent.
- Results of cleanliness test prior to solder mask application and after solder mask application. (2,000,000 Ohm-CM).
- Results of continuity/short testing.
- Results of Impedance Testing (when required). Impedance requirements are typically called out on the detail drawing stack up.
- Copper and dielectric thickness test results by cross-section method.

QC-790 DELIVERABLE INSPECTION AND TEST INSTRUCTIONS

Seller shall prepare and maintain written instructions for inspections and tests performed in compliance to this Purchase Order. Instructions shall include clarification of the item to be inspected or tested, the measuring and test equipment utilized the details of inspection/test inspections to be performed, and the criteria for determining conformance or nonconformance to the Purchase Order.

- A. A legible and reproducible copy of each instruction shall be furnished to the Harris quality representative at the time of preparation, and
- B. A legible and reproducible copy of completed instructions shall accompany each shipment of product supplied, and
- C. Such instructions shall be available, on file, for review by Harris representatives and applicable Government agencies.

QC-800 DELIVERABLE TEST PLAN

Seller shall prepare and maintain a written inspection and test plan including a product flow chart of operational sequence, inspection and test points, and process control points for the supplies to be fabricated to this Purchase Order. Types of inspections or tests, at each point, must be sufficiently described and identified.

- A. A legible and reproducible copy of the plan shall be furnished to the Harris quality representative a minimum of two weeks prior to start of fabrication; and
- B. Such plans shall be available, in file, for review by Harris representatives or cognizant Government agencies.

NOTE: Inspection and Test Instructions, and Inspection and Test Plans, respectively, are subject to disapproval when they fail to accomplish intended objectives. Harris, at its option, may furnish written notice of acceptability.

QC-810 FACTORY/QUALITY ASSURANCE ACCEPTANCE TEST PROCEDURES AND DATA

- A. Proposed Factory/Quality Assurance Acceptance Test Procedures shall be submitted to Harris, for approval, 30 days prior to conducting the tests. The procedure format shall include the parameters to be measured, step by step method of test, test equipment required, and provisions for recording results in such a manner as to permit recording of each required performance characteristic in a clear and concise form. When these procedures make reference to test fixtures for acceptance testing, a copy of the schematic of the fixtures shall be supplied.
- B. Factory/Quality Assurance Acceptance Test Procedures and the actual test data recorded during acceptance testing shall be provided with each item/equipment delivered at the time of delivery of the equipment. One hundred percent (100%) of the items delivered shall be tested.

QC-820 QUALITY AND MFG CONTROL PLAN

The Seller shall submit a Quality and Manufacturing Control Plan for Harris review and approval.

QC-830 MSDS REQUIREMENT (PER ITEM)

The Seller is required to provide a Safety Data Sheet (SDS) / Material Safety Data Sheet (MSDS) for each of the items included in each shipment in accordance with the Federal Hazard Communication Standard. The SDS/MSDS Shall include chemical and common names of all ingredients, physical and chemical properties, information on potential physical and health hazards, primary routes of entry, exposure limits and safe handling, control, first aid, and emergency procedures. Each SDS/MSDS must include the date the document was prepared or revised.

QC-840 CHIP MICROCIRCUIT STARTING WITH DESIGNATORS U\$.,

Chip Microcircuit starting with designators U\$., supplied on this order, shall meet and conform to the requirements of Harris drawing No. 3131395 (General Specification for Microcircuit, Chip).

QC-850 CHIP RESISTORS STARTING WITH DESIGNATORS RS, RC, RT AND RB

Chip Resistors starting with designators RS, RC, RT and RB, supplied on this order shall meet and conform to the requirements of Harris drawing No. 3131399 (General Specification for Resistor, Chip).

QC-860 CHIP SEMICONDUCTORS STARTING WITH THE DESIGNATORS T\$. OR D\$.,

Chip Semiconductors starting with the designators T\$. or D\$., supplied on this order, shall meet and conform to the requirements of drawing No. 3131394 (General Specification for Semiconductor, Chip).

QC-870 MICROCIRCUIT AND SEMICONDUCTOR DICE EVALUATION

- A. Dice supplied on this order shall conform to the requirements of MIL-PRF-38534 and shall have each wafer carrier identified with the manufacturer's name and the wafer lot identification number.
- B. Dice shall conform to the electrical requirements, as specified on the face of this order, over the full operating temperature ranges as specified on this order.
- C. When required by the Purchase Order, sample evaluation in accordance with MIL-PRF-38534 shall be performed for each manufacturer's wafer lot and sample lot test data shall be supplied for each manufacturer's wafer lot tested.
- D. Dice geometry shall be supplied with each shipment.

QC-880 MIL-PRF-38534, HYBRID MICROCIRCUITS

MIL-PRF-38534, Hybrid Microcircuits, General Specification for, is hereby invoked. No waiver(s) to this military specification shall be authorized by Harris.

QC-890 PROCUREMENT OF GATE ARRAYS—**A. STANDARD PRODUCT**

- Container Marking

Each individual container containing the articles to be delivered hereunder, must be clearly and permanently marked with: Quantity, batch, or lot number; specifications or material control information number; Buyer's designation; Purchase Document Number as a minimum.

- Packaging

Boxes or containers, as applicable, Shall be selected to the extent necessary to provide protection from electrostatic discharge and physical or environmental damage during shipping and handling. Cushioning materials shall be applied, as required, to protect and to restrict movement of the item(s).

- Inspection System

Seller shall provide and maintain an inspection system, which is in conformance with ISO 9001.

- Milestone Monitoring

Thirty days after acceptance of the order, the following milestone completion dates on every lot of parts required to satisfy the order quantity are to be submitted to the Buyer: ATP approval

B. FULLY SCREENED

- Container Marking

Each individual container containing the articles to be delivered hereunder must be clearly and permanently marked with:

Quantity, batch, or lot number; specifications or material control information number; Buyer's designation; Purchase Document Number as a minimum.

- Packaging

Boxes or containers, as applicable, should be selected to the extent necessary to provide protection from electrostatic discharge and physical or environmental damage during shipping and handling. Cushioning materials shall be applied, as required, to protect and to restrict movement of the item(s).

- Quality System

Seller shall provide and maintain a quality system, which is in conformance with ISO 9001.

- Milestone Monitoring

Thirty days after acceptance of the order, the following milestone completion dates on every lot of parts required to satisfy the order quantity are to be submitted to the Buyer:

- ATP approval
- Wafer lot acceptance testing
- Start lot assembly
- Preseal visual inspection
- Lot assembly complete
- Start screening
- Preburn-in electrical testing
- Postburn-in electrical testing
- Screening complete
- Ship screened devices

The Seller shall advise the Buyer of each completed milestone step defined within 3 days. A summary of the lot status shall be submitted every 2 weeks, starting with the week the first milestone is completed. This status is to define the current location of the lot and its relationship to the milestone schedule. The Buyer is to be advised immediately of any milestone slip, which results in a schedule slip of greater than 3 days from the schedule as defined by the original milestone schedule. Upon definition of a milestone slip, a revised milestone schedule is to be communicated to the Buyer with an explanation for the slip and definition of the action to the Buyer.

- Test Data Requirements

The Supplier is required to generate an acceptance test procedure (ATP) in accordance with the Buyer specification.

The following documentation shall be provided in the data package with each shipment of deliverable parts:

- Screening attributes summary data, including the quantity in and out at each step and the quantity failed.
- Control samples electrical test data by serial number, variable test data, and deltas over burn-in.
- Failure analysis reports for any catastrophic rejects.
- All deviations or waivers granted by the Buyer.

- Buyer Source Inspection

Inspection by the Buyer must be performed at the Seller's facility prior to shipment. Seller shall notify the Buyer no less than 3 working days prior to the time that items are ready for Buyer Source Inspection. Source inspection is required at the following points:

- Preseal Visual Inspection
- Final Inspection After Screening

After Buyer Source Inspection, any rework or test of items, including any nonscheduled entry, will void the source inspection. In case of any nonscheduled entry, rework, or test, Seller shall request Buyer to repeat source inspection.

Buyer reserves the right to onsite monitoring of any process steps by its designated representative.

In the event of a lot rejection, the Supplier must notify the Buyer and provide new lot control identification numbers as soon as assigned.

- Control Samples

Where parameter drift testing (drift calculations) is required, serialized control samples shall be used for all electrical tests requiring drift calculation. These samples (minimum of three per device type) shall not receive any environmental or power conditioning tests, but shall receive the electrical tests only to validate repeatability of the test equipment. These samples shall not be shipped against this order. The electrical tests on the samples shall be read and recorded data included in the data package.

QC-900 PRECAP HIGH RESOLUTION DIGITAL COLOR PHOTOGRAPHS

Precap high resolution digital color photographs shall be taken for 100% of deliverable flight and qualification devices. Photographs must be color, digital format, and be able to resolve and identify individual components to a level where each can be clearly determined or identified, and printing read. This includes single wire bonds to a die or element, including the ball or wedge shape.

QC-910 RE-BALLED BGA'S

Re-balled BGA's shall comply with 10075-3600 Re-Balled (Pb) Integrated Circuit Process Requirements or 10075-3650 Re-Balled (Pb Free) Integrated Circuit Process Requirements as appropriate.

QC-920 WIRE BOND

Wire bond lifts that occur during group B inspection shall be considered rejectable. During the buyer's independent destructive physical analysis, wire bond lifts shall also be considered a rejectable condition.

QC-930 ANTI-TAMPER PROCESS REQUIREMENTS

An approved serialized metal tamper seal (Note 1) shall be affixed to all hardened shipment cases. The tamper seal shall be installed in such a way as to prevent the case from being opened. The metal tamper seal (Note 1) serial number shall be recorded on the shipper/packing slip.

Harris Shall provide approved serialized metal tamper seals (Note 1). Any unused seals shall be returned to Harris.

For Harris Return to Seller shipments the metal tamper seal (Note 1) serial number shall be confirmed upon receipt. Seller shall notify Harris immediately via an SSR-Deviation if any seals have been broken/tampered with for Harris disposition.

If tamper metal seal is intact Seller shall proceed with performing a receiving inspection of the received item(s) and the internal contents.

Note 1: Part Number 1S6161TTT, Tyden Ball Seal – Standard Edge, Mill Finish, Embossed marking "SEALED" with Sequential Numbering (Manufacture: TYDEN SEAL CO Cage Code 0MRW4)

QC-940 GOVERNMENT FURNISHED MATERIAL

Government Furnished Mat. - All Government furnished property must be routed through EDO's Government Property Administrator.

QC-950 HARRIS PROVIDED MATERIAL

Harris Shall provide some materials required to manufacture this part. These Shall be identified in an attachment to the Purchase Order

QC-960 HARRIS SUPPLIED MATERIAL CADMIUM FREE

Harris certifies that parts of materials supplied on this Purchase Order are cadmium free.

QC-970 HARRIS SUPPLIED MATERIAL MERCURY FREE

Harris certifies that parts and materials supplied on this Purchase Order contain no free mercury.

QC-980 HEXAVALENT CHROMIUM

Any Harris drawing or specification where the finish requirements specify or include MIL-C/ 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.

All items furnished for Cage Code 62065, as identified on the drawing, shall be, clear/colorless in appearance. Gold or iridescent yellow shall not be permitted for this product unless otherwise approved, in writing, by Harris.

QC-990 LIMITED LIFE PRODUCT REQUIREMENTS

- A. O-Rings – O-rings are to be packaged and marked with shelf life requirements. O-Rings received with less than 75% of their shelf life remaining shall be returned to the Seller for replacement.
- B. Maximum Age (4 years) - The maximum age of parts supplied to Harris shall not exceed 4 years of age per the manufacturer's date code. Where Manufacturer's specifications state a shorter shelf life, it shall take precedence to this requirement (example: silver finish is 1 year maximum). Use of parts exceeding the maximum age requirements shall require Buyer approval prior to shipment.
- C. Maximum Age (3 Years) - Parts delivered on this Purchase Order shall be less than 3 years old at date of shipment.
- D. Maximum Age (2 Years) – Shelf life: Lot Date codes of devices delivered under this procurement shall not exceed two (2) years from the date of this Purchase Order unless otherwise approved in writing by the buyer.
- E. Shelf Life Marking - Seller shall identify each item, package, or container of shelf-life material with the Buyer's P.O. number, batch number, cure or manufacturing date, expiration date, and special storage and handling conditions, in addition to the normal identification requirements of name, part or code number, specification number, type, size, quantity, etc. This identification, including special handling conditions, shall be recorded on the certifications and shipping documents. All materials furnished under this Purchase Order shall have, as a minimum, 75% of the useable product shelf life remaining. Item packaging shall not support all the data required; the required data may be provided on a certificate of conformance.
- F. Certification of Incorporated Shelf Life Material - Seller shall furnish a legible and reproducible copy of certification with each shipment of items incorporating shelf-life material that does not require age control after installation (e.g., adhesives, resins, plastic-based paints, etc.). Certification shall state that the shelf-life materials were properly controlled prior to use and within the shelf-life period when incorporated. The certification shall be identified with the Purchase Order number and the item(s) produced and signed by a representative of the Seller.
- G. Shelf Life Material Shipping Documentation - For Age-Controlled item(s) Seller shall include on shipping documentation (or the labeling when specified by specification) the following:
 - Buyer's P.O. number
 - Date of the manufacture or cure date (date in which the shelf life starts)
 - Part number
 - Manufacturer's Name
 - Shelf life (period of time material maintains characteristics if stored properly)
 - Storage temperature (if applicable)

- Respective control identifier for each lot, batch, heat, heat treat, billet and/or unit identification number

The item(s) shipped under this contract must arrive at Buyer's facility with at least 85% of the specified shelf-life remaining.

If the Seller's product does not meet the minimum shelf-life remaining requirement of 85%, the Seller shall notify the Buyer prior to shipping the product to the Buyer's facility, for the Buyer to determine whether the product's remaining shelf-life is acceptable.

- H. Short Life Shelf Life - Time and/or Environment (Temperature, Humidity, Barometric Pressure, Ambient Light, other) Sensitive Material must be identified with the following information on the outside of the shipping container and the lowest level packages containing the material:

- Date of Manufacture
- Storage Requirements (Temperature, Humidity, Barometric Pressure, Ambient Light, other) as applicable to the item.
- Shelf life (expiration date) at stated storage conditions.

A minimum of 75% of the shelf life period must be remaining at the time of receipt at the Buyer's ship to address.

Any material which have six (6) months or less of shelf life when received at the Buyer's ship to address, shall be boldly and obviously marked as "Short Life Material" on the outside of the shipping container and on the lot documentation shipped with the material.

- I. Electronic or Electromechanical (EEE) parts – All Electrical, Electronic or Electromechanical (EEE) parts procured from the Seller or its suppliers shall have been manufactured within three (3) years from the delivery date for Plastic Encapsulated Microcircuits (PEMs) and five (5) years for all others. This shall include all sub- assemblies of the article being procured. Any deviation from this requirement shall be in the form of a written authorization from Harris Supply Chain, and the authorization shall be included with each shipment.

- J. Solderability Verification for Leads and Terminations over 3 Years Old - Any parts with solderable leads/terminations, delivered that are over 3 years old from date of manufacture shall be accompanied by supporting documentation that parts have been re-certified to meet solderability requirements. If Seller is unable to meet the solderability requirements, a Supplier Discrepancy Report (SDR) shall be submitted to the Buyer and approved prior to any shipment of product. The Buyer reserves the right to require testing to ensure solderability of leads. Recertification testing/acceptability, when required, shall be in accordance with IPC/JEDEC J-STD-002 Category 2, Test Condition Category C (or applicable military/industry standard). Steam aging for wire and cable shall be limited to 1 hour with insulation removed. Shipments must be accompanied by supporting documents that parts have been re-certified to meet above requirements.

QC-1000 MATERIALS TO BE USED IN AN OPERATOR-CONFINED ENVIRONMENTS

Items supplied Shall be used in an operator-confined environment. The Seller assures that all requirements below have been met, including those procured from secondary sources and/or included as assembly components as ordered hereunder:

- A. All wiring shall be in accordance with SAE-AS50881. Wire insulation shall not be of a flammable or toxic material, such as PVC or Kapton.
- B. All RF cabling, flexible and semi-rigid shall be in accordance with MIL-DTL-17.
- C. Seller assures that all the material supplied, including those from all Seller's suppliers, are 100% asbestos free, including asbestos composite materials. Asbestos and asbestos composites can be any of the following fibrous forms of mineral silicates belonging to the serpentine or amphibole groups of rock-forming minerals: (a) Actinolite Asbestos, (b) Amosite (brown Asbestos), (c) Anthophyllite Asbestos, (d) Chrysolite (white Asbestos), (e) Crocidolite (blue Asbestos), (f) Tremolite Asbestos.

QC-1010 MERCURY FREE

This Purchase Order requires that all parts delivered to Harris contain no free mercury (metallic form) or mercury compounds (i.e. mercuric oxide and mercuric chloride). The Seller is responsible for performing all tests and certifying to Mercury Free requirements.

QC-1020 PACKAGING Beryllium, ALBEMET or any other Beryllium Composite Material REQUIREMENTS:

- A. Each individual package shall be labeled with a beryllium warning label. This label shall be conspicuous and shall notify any and all recipients of the package that the package contains beryllium and that beryllium is considered hazardous. In cases where the P.O. specifies more specific information about the warning label the P.O. content shall be adhered to.
- B. All material and components shipped to Harris Corporation must demonstrate surface beryllium cleanliness levels below 25 micrograms per square foot. Harris corporation reserves the right to analyze incoming shipments for conformance to this requirement.
- C. A legible and reproducible Certificate of Compliance (CofC), attesting that the articles provided conform to the Purchase Order requirements, is required with each shipment including shipments from distributors. Certifications shall comply with all the requirements of QC-1740-A and shall also include: a separate statement on the Certificate of Conformance (C of C) shall certify that all external Beryllium or Beryllium Composite surfaces meet the cleanliness levels of < (less than) 25 micrograms (ugms)/sq.ft. as specified by the Brush Wellman specification, before the shipment of parts to Buyer or its customers.

QC-1030 PROCUREMENT OF WIRE AND CABLE (AGE REQUIREMENTS)

M22759 Wire and M27500 Cable shall have a date of manufacture less than three (3) years from date of shipment to Buyer.

QC-1040 PROHIBITED MATERIALS

No organic or polymeric material (lacquers, varnishes, coatings, adhesives, greases, etc.) shall be used inside or outside the package without permission from Harris. Polymer impregnations of packages shall not be permitted.

Beryllium oxide (beo), pure zinc, pure cadmium, selenium, mercury, alloys of zinc, alloys of cadmium, or alloys of mercury shall not be used. the actual acceptable percentages of zinc and cadmium in alloys shall be technically substantiated with data in the intended applications and shall require Harris approval, in writing, at least sixty (60) days prior to start of assembly of the first lot of parts.

QC-1050 REQUIREMENTS FOR PROCESSING OF LEAD FREE COMPONENT FINISHES

Items (exclude PWBs) supplied on this order shall conform to the requirements of Harris dwg. No. 3133209 (Requirements for Processing of Lead Free Component Finishes).

QC-1060 SILVER PLATED WIRE MANUFACTURED BEYOND A 2 YEAR LOT DATE CODE

No silver plated wire manufactured beyond a 2 year lot date code shall be used in the assembly without written consent from Harris via SSR.

QC-1070 SOLDER FLUX AND CORED WIRE

Solder flux and cored wire shall meet the characteristics and properties of ROLO per J-STD-004. Solder pastes shall meet the requirements of J-STD-005. Flux within the paste shall meet the characteristics and properties of ROLO per J-STD-004.

The most current versions of these standards shall apply. The Seller's workmanship standards may be considered for use if granted in writing by a Harris Corporation Quality representative in advance of accepting the order.

QC-1080 SPECIALTY METALS DFARS SUBPART 225.7002-2

This Clause prohibits Seller and all Seller's sub-suppliers from incorporating into military parts, components, systems, subsystems, and/or end item deliverables "specialty metals" (identified in the clause, including titanium and stainless steel) which have been melted outside the United States, its possessions, or Puerto Rico, unless certain limited exceptions set forth in the clause or DFARS Subpart 225.7002-2 apply. One such exception is for specialty metals melted in a qualifying country or incorporated into an article manufactured in a qualifying country. Those countries are listed at DFARS 225.872-1(a) or (b). If a qualifying country exception applies, the source for specialty metals melted outside the United States must be listed in an applicable Qualified Products List (QPL).

QC-1090 SUPPLIED PRE-WIRED CONNECTORS

Pre-wired connectors supplied on this Purchase Order shall be manufactured after the Purchase Order issue date. Harris Corporation supplied static intercept bags shall be used for packaging. shipment shall occur immediately after source inspection acceptance via overnight delivery.

QC-1100 SELLER RAW MATERIAL RESPONSIBILITY

The Seller is responsible for documented chemical and physical testing of raw materials (where applicable). The extent of the testing is outlined in the notes' section of the drawings or specified on the Purchase Order.

QC-1110 CONTRACT NUMBER MARKING ON PARTS

This item requires a contract number including the delivery order to be marked on the part. Please contact your Harris Supply Chain to obtain the required contract number and delivery order.

QC-1120 Packaging CONTAINER MARKING

A container is any packaging containing one or more articles to be delivered that must be clearly and permanently marked with:

- Quantity
- Batch or Lot Number
- Date of Manufacture or Shipping Date, whichever controls shelf life limitation
- Hazardous Material Marking,
- Specifications or Material Control Information Number (if applicable)
- Buyer's Part Number* *

*Purchase Document Number, plus the Buyer's P/N and the Manufacturer's P/N must be on the Packaging slip as a minimum.

Product that has a shelf life requirement shall be marked with this information and shall have remaining 75 percent of the time from the initial date of certification.

QC-1130 UID IDENTIFICATION

UID Identification Requirements exist. Check contract for specific requirements.

QC-1140 GIDEP PARTICIPATION

The Seller shall participate in the Government-Industry Data Exchange Program (GIDEP) in accordance with the requirements of the GIDEP S0300- BT-PRO-010 and S0300-BU-GYD-010, available from the GIDEP Operations Center, PO Box 8000, Corona, California 91718-8000. The Seller shall review all GIDEP ALERTS, GIDEP SAFE-ALERTS, GIDEP Problem Advisories, and GIDEP Agency Action Notices to determine if they affect the Seller's products/services provided to Harris. For those that affect the program, the Seller shall take action to eliminate or mitigate any negative effect to an acceptable level. The Seller shall generate the appropriate failure experience data report(s) (GIDEP ALERT, GIDEP SAFE-ALERT, GIDEP Problem Advisory) whenever failed or nonconforming items, available to other buyers, are discovered during the course of the contract.

QC-1150 3RD PARTY INSPECTION, SORT, REWORK

Harris, reserves the right to contract with a third party inspection house to sort/rework Seller's defective material to maintain Harris production requirements. All costs associated with the sorting/rework shall be the responsibility of the Seller. The Seller agrees that any and all warranties provided for remain in full force and effect and said warranties shall not be deemed void should Harris or Harris' third party perform the aforementioned sort/rework. The Seller shall be notified by Harris Quality Personnel prior to the sorting/rework that this activity is required and Seller shall have the opportunity to supply their own personnel to complete this activity within the timeframe specified by Harris.

QC-1160 ADDITIONAL PART REQUIREMENTS

Additional part requirements are identified in the Comments Chiclet for this part in the Parts Master. These need to be included on the Requisition in the Requisition Line Notes.

QC-1170 ASSET TAG – FOR HARRIS INTERNAL USE ONLY

An asset tag for Harris Property Management is required upon receipt. The item Shall be diverted to the identified asset tag area, where the asset tag Shall be applied and item sent for distribution.

QC-1180 BEST EFFORT REPAIR

Every effort shall be made to restore the equipment of repair to its original configuration/specification. Harris cannot guarantee that the equipment Shall pass the original factory acceptance test or meet the original specifications, after repair and test. The quoted repair price is an estimate only, if the original estimate does not accurately represent the material and labor for the repair, the Seller Shall notify the buyer of any additional cost. Equipment return Shall be repaired on best effort basis.

QC-1190 BLANKET PURCHASE ORDER

This Purchase Order is a blanket Purchase Order to cover material authorized by the Purchasing Department for one year commencing Jan 1 of the year dated on the Purchase Order.

QC-1200 BUYER SUPPLIED INFORMATION

Contract number, cage code, or other required information to be provided by Purchase Order/buyer.

QC-1210 CLASSIFIED PROGRAM

This is a classified program. See security office for DD254 information

QC-1220 COMPONENT PART NUMBER SUBSTITUTION

Component part number Substitution as applied to Harris Product shall be permitted without prior authorization provided the change in part number only applies to the products packaging (i.e. bulk or tape and reel, or quantity etc.) intended to support the Seller's internal process management.

Component part number Substitutions are also allowed when granted in the controlling Military document that allows for substitution with higher reliability components (this higher reliability part number is also identified in Harris document 251800).

Deviations from the specified manufacturers shall not be allowed without prior approval from Harris utilizing the Supplier Information Request (SIR) Process.

Variations of the product characteristics that affect form, fit or functional performance that differs from the released and approved part number on the Bill of Material shall not be used without prior written approval from Harris Supply Chain. Electronic devices of higher reliability (better than parts) are not acceptable to this situation. Parts with Improved Functional Values ("Better Than" parts) are not acceptable unless approved in writing by Harris.

QC-1230 ELECTRO-CERAMIC FAA-PMA FUEL SENSOR PROBE P/N 37821-1

This item is a detailed part of and Electro-Ceramic FAA-PMA Fuel Sensor Probe P/N 37821-1.

QC-1240 FOR SPACEFLIGHT USE**QC-1250 MASTER DRAWING**

The drawing is the master and all attributes Shall be inspected and verified to the drawing. The model may be used as reference and to support the manufacturing process.

QC-1260 MRB AUTHORITY

- A. It shall be understood that Seller has Limited MRB authority on this contract. These limitations shall be restricted to "Rework to Conformance," "Scrap," and "Return-To-Vendor" (RTV). "Repair" and "Use As Is" depositions shall require Harris approval. The Seller must submit a written request (SIR) and shall include root cause/corrective action for all requested deviations to Harris Corporation for approval prior to actual release/usage of the nonconforming product.
- B. It shall be understood that the Seller has No MRB authority, except scrap, on this contract. Any departure from drawings, specifications, or other Purchase Order requirements must be recorded on the SIR form and submitted to Harris Corporation for approval along with root cause corrective action prior to actual release/usage of the nonconforming product.

QC-1270 NADCAP PLATING PROCESSES

Processor shall be an approved NADCAP Processor for all of the applicable platings (including underplatings), surface finish or conditioning processes. The list of NADCAP approved Sellers can be found at www.eauditnet.com by creating an account. Upon access, refer to Buyer's Guide in the Public Documents.

QC-1280 DELETED 03/17**QC-1290 PACKAGING GENERAL**

The following shall be adhered to for every part shipped by the Seller.

General:

- 1.0 Material shall be packaged or segregated in such a way as to assure lot integrity. Tags, labels or test data may be used to assist in this process.
- 1.1. Seller shall apply the Standard Practice for Commercial Packaging per ASTM D3951, use best commercial practice and shall assure that proper methods of marking, packaging preservation and shipping are utilized to identify the item and prevent damage.
- 1.2. Seller is responsible for ensuring packaging system Shall pass a pre-shipment qualification test (i.e. ISTA 3A or ASTM D4169). Testing documentation to be presented to Harris upon Harris request.
- 1.3. Seller shall verify that all required documentation is included in the package: Harris Part Number, Harris Part Number Barcode, Manufacturer Part Number, and Harris Division P.O. Number.
- 1.4. Please contact Buyer and/or Stockroom Material Planning to determine standard pack quantities (in the ERP (Enterprise Resource Planning) system.)
- 1.5. All deviations must be approved by Harris Package Engineer prior to shipment.
- 1.6. When required by contract, Sellers shall package all products as defined within a Seller Packaging Agreement that was established as part of the Harris Part Qualification process (HPQP). All material must be packaged in accordance with this agreement. It is the Seller's responsibility to insure that each delivery be inspected and all Seller Packaging Agreement requirements have been met prior to shipment. (PUR-008/PRF-008)
- 1.7. Shipping containers shall be adequate for the type of load to be carried. Appropriate design and materials Shall be utilized to ensure packaged product Shall arrive into Harris intact and with packaging in acceptable condition. Unacceptable conditions can be defined, but not limited, to the following: damage or loss of product, product not contained within the packaging upon receipt, excessive package crushing or punctures due to insufficient board weight.
- 1.8. Specially designed product specific packaging Shall be used where applicable.
- 1.9. Cushioning and/or dunnage materials shall be applied as necessary to secure the packaged items from free movement. Dunnage / cushioning material Shall be easy to remove and dispose of.
- 1.10. Packaging material shall provide protection of the surfaces from moisture, dirt, or abrasive action.
- 1.11. Intermediate and over pack containers shall be free from obvious defects and shall be consolidated within shipping containers to the maximum extent possible.
- 1.12. Where consideration for safety of the contents and/or the container necessitates it not be stacked or tipped, the container shall be marked with "up" arrows and/or direct marking indicating special handling. Containers in which exceptionally delicate or fragile articles are packed shall be marked as such. These marks shall appear on all exposed surfaces of the container.
- 1.13. Appropriate considerations Shall be made for all packaging that Shall be in contact with ESD sensitive products, i.e. conductive or anti-static.
- 1.14. Packages are not to exceed 40 lbs without prior Harris written approval.

Secondary / Tertiary Packaging:

- 1.15. Packaged product shall be sufficient in strength to support, without buckling; identical loaded cartons when stacked to a maximum of 96 in.

Pallet Design:

- 1.16. All pallets and crates to be constructed using appropriate materials, fasteners, design and structural integrity to adequately support and protect the product within throughout its entire intended distribution cycle, including any known cross-docking.
- 1.17. All material to be structurally sound and free from defect. Wood materials to be free from the following: tar, grease, paint, excessive splits, nails raised above the deck surface, protruding from the side of the stringers, and free standing nails.
- 1.18. The Seller is responsible for part construction and performance in compliance with the requirements of this document and in accordance with industry best practices.
- 1.19. When deemed necessary, cushioned pallets and crating shall be utilized and designed to adequately protect product.
- 1.20. When applicable, any bond separation Shall be a result of failure from bonded materials only, not bonding agent. All glue to have 100% glue coverage.
- 1.21. All nailed components to be securely attached in a manner to prevent separation.
- 1.22. All material to be in compliance with ISPM-15.
- 1.23. All stringers or blocks that provide clearance for pallet jack/fork truck tines to be securely and permanently attached to pallet base. No loosening or detaching from pallet base throughout intended distribution cycle is permissible.
- 1.24. All crate walls must be designed to be solid wall construction, rather than slotted, to allow the crate to be shipped internationally after arriving into Harris.
- 1.25. Skid-Mates are not permitted on any pallet or crate. Prior Harris Package Engineering approval is required for any exceptions.
- 1.26. All pallets and crates utilized to transport product from Seller to Harris, or from sub-tier-supplier directly to Harris customer, must be designed to accommodate a standard US pallet jack. Pallet jack requires minimum 3-1/2" vertical clearance for entry into pallet, so stringer or block height must be 3-1/2" to comply.
- 1.27. Pallets should accommodate four-way-entry whenever possible.

Pallet Configuration:

- 1.28. The tops of palletized boxes Shall be flat whenever possible.
- 1.29. If the top of the palletized box cannot be flat, additional stretch-wrap shall be applied over the top of the boxes such that the entire top surface has been wrapped.
- 1.30. Pallet height not to exceed 45 inches, without prior written approval of Harris.
- 1.31. No pallet overhang permitted without prior written approval of Harris.
- 1.32. Stretch wrap or banding must be sufficient to insure load integrity from Seller to point of consumption at Harris.
 - 1.32.1. Banding shall be flush against the boxes to eliminate the risk of bands being cut during transit.
 - 1.32.2. Edge protectors shall be placed where bands come in contact with container edge.

Hazardous Materials:

- 1.1. Hazardous goods must be packaged and labeled to comply with all current hazardous materials package construction and marking regulations (including but not limited to: DOT 49 CFR 105-180, UN TDG SCOE, IMDG code, ICAO Doc 9284-AN/905, IATA DGR, etc.) at the time of shipment.

Labeling:

- 1.2. When required by Harris, all packaging shall conform to Harris QMS Document 10075-3300, Component and Packaging Barcode Guidelines.

Sustainability:

- 1.1 Materials shall be in-line with current industry standards around sustainability.

1.2 100% recyclable material Shall be used whenever possible.

1.3 A product shall never be shipped using peanuts, newspaper, or the like.

QC-1300 POTENTIALLY CALIBRATED ASSET – FOR HARRIS INTERNAL USE ONLY

This asset has been evaluated and has the potential to be used for the measurement and acceptance of product. The item Shall be diverted to the identified asset tag area, where the Calibration Evaluation Notice Label, H-3311, shall be applied to internal and external packaging then sent for distribution.

QC-1310 SUBCONTRACTING

The Seller shall not be entitled to assign, delegate or otherwise transfer (by merger, asset sale, contract, operation of law or otherwise) its rights or obligations under the Contract, or subcontract the Contract or any part of it, without the prior written consent of the Purchaser.

Where a Seller requires to use sub tier supplier(s) for higher risk activities and special processes (defined as those processes that cannot be subsequently verified after the process has been undertaken), that directly affect the quality of product produced they shall ensure they use sources that comply with the minimum standards listed below. Where they wish to use sources who do not meet the minimum requirements listed then they shall obtain thea written approval of HARRIS purchasing prior to implementation.

Material Purchase – AS9100/AS9120/ISO9001 stock lists with lot traceability to source. Where parts are specified as Grade A then full mill lot traceability shall be required along with the use of AS9100/AS9120 stock lists.

Parts/Component Purchase – traceability to OEM source via C of C to minimize counterfeit parts being procured. No re-use, re-manufactured or previously owned parts permitted.

Inspection – UKAS approved.

NDT – All personnel performing flaw detection shall be certified to a Level 2 standard for the operation being carried out according to the requirements of EN 4179 or NAS 410. A Certified Level 3 shall be appointed by the NDT agency.

Heat Treatment – UKAS/NADCAP approved

Casting/Forging/Molding – AS9100 preferred where possible but ISO9001 accepted unless specified on the order.

Plating/Painting/Material Finishing – AS9100 preferred but ISO9001 accepted unless specified on the order.

Welding/Brazing/Silver Soldering – accredited welders to be used

PCB, Cabling, Wiring – ISO9001

The Seller shall ensure that all sub tier suppliers are approved by their organization and these requirements shall be flowed down to the sub tier supplier(s).

No further flow down is permitted without HARRIS permission.

QC-1320 UNINCORPORATED NOTICE OF REVISION

An asterisk (*) adjacent to the revision indicates that a NOR, Notice of Revision, is applicable to the drawing. It Shall be attached to the main drawing. If you do not have this document please contact your buyer.

QC-1330 CONTAMINATION CONTROL PROGRAM

The Seller shall provide and maintain a program for contamination control approved by the Buyer. The Buyer retains the right to audit any of the Seller's CC procedures, documents, certifications, and clean room/clean bench environments. Requirements include, but are not limited to, meeting one of each of the following sets of standards.

- Federal Standard 209E and/or ISO 14644-2
 - Clean rooms and associated controlled environments – Part 2:
 - Seller Quality Requirements

- Specifications for testing and monitoring to prove continued compliance with ISO 14644-1
- IEST-STD-CC1246D (formerly Mil.Std.1246D)

Product Cleanliness Levels and Contamination Control Program and/or JSC SN-C-0005D

QC-1340 FOREIGN OBJECT DAMAGE (FOD) PREVENTION – QUALITY ASSURANCE

The Seller shall establish and maintain an effective Foreign Object Damage (FOD) Prevention Program to reduce FOD using NAS412 as a guideline. The Seller’s program shall utilize effective FOD prevention practices. The program shall be proportional to the sensitivity of the design of the product(s) to FOD, as well as, to the FOD generating potential of the manufacturing methods. The written procedures or policies developed by the Seller shall be subject to review and audit by the Buyer and/or government representative and disapproval when the Seller’s procedures or policies do not accomplish their objectives.

QC-1350 FLEX CIRCUITS PACKAGED IN MOISTURE BARRIER BAGS

For bare flex, please follow the following requirement:

FWB's are to be packaged in moisture barrier bags

Package shall contain maximum of ten (10) flexes/panels per package if flexes/panels are equal to or greater than 10 square inches. Package shall contain a maximum of fifty (50) flexes/panels per package if flexes/panels are less than 10 square inches. Each package shall contain a desiccant package and a humidity indicator (30%- 50%). Pinholes/rips/tears to the packaging are NOT acceptable. A slip-sheet may be placed between each flex. All packages of flexes must be labeled with the Harris p/n, and qty.

The date code on FWB’s shipped to Harris must be within 3 months from the date of manufacture. If boards have a date code older than 3 months from date of manufacture they require an approval prior to shipment, otherwise they Shall be returned for replacement.

For each production lot, the Seller must complete the referenced tests and maintain on file, for a minimum period of four years (unless otherwise stated on the P.O.) from date of manufacture, a data package consisting of:

- Solderability testing per IPC-S-804, ANSI/J-ST-003, or equivalent.
- If soldermask is used, Results of cleanliness test
- Results of continuity/short testing.
- Results of Impedance Testing (when required). Impedance requirements are typically called out on the detail drawing stack up.
- Copper and dielectric thickness test results by cross-section method.

QC-1360 PACKAGING FLEX ASSEMBLIES PACKAGING MIL-STD-2073-1

Flex Assemblies shall be packaged and handled (at a minimum) in accordance with the most current MIL-STD-2073-1 (Method 50 and 51): Standard Practice for Military Packaging and ANSI standard ANSI/ESD-S-20.20: Protection of Electrical and Electronic Parts, Assemblies, and Equipment unless otherwise noted in drawing.

Flex assemblies Shall be placed in inner packaging’s that separate the assemblies to prevent damage, shifting of contents, and/or release of contents.

Volume	Suggested Packaging Type	Suggested Material	Notes
Prototype	Individual	N/A	N/A
Low-Medium	Clamshell w/Foam Die Cuts	<u>Thermoform:</u> RPET, PET, PVC, HIPS <u>Foam:</u> Anti-Stat Polyethylene or	<ul style="list-style-type: none"> ● Die-cuts shall allow for minimal handling and easy removal of the flex assembly without strain of weaker joints. ● Thumb releases or increased hole sizing may be employed to achieve this result.

		Anti-Stat Polyurethane	<ul style="list-style-type: none"> Design shall be review by Harris before implementation.
Medium-High	Thermoformed Tray (w/ Anti-Stat Additive)	RPET, PET, PVC, HIPS	<ul style="list-style-type: none"> Design shall be review by Harris before implementation.

If a packaging strategy is other than the aforementioned, design Shall be reviewed with Buyer prior to PO placement.

Please contact the Buyer and/or Stockroom Material Planning to determine standard pack quantities and suggested package dimensions

All deviations to these requirements must be approved by Harris prior to shipment.

QC-1370 Packaging CRITICAL FINISH HANDLING

Hardware finish/plating is sensitive to contamination during handling. The Seller shall appropriately handle the hardware to prevent contamination during handling. The Seller shall include the following label on all packaging:

Warning: Hardware must be handled with ESD compliant gloves or finger cots.

QC-1380 PROCUREMENT OF FASTENERS (Hi-Rel)

All component hardware (including nuts, bolts, washers, screws, pins, rivets, inserts, etc.) shall be procured from the following approved distributors only:

- Hardware Specialty Co., Norcross, GA (CAGE Code 7R019)
- Century Fasteners Corp., Tampa, FL (CAGE Code 8R639)
- ServTronics, Inc., Winter Park, FL (CAGE Code 0D2B8)

All fasteners supplied to the Purchase Document shall be lot segregated in sealable static shielding bags or sealed polyethylene bags and labeled as a minimum with:

- Part Number
- Quantity
- Manufacturer's Name and/or Manufacturer's CAGE Code Identification Number
- Manufacturer's Lot Number
- Packing slip must contain the information below, at a minimum.
- Part Number
- Quantity
- Manufacturer's Name and/or Manufacturer's CAGE Code Identification Number
- Manufacturer's Lot Number
- Distributor's Name (if applicable)
- Purchase Document Number

Only domestic (Made in USA) manufacturers, which have a past history of supplying reliable fasteners, shall be utilized No re-work or alteration shall be performed on any fasteners (i.e., reducing overall length, increasing thread lengths, plating changes, etc.) without prior written approval by the Buyer. Approval requests shall be submitted to the Buyer writing. No alterations of requirements are permitted until a Sellers request is dispositioned and signed by the Buyer. Original fastener manufacturers are authorized to alter their parts without SSR when they assign new part numbers and lot numbers to these altered parts. Lot testing shall be performed after all alterations are complete on parts.

Required Documentation:

- Certificate of Compliance (C of C) or supporting evidence stating all requirements specified in the fastener's specification, and purchasing document, have been met.

- Certificate of Analysis from manufacturer specifying chemical composition, and heat treatment, if applicable (excluding washers and excluding fasteners with an ultimate tensile strength less than 100,000 PSI (100 KSI) at standard room temperature).
- Lot test data (tensile strength and/or hardness, etc.) from the manufacturer showing test results required in accordance with the applicable fastener procurement specification (excluding washers and excluding fasteners with an ultimate tensile strength less than 100,000 PSI (100 KSI) at standard room temperature).

QC-1390 PROCUREMENT OF FASTENERS (NON HI-REL)

All fasteners supplied to the Purchase Document Requirements shall be lot segregated in sealable static shielding bags or sealed polyethylene bags labeled as a minimum with:

- Part Number
- Quantity
- Packing slip must have the following information:
 - Part Number
 - Quantity
 - Manufacturer's Name and/or Manufacturer's CAGE Code Identification Number
 - Distributor's Name (if applicable)
 - Purchase Document Number

Only domestic (USA) manufacturers, which have a past history of supplying reliable standard (English) fasteners, shall be utilized. Metric fasteners may be domestic (USA) or foreign manufacturers.

No rework or alternation shall be performed on any fasteners (i.e., reducing overall length, increasing thread lengths, plating changes, etc.) without prior written approval by the Buyer. Approval requests shall be submitted to the Buyer in writing. No alterations of requirements are permitted until a dispositioned and approved SSR is issued by the Buyer.

Original fastener manufacturers are authorized to alter their parts without approval from the Buyer when they assign new part numbers and lot numbers to these altered parts. Lot testing shall be performed after all alterations are complete on parts.

QC-1400 FIRST ARTICLE INSPECTION REPORT

The record of this inspection is to include all characteristics and requirements specified by the engineering drawing(s) or other design media

First Article report shall include items listed below as applicable to the item produced:

- I. A bubble drawing correlating the report items numbers with the drawing item numbers. All items on the drawing, including the notes must be accounted for.
- II. An inspection report with results clearly identified.
- III. List of tools used and Calibration certificates for each tool.
- IV. A bubbled specification document indicating items measured, tested, and/or verified.
- V. ATP data package with all applicable identification data.
- VI. Certificate of authenticity for all Off-The-Shelf components used in the assembly
- VII. First Article inspection report for all subassemblies or manufactured components used in the assembly

Note 1: Unless Quality Clause QC-1420 (AS9102 Requirement) is imposed, Seller may use their own format to document First Article Inspection results to be submitted. Such reports must meet all requirements set in this quality clause, as required above.

Note 2: If an approved First Article Inspection (FAI) report is on file, and with prior approval by Harris, Seller may submit a delta FAI. A delta FAI involves validating only those conditions that have changed since the last FAI.

Note 3: If Special Processes (Plating, Painting (CT), Welding and Brazing (HK), NDT (TC), and Heat Treating (SJ), etc.) were used in manufacture of the item; the seller's FAI documentation shall include objective evidence of compliance to Special Processes source approval (i.e. use of NADCAP qualified suppliers or Harris specific process approval).

QC-1410 FIRST ARTICLE INSPECTION

A First Article Inspection (FAI) is required if:

- New Part Number for the Seller
- After a 2 year break in production
- After a manufacturing site change (including subcontractor locations)
- After part number, material, hardware, process, design media revision(s)
- When the PO / SOW specifies a First Article Inspection
- Otherwise, as specified by Harris

Hardware repairs returned from Harris are excluded from this FAI requirement.

If required by the Purchase Order or SOW, the Seller shall submit a First Article Inspection (FAI) Plan for Harris approval. Production build shall not proceed until the FAI plan is approved by Harris.

The First Article(s) shall be produced on production equipment using processes and materials which shall be utilized on production runs.

The First Article data shall be provided in the Seller's format, providing it fully documents compliance to all design media (Drawings and Specifications) requirements.

All First Article inspections performed by the Seller shall be accompanied with a report showing conformance to all drawings, or performance requirements specified by Harris

When completing FAI package for an assembly, each detail part number shall have its own complete FAI report and be included in the FAI package for the Assembly.

If Source Inspection is called out on PO, First Article Reports may be submitted at the time of Source Inspection. Otherwise, First Article Inspection Reports are to be to the Buyer for review and acceptance (5) days prior to the First Article Source inspection date.

Seller shall assume all risk if articles are produced prior to Buyer approval of the FAI Report.

Unless otherwise approved by the Buyer the Seller shall not submit parts from a production run for Buyer inspection prior to Buyer's acceptance of s such First Article.

First Article items shall be shipped to the Buyer and accompanied by a copy of the First Article Report. These items shall be tagged or otherwise identified with any and all the following marking as applicable:

1. Part number
2. Serial number
3. Drawing or Specification revision level
4. Parts list revision level
5. PO number
6. Tool identification number
7. Date of production

Harris reserves the right to verify First Article results at the Sellers facility.

There shall be no costs whatsoever to Harris for any of the actions or items described above by this document unless such costs are specifically delineated and described on the face of this P.O. as actual, priced line items.

QC-1420 FIRST ARTICLE INSPECTION I.A.W. AS9102

The processes and requirements of AS9102 apply to this First Article Activity. The revision of AS9102 to be used shall be the released revision at the time of Purchase Order acceptance.

A First Article Inspection (FAI) is required if:

- New Part Number for the Seller
- After a 2 year break in production
- After a manufacturing site change (including subcontractor locations)
- After part number, material, hardware, process, design media revision(s)
- When the PO / SOW specifies a First Article Inspection
- Otherwise as specified by Harris

Hardware repairs returned from Harris are excluded from this FAI requirement.

If required by the Purchase Order or SOW, the Seller shall submit a First Article Inspection (FAI) Plan for Harris approval. The FAI plan shall address all elements of AS9102 and this Quality Clause. Production build shall not proceed until the FAI plan is approved by Harris.

The First Article(s) shall be produced on production equipment using processes and materials which Shall be utilized on production runs.

All data listed in Quality Clause QC-1400, Ballooned Drawing AS9102 (Sheets 1, 2, and 3) CMM data (if utilized during inspection) must be included in the First Article Inspection report. The First Article report shall be compliant to the requirements of AS9102. All fields on the AS9102 forms shall be completed. Form 1 Optional (O) fields 11, 12, 21, 22, 23, 24 are considered mandatory by Harris and shall be completed. Conditionally Required (CR) fields shall be completed as applicable. Fields not applicable shall be filled in as "N/A" to demonstrate the FAI has been completely reviewed by the Seller.

All First Article inspections performed by the seller Shall be accompanied with a report showing conformance to all drawings or performance requirements specified by Harris

The FAI package shall include the completed First Article Inspection Report on the AS9102 forms, or approved equivalent forms, supporting material and process certifications, a CofC (see Q-Clause QC-1740-A) and copies of all non-conformances documented with the Buyer approvals, if applicable.

When completing FAI package for an assembly, the Certificate of Conformance Shall refer to all of the detail part numbers and standard hardware used in constructing that assembly. Each detail part number Shall have its own complete FAI package approved prior to the assembly's FAI package. The approved Certificate of Conformance for each detail part number shall be included with the FAI package for the assembly.

All data required for the acceptance of the First Article shall be submitted to the Buyer via SSR-FAI for review and acceptance (5) days prior to the First Article Source inspection date. This data includes a dry run and inspection test data of the First Article unit. The required Analysis and Similarity documentation must be received and accepted by Harris no later than Production Readiness Review (PRR) in order for a First Article inspection to be scheduled.

The First Article Inspection Report Shall be submitted to the Buyer prior to proceeding with fabrication of remaining units. Seller shall assume the risk if parts are made prior to Buyer approval of the FAI Report.

Seller shall not submit parts from a production run for Buyer inspection prior to Buyer's acceptance of the associated FAI Report.

Unless otherwise specified on the Purchase Order or SOW; the First Article items shall be shipped to the Buyer and accompanied by a copy of the First Article Report. These items shall be tagged or otherwise identified with any and all the following marking as applicable:

1. Part number

2. Serial number
3. Drawing or Specification revision level
4. Parts list revision level
5. PO number
6. Tool identification number
7. Date of production

Harris reserves the right to verify First Article results at the Sellers facility.

QC-1430 HPQP (HARRIS PART QUALIFICATION PROCESS)

All Sellers are required to implement HPQP (Harris Part Qualification Process) to focus resources on upfront quality planning, and the quantitative assessment of process capabilities as they relate to Harris design specifications. This requirement is controlled by documents PUR-008 HARRIS PART QUALIFICATION PROCESS (HPQP) GUIDE and PRF-008 HARRIS PART QUALIFICATION PROCESS (HPQP) - WORKBOOK, which are consistent with the AIAG (Automotive Industry Action Group) APQP (Advanced Product Quality Planning and Control Plan) and PPAP (Production Part Approval Process). A complete HPQP Package submittal Shall include:

- Critical to Quality (CTQ) characteristics
- Revision Control
- Process Flowchart(s)
- Failure Mode & Effects Analysis (FMEA)
- Control Plan(s)
- Measurement System Analysis (Gage R&R)
- First Article Inspection
- Short-Term Process Capability Analysis
- Long-Term Process Capability Analysis (SPC)
- Packaging Agreement

Existing Sellers to Harris Shall be required to submit a comprehensive plan for HPQP implementation within an acceptable timeframe, as determined by the responsible Commodity Manager.

QC-1440 ELECTROSTATIC DISCHARGE CONTROLS

- A. Seller shall provide and maintain a program for electrostatic discharge control for applicable ESD sensitive hardware items to be furnished on this procurement. Buyer requirements are as specified in the Purchase Orders. The Seller's electrostatic discharge control program is subject to review and approval by the Buyer. As a minimum, MIL-STD-1686, ANSI/EIA-625, ANSI/ESD S20.20, or JESD 625 shall be complied with.

Areas in which ESD items are handled shall be equipped with humidity monitoring devices. When the relative humidity drops below the permitted lower limit of 30%, all work on ESDS items shall cease until either:

- The relative humidity increases to at least the lower limit or,
- Ionization equipment utilized at the ESD workstation must be turned on and properly positioned with respect to the product and operated in accordance with the manufacturer's operating instructions.

The Sellers' ESD program shall flow down to their Subcontractors and Distributors, to the extent necessary, to ensure continuation of the manufacturer's ESD control and safe delivery to the Buyer. Minimal flow down requirements shall address handling, storage, packaging, and marking of items under an ESD control program.

- B. All Components specified being ESD sensitive by the Original Component Manufacturer datasheet, shall be packaged and handled in accordance with the latest current MIL-STD-2073-1 (Method 50 and 51):

Parts must be properly packaged and identified as required in ANSI/ESD-S20.20. All electrostatic sensitive devices shall be packaged in static shielding packaging that meets the requirements of ESD STM 11.31, ANSI/ESD S541. Leads shall be shorted together as appropriate using closed cell non sloughing conduction foam, packaged in sealed static shielding containers or bags designed for ESD protection. Each individual package shall include a destructible ESD precautionary label (ANSI/ESD S8.1 or Mil-STD. 129P), applied over the closure

All goods Shall be placed in conductive or static-dissipative packages, tubes, carriers, conductive bags, etc., for shipment.

The packaging must be clearly labeled to indicate that it contains electrostatic sensitive goods. Electrical parts that may be used or shipped in conjunction with ESD sensitive parts shall be treated as ESD sensitive.

- C. Seller shall provide and maintain a program for electrostatic discharge control for all Electronic items furnished on this procurement. Electrostatic discharge control shall be per ANSI/ESD S20.20. All electrostatic sensitive devices shall be packaged in static shielding packaging that meets the requirements of ESD STM 11.31, ANSI/ESD S541. The Sellers ESD control program is subject to review and approval by the Buyer.

Leads shall be shorted together as appropriate using closed cell non sloughing conduction foam, packaged in sealed static shielding containers or bags designed for ESD protection. Each individual package shall include a destructible ESD precautionary label (ANSI/ESD S8.1 or Mil-STD. 129P), applied over the closure area of the packaging item.

QC-1450 DELETED

QC-1460 ELECTRONIC COMPONENT PACKAGING

Packaging

Unless otherwise specified on the P.O., SOW, Design Media, and Mil-Standard; the following are the default packing requirements for Electronic components.

- Bulk packaging is prohibited
- Packaging shall be in accordance with acceptable commercial practices and as indicated i.e., tubes, tape and reel, JEDEC matrix trays, etc. Parts shall be packaged in such a manner as to prevent damage to components.
- All SMT Quadpacks provided in JEDEC matrix trays shall have pin 1 oriented and loaded into the tray in the same direction.
- Packages shall be marked with part number, lot/date code, and Sellers Name or CAGE CODE as a minimum
- Packing Slip shall contain the Purchase Order number, part number, Sellers name and CAGE code as a minimum. Use tape (& reel as applicable) or waffle pack as originally packaged from the Manufacturer for all electrical components where applicable, in accordance with ESD (ANSI/ESD S20.20) or equivalent. Bulk packaging or repackaging from bulk pack to tape or waffle pack is prohibited. In lieu of bulk packaging, parts can be individually packaged.
- Packaging constituents shall not contain amine based or ionic antistatic chemistry - meaning no pink poly, no pink foam, or equivalent, etc. It is required that packaging for all electrostatic discharge sensitive material must be packaged in ESD-shielding in accordance with EIA-541. Packaging shall be designed to provide physical protection for device case and leads.
- Preservation, packaging, packing, handling, and shipment of items shall be in accordance with appropriate procedures to prevent damage and ensure that original quality is maintained. All electrostatic discharge sensitive material must be packaged in ESD-shielding in accordance with EIA-541.

- Packaging shall be designed to provide physical protection for device case and leads. Leads must be protected with conductive foam to prevent puncturing of ESD bag.
- Individual unit containers (including waffle carriers) shall be marked with ESD Caution Symbol (i.e. EOS/ESD S8.1).
- Electronic Components Tape and Reel
 - For devices required to be in carrier tape. Note: Parts shall not be provided loose.
 - SMD devices shall be packaged in accordance with EIA standard 481. Each line item shall have a continuous strip of carrier and cover tape with at least 6 inches of free carrier tape (not spliced) on the leading end. Tape may be supplied on a reel however for passive parts procured in quantities of less than 200 per line item the tape may be packaged in sealed ESD Bags. When supplied on a reel, the part marking shall be provided on the reel and meet the Purchase Order and specification requirements. When supplied as strip (qtys < 200) the required part marking shall be provided on the outside of the bag the parts are contained in.
- Surface Mount Packaging
 - Surface Mount Technology (SMT) components shall be provided on Tape and Reel IAW EIA-481. In addition to this EIA standard, the following items apply. Reel material must be made of plastic. All reels shall have a minimum of 7 inches of blank carrier and cover tape as a leader and a minimum of 2 inches of carrier and cover tape at the end. High capacity 13 inch reels are recommended when order quantities justify large volume purchases.
- Tube Components
 - Dual Inline Packages (DIP's) and SMT Flatpack may be provided in anti-static tubes. Pin 1 must be loaded consistently for all parts in the tubes. SMT Flatpacks may also be provided on Tape and Reel IAW EIA-481 and the SMT note above. Parts must be secured from movement. Tubes must be greater than 7 inches in length.
- PEM Packaging Requirements (Moisture Sensitive Parts)
 - Plastic encapsulated devices, ranked in categories 2 through 6 per IPC-SM-786A and IPC-TM-650, or defined as moisture sensitive per IPC/JEDEC Standard J-STD-033 are moisture sensitive.
 - Seller shall "dry" pack (vacuum package) all moisture sensitive devices in a Moisture Barrier Bag (MBB) with desiccant and humidity indicator card (HIC) I.A.W. J-STD-033 or equivalent.
 - Seller shall label all moisture sensitive devices with level, seal date, shelf life and baking instructions I.A.W. J-STD-033 or equivalent. Received items shall have a minimum of nine months of shelf life remaining upon receipt.
- Waffle or Gel Packed Components
 - All bare die components and passive components requested in Waffle or Gel pack shall be packaged in 2"x2" ESD protective Waffle or Gel pack tray with a minimum of 2 sheet of sulfur-free tissue paper between base and cover. Each single stack Waffle tray shall be secured using clip and labeled with part number, quantity, and applicable details of specification. Tape or adhesive label shall not overlap cover to waffle tray.
 - - Any components under .050" x .050" shall be placed in a pocketed conductive 2" tray Waffle pack with three sheets of sulfur-free tissue paper (Tyvek paper) as spacer between lid and tray
 - - Components ranging from >0.050" in any dimension may be placed in a pocketed 2" conductive Waffle tray or vacuum release Gel Pack tray with a tackiness grade ranging from ER0 (Low) to ER4 (Medium). Die placed on vacuum release Gel Pack tray must be removable from external protective packaging. Die placement directly on Gel Pack containers is not permitted. No sulfur-free tissue paper is required for Gel packaging.
 - - For components not fitting in 2" square tray, 4"X4" tray packaging is acceptable. Use of 2" trays when possible is preferred.

- Waffle or Gel Packed components shall be placed into a nitrogen backfilled ESD protective bag and sealed. Product marking shall be placed on the exterior of ESD bag or be visible through ESD bag on waffle tray.
- Components shall be oriented the same direction within Waffle or vacuum release Gel pack. All tape and reel components shall be packaged in a fashion so that they meet all requirements to the latest current EIA standards. (ANSI/EIA-481 [including -01 thru -03]): Embossed Carrier Taping of Surface Mount Components for Automatic Handling). This includes carrier tape leader length requirements unless otherwise specified on the PO.

Packaging constituents shall not contain amine based or ionic antistatic chemistry - meaning no pink poly, no pink foam, or equivalent, etc. It is required that packaging for all electrostatic discharge sensitive material must be packaged in ESD-shielding in accordance with EIA-541. Packaging shall be designed to provide physical protection for device case and leads.

QC-1470 COUNTERFEIT PARTS PREVENTION – CS

- Seller shall deploy a Counterfeit Item risk mitigation process internally and with its sub tier Sellers. Seller's process shall be modeled after or exceed SAE AS6174, AS6081 and AS5553 recommendations and requirements.
- Seller shall provide evidence of counterfeit item risk mitigation process implementation such as certifications by an accredited auditing organization and /or applicable Seller Quality Management System documentation.
- If Seller is a US or Canada based entity, Seller shall participate in the Government Industry Data Exchange Program (GIDEP) monitoring and acting on GIDEP reports which affect product delivered to the Buyer.
- Seller shall purchase material directly from Authorized Sellers. Any deviation to this policy shall require prior approval from Harris. Seller is required to submit a Supplier Support Request per Harris procedure MS-899 for review and final disposition. Upon Harris request, Seller shall provide all documentation regarding the chain of custody of material back to the original manufacturer or an Authorized supplier.
- Harris reserves the right to require additional 3rd party testing and submission of test reports via Supplier Support Request per Harris procedure MS-899 to supplement evidence obtained by the seller to confirm authenticity of material.
- If seller is an OEM, any materials approved by Harris for procurement from non-authorized suppliers shall not release the seller from any product warranty or service obligations as defined in the terms & conditions in effect at the time of the request.
- Seller shall flow down to their sub tier suppliers and subcontractors, at any level, these requirements.
- When requested by Harris, Seller shall provide OCM/OEM documentation that authenticates traceability and chain of custody of the affected items to the applicable OCM/OEM.
- Seller shall immediately notify Harris with the pertinent facts if Seller suspects items delivered in accordance with the Harris Purchase Order contain suspect or confirmed counterfeit items. Seller shall submit Supplier Support Request per Harris procedure MS-899 at earliest practicable moment upon discovery of suspect material. Seller shall also notify Harris Supply Chain, Commodity Manager, or Supplier Quality Engineer via e-mail or telephone immediately upon discovery of suspect material. Seller is responsible to obtain documented Harris acknowledgement of Seller notification(s) regarding suspect material discovered in the supply chain. Seller shall obtain Harris acknowledgement within 24 hrs after providing the notification.
- Counterfeit parts are deemed to have no monetary value. Counterfeit material is considered to be non-conforming product and a Supplier Corrective Action Request (SCAR) shall be issued to the seller. The US government has dictated through legislation NDAA 2012 section 818 that suspect counterfeit material shall not be reintroduced into the supply chain.

QC-1480 COUNTERFEIT PARTS PREVENTION – LEVEL A

At a minimum Seller shall have a counterfeit parts prevention plan that incorporates the following practices:

- Maintains a Quality System which complies with, and/or is certified to the requirements of SAE AS 9100, Quality Management Systems – Aerospace, AS9120, ISO 9001, and/or AS9003.
- Maximizes availability of authentic, originally designed and/or qualified parts throughout the product's life cycle, including management of parts obsolescence.
- Assures that approved/ongoing sources of supply are maintaining effective processes for mitigating the risk of supplying counterfeit electronic parts.
- A documented process to address the detection, verification, and control of in-process (post acceptance) and in-service suspect and confirmed counterfeit parts.
- A documented process to:
 - Control excess and nonconforming parts to prevent them from entering the supply chain under fraudulent circumstances
 - Control suspect or confirmed counterfeit parts to preclude their use or re-entry into the supply chain.
Buyer written approval is required prior to use of any Non-Franchised Distributor/Broker.

Seller shall provide timely (within 14 days) notification to Buyer with the pertinent facts if Seller becomes aware of or that it has delivered Counterfeit Work. At no increase in price, Seller shall, at its expense, promptly repair or replace Counterfeit Work with genuine Work conforming to the requirements of this order. Notwithstanding any other provision in this Order, Seller shall be liable for all costs relating to the removal and replacement of Counterfeit Work, including without limitation Buyer's costs of removing Counterfeit Work, of reinserting replacement Work and of any testing necessitated by the reinstallation of Work after Counterfeit Work has been replaced.

QC-1490 COUNTERFEIT PARTS PREVENTION WITH COST LIABILITY

Harris's Customer written approval is required prior to use of any Non-Franchised Distributor/Broker.

Seller shall provide timely (within 14 days) notification to Buyer with the pertinent facts if Seller becomes aware of, or that it has delivered Counterfeit Work. At no increase in price, Seller shall, at its expense, promptly repair or replace Counterfeit Work with genuine Work conforming to the requirements of this order in accordance with the warranty clause of this Purchase Order, except that the period for providing notice of a defect in Counterfeit Work under the warranty clause shall be within eight (8) years of delivery, and Seller shall not be responsible for any repair or replacement of Counterfeit Work after that time period has expired. Notwithstanding any other provision in this Order, Seller shall be liable for all costs relating to the removal and replacement of Counterfeit Work, including without limitation Buyer's costs of removing Counterfeit Work, of reinserting replacement Work and of any testing necessitated by the reinstallation of Work after Counterfeit Work has been replaced.

QC-1500 COUNTERFEIT PARTS PREVENTION WITH CUSTOMER APPROVAL

When applicable to this Purchase Order, Harris's Customer written approval is required prior to use of any Non-Franchised Distributor/Broker.

QC-1510 COUNTERFEIT PARTS RISK MITIGATION – COTS ITEMS

Harris considers COTS items as those that are commercially available to any and all customers without any special modifications made per request(s) by a Harris representative.

- All Mechanical components, Including but not limited to Screws, washers, pins, rivets, stand offs, are acceptable with a C of C from the Seller indicating parts delivered to Harris are those requested by Harris representative. Seller therefore certifies that no part replacements or equivalent parts were used to fulfill Harris requirements. Such parts are exempt from functional, Material, or mechanical test data requirements.
- All Passive Electronic components, Including resistors, non-electrolytic capacitors, fuses, and wires are acceptable with a C of C from the Seller indicating parts delivered to Harris are those requested by Harris representative. Seller therefore certifies that no part replacements or equivalent parts were used to fulfill Harris requirements. Seller however shall maintain traceability records and will make such records available to Harris upon request.

NOTE: For all active electronic components and other types of COTS items not listed above, requirements of QC-1 apply.

QC-1520 PARTS PURCHASED FROM A BROKER OF INDEPENDENT DISTRIBUTOR

As this part is being purchased from a broker or independent distributor, special requirements are added to this Purchase Order to assure authenticity. Acquisition traceability certifications leading back to the original manufacturer are required with each shipment. Upon receipt, Harris Shall perform special inspections and tests of supplied parts to verify that material is not counterfeit. If there is indisputable evidence that the parts are counterfeit, Harris Shall not pay for the material, parts may be returned in a "rendered useless" condition, and notification to GIDEP authorities may occur. All exceptions to this clause must be approved in writing by Harris Supply Chain.

QC-1530 HIGH RELIABILITY SPACE NASA NB, NBS, AND NLS CONNECTOR PROCUREMENT

Procurements shall be made directly to Amphenol Aerospace (CAGE Code 77820) and/or ITT Cannon (CAGE Code 71468) for continental USA built and tested Connectors (no Procurement allowed thru Distribution). Metal piece parts, platings, assembly and testing shall be from the continental USA.

Buyer Receiving Inspection shall verify that the CofC and PO was placed directly with Manufacturer (no Distributor).

All aluminum piece parts shall be impact extruded and/or machined (die casting Prohibited). Electroless nickel plate, 500 microinches minimum, over aluminum piece parts. A double Zincate coating shall precede the nickel plating. The double Zincate coating shall be applied after the aluminum is cleaned to eliminate aluminum oxide formation which improves nickel plating adhesion.

Prohibited Finishes. Cadmium, zinc, and pure tin (>97 percent tin by weight) finishes are prohibited. Zincate coating under nickel plating is allowed.

NASA NLS (40M38277) Space Connectors shall be placed directly with Amphenol Aerospace (CAGE Code 77820) in Sidney, NY and/or ITT Cannon (CAGE Code 71468) in Irvine, CA.

ITT Cannon Reference only: NLS0T (CDSA#40020891), NLS6GT (CDSA#40020896) and NLS7T (CDSA#40020898).

NASA NB (40M39569) and NASA NBS (40M38298) Space Connectors shall be placed directly with ITT Cannon (CAGE Code 71468) in Irvine, CA.

ITT Cannon Reference only: NB0E (CDSA#40020869), NB6GE (CDSA#40020876), NB7E (CDSA#40020882), NBS6GE (CDSA#40020878), NBS7E (CDSA#40020883), NBS8GE (CDSA#40020889) and NBS9GE (CDSA#40020886).

QC-1540 PROCUREMENT OF CONNECTORS (Hi-Rel Space)

All Connectors (Crimp Contacts, Solder Cup Contacts, PCB/PWB Leads, Hermetic, etc.) shall have metal piece parts, platings, assembled and tested/screened in continental USA. All aluminum piece parts shall be impact extruded and/or machined (die casting Prohibited). A double Zincate coating shall precede the plating(s). The double Zincate coating shall be applied after the aluminum is cleaned to eliminate aluminum oxide formation which improves plating adhesion.

Prohibited Finishes. Cadmium, zinc, and pure tin (>97 percent tin by weight) finishes are prohibited. Zincate coating under plating(s) is allowed.

Supply all crimp contact connectors less (without) crimp contacts. Crimp contacts are ordered separately. Buyer Receiving Inspection to remove any crimp contacts supplied as part of connector kit and scrap.

QC-1550 As Built List

An "As Built List" shall be provided, in the Seller's standard reproducible format, identifying the part numbers, revision levels, and serial numbers of all assemblies, at the lowest repairable unit level, that are incorporated into the major assembly identified on this Purchase Order. A copy of this document shall be supplied with each unit delivered to this Purchase Order.

QC-1560 AS BUILT LISTS I.A.W. T13000-0169, REVISION A

Seller shall provide an as-designed parts, materials and processes list prior to procurement and an as-built parts, materials and processes list at time of delivery to Harris in accordance with format detailed in document t13000-0169, revision A.

QC-1570 FUNCTIONAL AND PHYSICAL CONFIGURATION MANAGEMENT

Seller shall be responsible for controlling / tracking changes to parts and components manufactured to ensure that the end product meets specified design functional and physical characteristic requirements. This includes any part or component manufactured to Customers' or Sellers' drawings, specifications, or special process procedures.

The Seller and the customer shall document the agreements as to the extent of organization internal and formal customer involvement configuration management to be applied to this contract / Purchase Order. At a minimum, with each shipment, the Seller shall submit configuration documents, which define the requirements, designs, build / production and verification for a configuration controlled item. This record shall be signed and dated by an official of the Seller's Quality Assurance department, and in addition to the aforementioned required information, shall include the following minimum requirements: Seller's Contract / Purchase Order number Line item number Part number (Of deliverable item and all traceable/repairable sub-tiered parts) Serial number (Traceability as required per contract/Purchase Order) Lot number (Traceability as required per contract/Purchase Order) Drawing number (For traceable/repairable sub-tiered parts) Revision level (baselined configuration of drawing to which hardware was built) Engineering order(s) (or equivalent drawing changes as applicable) Customer approved deviations and waivers (as applicable)

QC-1580 SELLER SUPPLIED CONFIGURATION INFORMATION

- A. With the initial shipment, the Seller shall furnish at no cost to the Buyer two legible copies of applicable specifications, drawings, and/or catalogs or catalog page(s) sufficient to inspect and/or test the product(s) specified in the Purchase Order.
- B. With each shipment, the Seller shall furnish at no cost to the Buyer two legible copies of applicable specifications, drawings, and/or catalogs or catalog page(s) sufficient to inspect and/or test the product(s) specified in the Purchase Order.

It is understood that data supplied is not expected to be of a sensitive proprietary nature. The Seller shall notify the Buyer in writing of any changes proposed in product design, fabrication methods, materials, or processes on proprietary products, including those procured from secondary sources and/or included as assembly components as ordered hereunder, and shall obtain the Buyer's approval prior to supplying such products on this order. In the event of Buyer approval, Seller shall identify those articles on which the change is incorporated.

The Harris drawing specified in this order may differ from the Seller catalog items referenced on the drawing. The responsibility for verification of the dimensional correctness of the items to Harris lies with the recipient of the Purchase Order.

QC-1590 DELETED 03/17**QC-1600 SERIALIZATION LISTING**

With each shipment, the Seller shall submit a legible copy listing all serialized parts and assemblies by part number, within the serialized end item shipped. No two parts having the same part number (under the Purchase Order or any other Purchase Order) are to be identified with the same serial number unless otherwise specified. Records must be maintained by the Seller, identifying the serial numbers of serialized subassemblies contained in deliverable end items. The serial numbers to be assigned by part number are included with this Purchase Order.

QC-1610 SOFTWARE CONFIGURATION CONTROL

Seller shall utilize a software version control tool to maintain configuration control of the delivered software including source code. Software version shall be assigned to the deliverable baseline and be provided as part of the end item data or final test documentation. Firmware is considered as software.

Seller shall maintain archived backups of the deliverable software including source code.

QC-1620 CONTROLLED GOODS REGISTRATION PROGRAM (CGRP)

The Controlled Goods Registration Program (CGRP) is a Federal Government Program established under authority of the Defense Production Act (DPA) and administered by Public Works and Government Services Canada (PWGSC). It requires all Persons examining, possessing, or transferring Controlled Goods in Canada to be registered or exempted from registration.

Registration is also a prerequisite to obtain an export permit for Controlled Goods, and to take advantage of the expanded "Canadian Exemptions" under the United States International Traffic in Arms Regulation (ITAR).

Companies that may calibrate or perform repairs on Defense articles, on behalf of Harris Canada Systems Inc. must be CGP registered.

QC-1630 ADDITIVE MANUFACTURING PART CERTIFICATION

The Seller shall record each lot/date code of material (may use the date as the unique identifier) used in the production of the Buyer's product and shall provide a copy of the manufacturer's certification(s) of such for each order shipped to the Buyer. Parts shall be segregated and identified by the material lot/date code manufactured and machine used. The Seller shall provide documented evidence of lot/date codes used to their process specification with each shipment to ensure compliance and traceability.

QC-1640 AUTHORIZED DISTRIBUTOR'S CERTIFICATION

The EEE Component or device Manufacturer's authorized distributor shall be used for this procurement. The manufacturer's authorized distributor shall, at a minimum, provide the following information with each shipment of product to Harris:

- Authorized Distributor's Name and address.
- Authorized Distributor's and Manufacturer's part number (if different).
- Batch Identification for the item(s) such as lot and/or date codes, serialization, or other batch identification and the quantity for each lot or date code shall be annotated on the Certificate of Conformance/Compliance.
- Signature or stamp on the C of C with title of Seller's authorized personnel signing the Certificate of Conformance/ Compliance to accompany product for shipment shall be included.
- Authorized Distributor's shall, in addition to the above, include the actual Manufacturer's name for each product shipped to Harris.
- If available, supply Manufacturer's certification and associated data submitted to authorized distributor at time of purchase.
- Substitution of equivalent part from other OEM is not authorized. Harris will only accept delivery of parts from OEM defined in this Purchase Order.

Note: Unless negotiated otherwise prior to acceptance of this quality provision, failure to meet the above provisions will result in product REJECTION upon delivery to Harris.

QC-1650 AVIATION / AVIONICS DOCUMENTATION

FAA 8130-3 Required with shipment

Returned Avionic components/SRAs/WRAs must include the approved RELEASE CERTIFICATE (TC, FAA, and EASA) certification document for the country of origin that the repair facility resides in.

QC-1660 DELETED 03/17**QC-1670 DELETED 03/17****QC-1680 CERTIFICATE OF NDI/NDT**

Seller Shall include with each shipment a certificate for the NDI/NDT performed. As a minimum, the certification shall contain the following information:

- Customer's Purchase Order / Contract number
- Name and address of the Company performing NDI/NDT
- Date of Inspection
- Quantity of parts tested by part number
- Specification or other requirement defining the NDI/NDT acceptance / rejection criteria
- Inspector/name/stamp

- NDI/NDT certification level
- NDI/NDT specification including revision
- Material or item identification (part number, heat lot number, Foundry Record (FR) number
- Material or item traceability (serial number, lot number, batch number, lot/date code)
- Inspection results (accept/reject)
- Reference to previous NDI/NDT reports for repair/rework if applicable
- Reference to attached recordings i.e., films or photographs if applicable

A record of the procedures or techniques used and actual results shall remain on file for at least five years after shipment to Customer and shall be furnished to Customer upon request. These records shall include all information listed above as well as acceptance / rejection criteria, and related test instrument data used in the NDI/NDT process.

QC-1690 DELETED 03/17**QC-1700 CERTIFICATE OF ANALYSIS**

A legible and reproducible Certificate of Analysis (Physical/chemical) shall be required with each shipment of material. The certificate shall identify the material by reference to the

The certificate shall identify the material by reference to the:

- Manufacturer's name
- Specification, type, class, and/or grade to uniquely identify the surface treatment in accordance with the source control document
- Measured thickness in accordance with the specification or source control document.
- Confirmation that the surface treatment was processed in accordance with the specification or source control document for steps that cannot be readily verified by testing (i.e., annealing, post baking, etc.).
- The name of the company performing the surface treatment.
- Material condition
- Size
- Heat Lot
- Date Code
- Batch Number
- Results of testing required by the specification or source control document (Chemical Analysis/Physical properties)

When required by the Purchase Order or the source control document, test coupon(s) shall accompany each batch or lot. A description of the coupon(s) or the coupon(s) themselves shall be provided with the order. Marking or scribing on coupons shall be prior to surface treatment.

QC-1710 CERTIFICATION OF ELECTRICAL WIRE AND CABLE

Seller shall provide certification that each shipment of electrical wire or cable furnished under this contract conforms to the applicable specifications. For each lot or cable in each shipment, a certified test report or copy thereof shall be included with the packing sheet. The test report shall, at a minimum, include a record of the physical, chemical, or electrical (and in the case of RF cable, electronic) inspections and tests conducted to satisfy the acceptance requirements of applicable specifications, and shall include numerical results when applicable. For cable shipments, these requirements apply to both basic and finished cable. When the specification requires other inspection or test data to be reported, it shall be included in the test report. Reports shall provide the Seller or Supplier's name, the specification vide number and revision date or change letter, and other data required by the specification, and must be identified to or correlated with the lot shipped.

QC-1720 CONTACT CORROSIVITY TESTING CERTIFICATE OF CONFORMANCE

A legible and reproducible Certificate of Compliance (CofC), attesting that the articles provided conform to the Purchase Order requirements, is required with each shipment including shipments from distributors. Certifications shall comply with all the requirements of QC-1740-A and shall also include:

A separate statement on the Certificate of Conformance (C of C) shall certify that the articles supplied are in full conformance with anti-static, anti-dissipative packing material (also known as pink poly formulations but which may exist in other colored poly as well) must comply with the contact corrosivity testing in accordance with MIL-STD-310, Method 3005 (formerly Federal Standard 101, Method 3005) and/or MIL-PRF-81705D TYPE I, II, & III.

QC-1730 DOMESTIC SPECIALTY METAL CERTIFICATION

When this quality clause is referenced, the Seller shall ensure that the parts supplied meet the requirements of DFARS 252.225-7014, Alternate 1. The Seller is to flow down the applicable specialty metals requirement to all its vendors that supply any parts delivered under this Purchase Order that include specialty metals. The DFARS 252.225-7014, Alternate 1 clause prohibits Harris Impact Science & Technology and all of its suppliers at every tier from incorporating specialty metals into military parts, components, and/or end item deliverables unless the specialty metals have been melted in the United States, its outlying areas, or a qualifying country listed in DFARS 225.872-1. The Seller furnishing this product must certify that all requirements of the contractual clause DFARS 252.225-7014, Alternate 1 are met for this Purchase Order line item. The Seller is also responsible to maintain adequate records for ten (10) years to support an audit of its specialty metals compliance.

A certificate must be included with the shipment which specifically references compliance to: this QA clause; DFARS 252.225-7014, Alternate 1; OR that specialty metal incorporated into this line item was melted within the United States, its outlying areas, or a qualifying country listed in DFARS 225.872-1.

Exemptions to the Specialty Metals requirements of the above clauses may exist, as outlined in the clauses themselves or by operation of applicable Department of Defense Domestic Non-Availability Determinations (DNADs) posted on its public web site for that purpose. Note that any exemptions that may apply are dependent on the date of the prime contract not the date of your Purchase Order. If you believe an exemption(s) applies, please specify the specifics and immediately provide Harris with documents and information sufficient to demonstrate your entitlement thereto.

QC-1740 GENERAL CERTIFICATE OF CONFORMANCE

A legible and reproducible Certificate of Compliance (CofC), attesting that the articles provided conform to the Purchase Order requirements, is required with each shipment including shipments from distributors. Certifications shall include:

A. Basic CofC

- Purchase Order Number
- Line number as shown on the Purchase Order (provided Purchase Order has multiple line items)
- Part Number or identification as shown on the Purchase Order.
- Material Tractability Identification: Serial Numbers, Date Codes, Shop/Job Numbers, other pertinent traceability data of Buyer supplied materials contained in the shipment, etc. (if applicable)
- Serial Numbers (if applicable)

B. OEM CofC

- Certificate of compliance shall be from the manufacturer (OEM) and provided with each shipment of material supplied against this Purchase Order.
- Purchase Order Number
- Line number as shown on the Purchase Order (provided Purchase Order has multiple line items)
- Part Number or identification as shown on the Purchase Order.

Procurement Quality Requirements (Q Clauses)

- Material Tractability Identification: Serial Numbers, Date Codes, Shop/Job Numbers, other pertinent traceability data of Buyer supplied materials contained in the shipment, etc. (if applicable)
- Serial Numbers (if applicable)
- For consumable commodities (e.g., Metal stock or Chemicals) a Certificate of Analysis is acceptable in lieu of the C of C.

C. OEM CofC with CAGE

- Original manufacturer FMSC/CAGE Code Identification Number
- Certificate of compliance shall be from the manufacturer (OEM) and provided with each shipment of material supplied against this Purchase Order.
- Purchase Order Number
- Line number as shown on the Purchase Order (provided Purchase Order has multiple line items)
- Part Number or identification as shown on the Purchase Order.
- Material Tractability Identification: Serial Numbers, Date Codes, Shop/Job Numbers, other pertinent traceability data of Buyer supplied materials contained in the shipment, etc. (if applicable)
- Serial Numbers (if applicable)
- For consumable commodities (e.g., Metal stock or Chemicals) a Certificate of Analysis with OEM CAGE Code is acceptable in lieu of the C of C.

D. Full CofC with CAGE

- Distributor's Name (if applicable)
- Distributors Address (if applicable)
- Manufacturer's Name
- Manufacturer's Address (where part or material is made)
- Manufactures FSCM/Cage Code Identification Number
- Manufacturer's Part Number
- Purchase Order Number
- Line number as shown on the Purchase Order (provided Purchase Order has multiple line items)
- Part Number or identification as shown on the Purchase Order.
- Material Tractability Identification: Serial Numbers, Date Codes, Shop/Job Numbers, other pertinent traceability data of Buyer supplied materials contained in the shipment, etc. (if applicable)
- Serial Numbers (if applicable)
- Quantity and unit of measure (each, box, case, gallons, etc.).
- For kits, the CofC must list all part numbers with their respective quantity.
- Revision of Part Number or identification as shown on the Purchase Order (if applicable)
- Manufacturer's heat, lot, batch number (as applicable) for each article under the procurement
- Expiration and/or cure date (if applicable)
- Special process and inspection/specification numbers, including revision (as applicable).

Certifications must be signed and dated by an authorized agent of the Seller. If it is an electronic certification, an electronic signature is required from an authorized agent of the Seller.

For Raw materials and consumables where applicable CofC information is contained within the deliverable material certifications, test reports, MSDS, etc.; delivery of these records is an acceptable alternative to providing all the information on one CofC document.

Conformance to the Purchase Order requirement encompasses:

- Materials used are those which have been specified by Buyer, and that the articles delivered were produced from materials for which Seller has on file reports of chemical or physical analysis and any other required evidence of conformance of such articles to applicable specifications
- Processes used in the fabrication of articles delivered were in compliance with applicable specifications forming a part of this Purchase Order.
- The articles delivered comply with all specifications and other requirements of the Purchase Order.
- The article(s) and/or service(s) provided meet manufacturer's specifications or requirements.

Conformance shall be objectively supported through test records, inspection data, material certifications, manufacturing control records, etc. and be subject to audit by the Buyer.

In cases where the procured articles are to be drop shipped the CofC and any associated material certifications, test reports shall be submitted directly to the Buyer at the time of shipment.

Buyer may refuse delivery of articles if Seller fails to submit a CofC or the submitted CofC and support test reports, certifications, MSDS, etc. do not comply with the requirements of this Q-Clause. Any discrepancies, within the CofC, identified upon Buyer review or lack of CofC could impact the Sellers rating, require formal corrective action, or result in the articles being returned at the Sellers cost.

QC-1750 HARRIS C OF C (CERTIFICATE OF CONFORMANCE)

Harris hereby certifies that the parts of materials supplied to you on this Purchase Order have been produced tested and inspected in accordance with all applicable requirements. Harris further certifies the delivered product to be mercury free. Inspection/Test history data of the manufacture or assembly of the items are on file at this facility and is available for your review upon request by an authorized representative.

QC-1760 HAZARDOUS MATERIAL TRANSPORT AND CERTIFICATION

Substances, chemicals, mat'ls & parts required by this PO/ subcontract may be subject to US gov't, state, or local regulations, statutes, or similar requirements for the handling, processing & transportation of mercury, beryllium, pcbs, radioactive mat'ls, cyanide & arsenic.

By accepting this order, seller certifies they are in compliance with all such regulations & statutes.

Prior to shipment or delivery of any items which contain or incorporate any of the above mat'ls, seller shall notify buyer of delivery, provide a completed MSDS or equivalent & include a copy w/each order.

QC-1770 MATERIAL CERTIFICATE OF CONFORMANCE

Seller Shall include with each shipment a legible copy of the manufacturer's certification. The certification Shall include the following information:

- a) Name and address of the manufacturer.
- b) Part number and the ordering and procurement specification, including revision levels that controlled the manufacture of the goods.
- c) Manufacturer's production order/lot number.
- d) Raw material data:
 1. Material specification.
 2. Alloy class, type, or grade.
 3. Raw material heat, lot, or melt number.
 4. Name of raw material producer.
- e) Chemical analysis report.

- f) Mechanical test report as defined by the applicable specification (e.g. Tensile and/or single/double shear strength).
- g) Metallurgical examination report as defined by the applicable specification (e.g. microstructure and/or macrostructure).
- h) NDT test results: dye, penetrant and magnetic particle results, when required by applicable specification.

If Seller is not the manufacturer, Seller's name and Customer's Purchase Order/contract number Shall be referenced on the manufacturer's certification. Seller's Quality Control organization shall be responsible for ensuring that items of this Order are packaged in such a manner that the dimensional integrity is preserved, contamination and corrosion are prevented, and no physical damage occurs to the threads during shipment. The preferred method, when size permits, Shall be to individually sleeve the threaded portion of the fastener. Any method used shall insure that threads remain undamaged during shipment. Bulk packaging of unprotected threads is prohibited. Fasteners made of plain carbon or low alloy steel shall be protected from corrosion. When plating is specified, it shall be compatible with the space environment (as appropriate). On steels harder than RC 33, plating shall be applied by a process that is not embrittling to the steel.

QC-1780 MERCURY FREE CERTIFICATE OF CONFORMANCE

A legible and reproducible Certificate of Compliance (CofC), attesting that the articles provided conform to the Purchase Order requirements, is required with each shipment including shipments from distributors. Certifications shall comply with all the requirements of QC-1010 and shall also include:

A separate statement on the Certificate of Conformance (C of C) per QC-1740-A shall certify that the articles furnished under this Purchase Order contain no metallic mercury or mercury compounds and reasonable steps shall be taken to ensure that said equipment or supplies are not contaminated with mercury or mercury compounds.

QC-1790 NICHROME FILM FREE CERTIFICATE OF CONFORMANCE

A legible and reproducible Certificate of Compliance (CofC), attesting that the articles provided conform to the Purchase Order requirements, is required with each shipment including shipments from distributors. Certifications shall comply with all the requirements of QC-1740-A and shall also include:

- Basic CofC
 - Purchase Order Number
 - Line number as shown on the Purchase Order (provided Purchase Order has multiple line items)
 - Part Number or identification as shown on the Purchase Order.
 - Material Tractability Identification: Serial Numbers, Date Codes, Shop/Job Numbers, other pertinent traceability data of Buyer supplied materials contained in the shipment, etc. (if applicable)
- Serial Numbers (if applicable)

Statement on the Certificate of Conformance (C of C) per QC-1740-A certifying that the articles supplied were not manufactured using Nichrome Film.

The use of Tamalox is acceptable.

QC-1800 NON-DELIVERABLE CERTIFICATE OF CONFORMANCE

Through the act of making shipment under this Purchase Order, the Seller certifies that the materials (except when the materials are furnished by the Buyer) used in the articles shipped and the processes applied to such articles comply with the applicable drawings and specifications.

The Seller agrees to retain objective evidence, including records, of the inspections and tests performed in the course of manufacturing, testing, inspecting, preserving, packaging, and packing of said articles that are traceable to the Purchase Order, Part number, and date of shipment. These records shall be made available to Buyer for review upon request. Any discrepancies identified upon Buyer review could impact the Sellers rating and require formal corrective action.

QC-1810 PROHIBITIVE MATERIALS AND PLATINGS

The following materials shall not be contained in any deliverable product except where specified on drawing by note or material specification:

A. Space Prohibited Material

- All forms of pure zinc, cadmium, selenium, or mercury
- Electrodeposited or reflowed tin and all forms of pure tin (purity >97%) and reflowed tin.
- Unalloyed tin with less than 3 percent by weight alloy material
- Alloys containing greater than 5% cadmium, 10% zinc (brass is 35% zinc), 15% selenium alloys shall not be used unless completely over plated with an approved material (e.g. plating).
- Magnesium or selenium shall not be used unless inside a hermetically sealed device or in a space proven detector device.
- Mercury, alloys of mercury, or compounds of mercury
- Zinc greater than 1% (weight/weight) shall not be used unless dry film lubricant or a specific zinc alloy is present and expected.
- In addition, the following plating shall not be used:
 - Silver plated copper wire with less than 40 microinches of silver plate,
 - Gold plating over silver or copper without a nickel barrier for electrical contacts, (unless otherwise specified in the drawings or specifications)
 - Zinc plating without an overcoat of a suitable flight approved metal.

All metals (internal as well as external) shall be such that they shall not promote the growth of whiskers, dendrites, intermetallic formation or kirkendall voids, corrosion, and shall not sublime in the intended application conditions.

Incompatible dissimilar metals shall not be used in conjunction with each other unless specified in drawings or specifications.

All radioactive materials including uranium, potassium, radium, thorium, and/or any alloy thereof shall not be used.

Corrosive solder fluxes (Type RA, etc.) are prohibited unless detailed cleaning procedures are specified, along with appropriate verification methods to ensure removal of residue contaminants.

Vinyl and Polyvinyl chloride (PVC) shall not be used as wire insulation or in any other product usage.

No silicone is allowed on exterior component surfaces. If silicone is used internally by design, the product shall be hermetic to not introduce silicone contamination.

The Seller shall notify the Buyer prior to any solder, plating, coating and cladding change by the Seller or its Sub-Tier Supplier (s) that would result in said products becoming noncompliant with this Q Clause. Compliance with this restriction is subject to review by the Buyer at any time during the performance of this order. Noncompliance to this requirement must be approved in writing prior to acceptance of this Purchase Order. The Seller shall notify the Buyer and submit the noncompliance to the Buyer for approval.

Any exceptions to these prohibited materials must be approved in advance by harris in writing.

The seller shall physically verify material composition of its product prior to shipment. The verification shall be performed on one piece sample for all unique date codes or lot code for each part number delivered against this order. Test DATA or a CofA must be provided showing that none of the prohibited metals, materials or finishes are present. If a CofA is provided it shall reference the Purchase Order Number, Part Number, Lot/Date Code and Serial Number as applicable. The CofA shall be signed and dated by the responsible Seller personnel and shall certify that the material meets all requirements specified above, all applicable Buyer specification requirements, and all requirements in the Purchase Order.

If the seller is unable to perform the material verification, at the time of quote the Seller shall contact the buyer to identify a practical source or form of verification. In some cases Harris may be able to perform the verification.

B. Pure Tin Prohibited Material

All Products Supplied on this Purchase Order shall be free of solder, platings, coatings, and claddings that exhibit either of the following:

- Material composition greater than 97% tin by weight.
- Tin alloy with composition of less than 3% lead by weight.

This requirement is applicable to the internal and external configuration of the products.

The Seller shall notify the Buyer prior to any solder, plating, coating and cladding change by the Seller or its Sub-Tier Supplier (s) that would result in said products becoming noncompliant with this Q Clause.

Compliance with this restriction is subject to review by the Buyer at anytime during the performance of this order.

Noncompliance to this requirement must be approved in writing prior to acceptance of this Purchase Order. The Seller shall notify the Buyer and submit the noncompliance to the Buyer for approval.

Required Documentation: A Certificate of Compliance (C of C) per QC-1740-A or Certification of Analysis (C of A) per QC-1700 as specified on the Purchase Order. If neither is specified, then C of C shall be per QC-1800. For C of A, The report shall have objective test results for each lot and shall have a sample size of at least 2 parts for each lot.

Note: QC-1810-B is not applicable to RoHS compliant material.

QC-1820 QPL ARTICLE CERTIFICATE OF CONFORMANCE

A legible and reproducible Certificate of Compliance (CofC), attesting that the articles provided conform to the Purchase Order requirements, is required with each shipment including shipments from distributors. Certifications shall comply with all the requirements of QC-1470-D and shall also include:

- For QPL Articles :
Name of QPL manufacturer and applicable test number of the qualification approval.
- For Assemblies containing QPL Articles:
 - QPL articles involved
 - QPL reference numbers
 - QPL Manufacturer's name and designation

QC-1830 RAW MATERIAL CERTIFICATE OF ANALYSIS

The Seller shall include with each shipment the raw material or raw materials incorporated into a finished product a legible copy of the manufacturer's test report (e.g., mill test report) that states that the lot of material furnished has been tested, inspected, and found to be in compliance with the applicable material specifications. The test report Shall list the specifications, including revision numbers or letters, to which the material has been tested and/or inspected and the identification of the material lot to which it applies. When the material specification requires quantitative limits for chemical, mechanical, or physical properties, the test report Shall contain the actual test and/or inspection values obtained. When serialization of items has been imposed by the Purchase Order, such serialization shall be a part of the test reports/data. These reports must contain the signature and title of an authorized representative of the agency performing the tests and must assure conformance to specification requirements.

For aluminum mill products (except castings), certifications for chemistry may indicate compliance within the allowed range.

When the Seller supplies converted material produced by a raw material manufacturer, the Seller shall submit all pre and post conversion chemical / physical tests reports.

Each Shipment of metallic raw material must be accompanied by:

- A. Manufacturer or mill inspection/test report for the raw material containing:
- Name and location of the raw material manufacturer or mill.
 - Material identification by specification number and material condition.
 - Manufacturer or mill lot identification number of the raw material.
 - Actual chemical and physical test results as specified in the applicable specification.
 - Actual size and form of billets if required by the applicable standard.
- B. Certification from Seller containing:
- Name and location of the raw material manufacturer or mill.
 - Material identification by specification number and material condition.
 - A statement that the raw material meets applicable specification requirements.
- C. Shipment of finished or semi-finished items manufactured from raw materials must be accompanied by a certification from Seller containing:
- Name and location of the manufacturer(s) of the raw material(s) and the lot number(s) of the raw materials(s) used in the manufacture of the finished, or semi-finished, item(s).
 - A statement, that the raw material(s) used in the manufacture of the finished or semi-finished item(s) meet applicable specification requirements.

Each Shipment of nonmetallic raw material must be accompanied by:

- D. Chemical inspection/test report for the raw material containing:
- Name and location of the raw material manufacturer.
 - Material identification by specification number.
 - Manufacturer lot or batch number of the raw material.
 - Actual chemical test results as specified in the application specification.
- E. Certification from Seller containing:
- Name and location of the raw material manufacturer.
 - Material identification by specification manufacturer.
 - A statement that the raw material meets applicable specification requirements.
 - Certification of shelf life.

QC-1840 DELETED 03/17

QC-1850 SPECIAL PROCESS REQUIREMENTS

Seller and any sub-tier supplier engaged in special processes (ex. Anodize, heat treat, plating, coatings, soldering, x-ray/ radiographic inspection, cleaning, welding, platings, or magnetic particle and penetrant inspection, etc.) shall have special processes approval. The Supplier shall provide to the Buyer, upon request, all documentation showing evidence of special processor qualification and/or certification to perform special manufacturing, assembling, and test processing as required by the contract. Buyer reserves the right to audit or otherwise review this program and its associated controls. Commercial off the shelf/MIL-SPEC hardware is an exception to this clause and does not require NADCAP accreditation.

The seller is responsible for maintaining a system to control such special processes whether performed at their facilities or at a lower-tier facility. The Seller shall perform systematic, periodic evaluation of personnel, equipment, methods, and material required in these special process to ensure positive control at all times. Objective evidence of these evaluations shall be made available to the Buyer upon request.

If the Seller (or its sub-tiers) have not obtained previous approval or have processed material and determined their supplier was not accredited or pre-approved then a Supplier Support Request (SSR)– Deviation shall be submitted to the Buyer and approved prior to any shipment of product.

- A. **(NADCAP/Site Audit)** Special Processes shall be NADCAP accredited or pre-approved by the buyer quality assurance personnel. If approval is required then a Supplier Support Request (SSR)– Deviation shall be submitted to the Buyer and approved prior to any shipment of product. If the Seller (or its sub-tiers) has been audited for the specific special process by a Harris onsite assessment and has been approved for use of the special process (with no findings), the Seller does not need to submit an SSR deviation request for each shipment. The audit is documented within Harris internal system of the approval. The audit of the special process is valid for two years, the Seller will need re-certification from Harris when the expiration date has passed. Any special processes that are used shall be documented on the supplier's or sub tier's C of C when a sub tier supplier is used. This is required for each shipment.
- B. **(NADCAP/Site Audit/Self-Survey)** Special Processes shall be NADCAP accredited or pre-approved by the buyer quality assurance personnel. If approval is required then a Supplier Support Request (SSR)–Deviation shall be submitted to the Buyer and approved prior to any shipment of product. If the Seller (or its sub-tiers) has been audited for the specific special process by a Harris onsite assessment or supplier self-survey and has been approved for use of the special process (with no findings), the Seller does not need to submit an SSR deviation request for each shipment. The audit is documented within Harris internal system of the approval. The audit of the special process is valid for two years, the Seller will need re-certification from Harris when the expiration date has passed. Any special processes that are used shall be documented on the supplier's or sub tier's C of C when a sub tier supplier is used. This is required for each shipment.
- C. Special Processes shall be approved by the buyer quality assurance personnel.
- D. **(NADCAP)** Special Processes shall be accredited by NADCAP. Any special processes that are used shall be documented on the supplier's or sub tier's C of C when a sub tier supplier is used. The certification will be verified upon receipt of the hardware within the eAudit.net system to confirm the special processor was Nadcap certified, within the expiration date and within the scope of accreditation. This is required for each shipment.
- E. Seller may elect to use only Customer approved sources
- F. A special process certification shall be provided with each shipment of item(s) delivered on this contract. Special Process Certifications may be in Seller format and shall include the following:
- Customer's Order number
 - Part number(s) Serial and/or lot numbers, of the hardware processed (if applicable,)
 - Special process specification and revision
 - Objective evidence demonstrating compliance with the applicable process, (i.e. temperature charts and hardness test results for heat treatment, destructive test results, etc.....)
 - A certification stating the special process was performed per the applicable drawing/specification requirements with a date, and signature of a responsible agent or Seller.
 - Name and address of entity that performed the special process.
- G. The Seller shall retain all records associated with the selection and approval of supplier approved special process providers. Per contract or regulatory agency requirements, these records shall be made available to the Customer and/or regulatory agencies upon request. The Seller shall notify the Customer prior to destruction of records relative to this contract.
- H. The Seller shall flow-down this requirement, including document and retention requirements, to all lower-tier subcontracts for work performed under this contract.
- I. Welding shall only be performed by welders certified to the requirements of the welding specification listed on the drawing.

The list of NADCAP approved Sellers can be found at <https://www.eauditnet.com> by creating an account. Upon access, refer to Buyer's Guide in the Public Documents.

QC-1860 SPECIALTY METALS DFARS SUBPART 252.225-7009 CERTIFICATION

The items/components contained in this Purchase Order are in support of a DOD contract and have been identified as having the potential to contain "Specialty Metals" pursuant to DFARS 252.225-7009.

Acceptance of this P.O. requires the Seller to conform to the requirements of DFARS 252.225-7009. Evidence of conformance demands that the Seller shall provide a (CofC) or an approved report certifying that the items/components provided conforms to DFARS 252.225-7009 requiring items/components be melted or produced in the United States, its outlying areas, or a qualifying country.

QC-1870 WELDER CERTIFICATION DELIVERY

Evidence of certification of welder and associated traceability is required and deliverable with product.

QC-1880 CORRECTIVE ACTION LISTING

Seller shall provide a list of corrective action taken to close non-conformances and test failures.

QC-1890 CORRECTIVE FAILURE ANALYSIS (P9561)

Supplier Failure Analysis and Corrective Action Report Requirements shall comply with per (P9561).

QC-1900 DELIVERABLE CORRECTIVE ACTION REPORTS

Each shipment shall be accompanied by a legible and reproducible copy of failure analysis for each identified defect noted on Harris' rejection reports and proposed corrective action to prevent recurrence. This document shall be in the Seller's standard format and must be submitted to buyer and approved by Harris prior to delivery of repaired material.

QC-1910 QUALITY MANAGEMENT SYSTEM : CONTROL OF NONCONFORMING PRODUCT, AND CORRECTIVE AND PREVENTIVE ACTION

Seller shall provide and maintain a program for control of nonconforming product, and for corrective and preventive action, which is in conformance with ISO 9001.

Sellers shall maintain documented procedures for addressing the identification, quarantine and disposal of nonconforming product. Repaired and reworked products shall be re-inspected by Seller's authorized personnel.

Sellers shall have a documented procedure to review non-conformances. This review shall include performing a root cause analysis, developing a corrective action plan, and performing corrective actions to prevent recurrence of non-conformances.

Records of root cause analysis methods and corrective actions shall be maintained and available for review upon request by Harris.

QC-1920 CHIP CAPACITORS WITH DESIGNATORS CN, CB, AND CT

Chip Capacitors starting with designators CN, CB, and CT, supplied on this order shall meet and conform to the requirements of Harris drawing No. 3131398 (General Specification for Capacitor, Chip).

QC-1930 MIL-PRF-28861, FILTERS AND CAPACITORS

Filters furnished to the requirements of this specification contain shunting ceramic discoidal capacitors and series inductors (FSC 5915). Capacitors furnished to the requirements of this specification contain shunting ceramic discoidal capacitors (FSC 5910). Filters covered by this specification are capable of operation over the temperature range of -55oC to +125oC. Statistical process control (SPC) techniques are required in the manufacturing process to minimize variation in production of filters supplied to the requirements of this specification.

QC-1940 TANTALUM CAPACITOR SURGE TESTING

Solid Tantalum electrolytic capacitors shall be 100% surge current tested. The preferred method of testing is:

- 10 consecutive cycles at both -55oC and +85oC,
- Applied voltage DC rated +/- 2%,
- Energy storage bank of 50000 microfarad (mf) minimum across the input terminals,
- Charge and discharge time of 4 seconds.
- Total DC resistance of the of wiring and connections to be 1 ohm +/- 2 ohms including the impedance of the power supply

Capacitors shall meet the capacitance, DF, and DC leakage after test. Approval of alternate test methods shall be submitted in writing to the Buyer prior to acceptance of the order.

QC-1950 CALIBRATION PROCESS GENERAL

The Seller shall acquire and maintain gauges, inspection and test equipment to assure that material conforms to the P.O. These devices shall be calibrated at established intervals, before they become inaccurate, against certified standards that have known relationships to national standards. The level of accuracy shall be a minimum of 4 to 1 greater than the tolerance measured. In cases where the level of accuracy cannot be achieved please provide written justification to the Buyer for deviation consideration. The Seller must maintain records of calibration for all measuring and test equipment and made available to Buyer for review upon request. Reference ISO 9001-2008, ISO 10012, ANSI/NCSS Z540-1, ISO/IEC 17025, or MIL-STD-45662A (canceled).

QC-1960 CALIBRATION SERVICES

Seller shall provide and maintain a calibration system that complies with ANSI/NCSS-Z-540-1, ISO 10012, and/or ISO/IEC 17025. The most current version of these standards shall apply. A certificate or report providing traceability to the National Institute of Standards and Technology shall accompany each instrument calibrated. This system shall be subject to audit by Harris.

The Seller shall submit for each item calibrated, one reproducible record of actual calibration results, including applicable graphic and tabular data. Records shall be traceable to the individual item tested, by part number, serial number and customer's order number for the item shipped. Prior to adjustment, verify any out-of-tolerance condition. The certificate shall also state the operating error per specification, the degree of correction of out of tolerance condition and remaining uncorrected out of tolerance condition, if applicable.

QC-1970 NASA NPD 8730.1C CALIBRATION ADDENDUM

In addition to any other clauses incorporated into the Purchase Order the Seller shall implement calibration in accordance with NPD 8730.1C.

QC-1980 ELECTRONIC DATA DELIVERY – REQUIRED

Documentation is required to be uploaded to the Buyer's EXPO data portal via link (<https://supplychain.harris.com/secure/logon.aspx?FORCE=true>) in a format which is acceptable to Buyer/Industry standards (<https://supplychain.harris.com/secure/logon.aspx?FORCE=true>). Harris shall provide access (login and password) to this secure site at time of order. Harris Supply Chain may request and email notification of data upload.

Note: If the only required documentation, is the Certificate of Conformance, and the C of C is provided on the Seller's packing slip, it is not required to upload the C of C in the electronic format.

Documentation provided on digital media does not have to be uploaded to the Harris EXPO Supplier Document List.