

Procurement Quality Requirements (Q Clauses)

H-1999Q

Q-CLAUSE REVISION RECORD

| Date | Revision Description |
|----------|--|
| 10/17/12 | Q-1 A: Clarification for distributors regarding relocation of facilities Q-1 J: Removal of Bright Tin Finish Prohibition Q-18: Added reference to JESD 625 Standard Q-53: Updates/clarifications to PWB section |
| 03/19/13 | Q-1 K: Updates for Counterfeit Parts Prevention Q-3: Updates for Counterfeit Parts Prevention with Buyer approval required Q-4: Updates for Counterfeit Parts Prevention with cost liability Q-9: Added Counterfeit Parts Prevention – Level A Class 3 Q-23: Clarification on items to reference Q-24 B: Added bullet for requesting more info Q-54: Clarification for Electronic Component Packing Q-56: Clarified standard vs. metric regulations Q-59 – Q63: Deleted and moved to definitions Q--74: Deleted |
| 06/05/13 | Q-1 E: Measuring and Test Equipment: Sentence added for requirement clarification. Q-1 K: Revised to align with DFAR requirement. Q-3: Revised per flow down from customer contracts. Customer approval is required; not just Harris. Q-4: Revised per flow down from customer contracts. Customer approval is required; not just Harris. 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. 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. Q-31: New clause added to address NAS-412 FOD flow down requirements. Q-43: Removal of 'or Manufacturer's Part Number', as the Buyers part number is required on container marking. Q-57: Added sentence for clarification. Q-64: Added requirement for programs that have this requirement. Q-77: Removed. Marking must be on drawing. |
| 08/20/13 | Q-78: Added new requirement to address Harris interdivisional work. |
| 01/20/14 | Q-79: Added new requirement to assist Property Management in being notified of incoming assets that require tagging. |
| 03/17/14 | Q-25: Added new Q-clause for Temperature Sensitive Material Q-54: Clarifications on Electronic Component Packaging Q-59: Added new requirement to Tape and Reel only Electronic components Q-75: Clarifications on Electronic Data Delivery Requirements Q-76: Clarifications on First Article Inspection Requirements |

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|----------|---|
| 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. |

Q-CLAUSE REVISION RECORD

| Date | Revision Description |
|----------|--|
| 05/09/16 | Q-1: Updated part substitution guidance. Q-29: Updated control of processes guidance. Q-66: Updated title "High Reliability Space NASA NB, NBS, and NLS Connector Procurement" Q-69: Updated guidance Procurement 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 Matrix listing QC1 thru QC-1980 and Cross Reference Matrix |
| 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 |
| 08/30/17 | QC-1: Revise inspection record retention from three to four years to comply with FAR, removed the eco comments in sir, as each SSR type could result in an eco QC-390: Remove non-applicable sentence QC-590: Clarify change notice instructions QC-1220, QC-1260: clarify SSR usage deviations versus information (i.e., questions) QC-1990: New electronic data clause for GPP QC-2000: New electronic data clause for EW |
| 11/17/17 | Revise QC-1530 and 1540 to ensure USA Made parts in Connectors for space programs. Update 1420 to clarify FAI requirements. Current wording was not clear for us or suppliers. Update QC-1850 to ensure it is correct with respect to Nadcap requirements. Update QC-1 to add Fab/Machining packaging requirements to minimize damage. Add Q Clause 2010 for APQP implementation. |

Q-CLAUSE REVISION RECORD

| Date | Revision Description |
|----------|--|
| 02/21/18 | Added Q Clause QC-2020 for clarification on Nichrome components. Modified QC-1400, QC-1410 and QC-1420 to clarify FAI requirements for submittals. Modified QC-1540 and QC-1790 to correct formatting errors in these clauses. Modified QC-1 to clarify MRB requirements. Changed QC-1290 as that packaging note was not used and we needed individual packaging put back in. Modified QC-1810 to clarify requirements, including testing. Modified QC-1540 to add Silver as a prohibited finish and changed note for Contacts to "C." Updated QC-1740 to clarify OEM C of C Purchase Order Number for Distributors. |
| 02/27/18 | Correction to typo to replace Q-1400 with QC-1400. |
| 4/16/18 | Updated QC-1460 to change "and" to "or" with respect to what is required on a packing slip. As long as there is a supplier name or cage code that is acceptable. |
| 08/02/18 | Updated QC-1020 to add the word Copper based on input from Safety committee. Updated QC-1340 to add New FOD Spec option and broke this clause into 2 sections (A and B). Updated QC-2020 to clarify APQP items required. Updated QC-1 to clarify commercial item requirements for suppliers and removed OEM C of C for Counterfeit parts. Updated QC-1380 to add "and shipped" to the clause to make it clearer for suppliers. |
| 09/26/18 | Updated QC-910 in order to clarify the requirements when having BGA re-balled or LGA's balled. QC-320 added "NASA" in order to include SIS SSD activities for GSI. QC-540 Corrected a typo. QC-610 Added a new line (J) for SW Development for SIS SSD usage. |
| 02/06/19 | <p>Q-XX format clauses deleted.</p> <p>QC-1 corrected errors in formatting/font.</p> <p>QC-120 updated sections A, F, G, H, I and J to clarify for suppliers.</p> <p>QC-460 added QC-460-E and QC-460-F for Castings requirements for RS&AP.</p> <p>QC-540 clarification to record destruction time frame.</p> <p>QC-1020 combined all subparts into one overall clause.</p> <p>QC-1200 added separate clause for RS&AP legacy programs with no drawing note for Cage Code.</p> <p>QC-1460-A added for business units that require tape and reel for 200 or less components.</p> <p>QC-1700 removed redundant sentence.</p> <p>QC-1810-A revised for clarity.</p> <p>QC-1810-D removed requirement for XRF Testing when not needed.</p> <p>QC-1810-E added for RS&AP-specific application requirements.</p> <p>QC-2030, QC-2040, and QC-2050 added to incorporate RS&AP prime-specific clauses.</p> |
| 09/09/19 | <p>Rebranded L3Harris.</p> <p>QC-1 sections addressing Resubmittal of Rejected/Returned Items; Inspection Records; Electrostatic Discharge Protection (ESD); and Electronic Data Delivery updated to require SSR approval prior to shipment (changed to shall); removed the Shelf Life requirement in QC-1; Updated guidance for resubmittal of rejected items and inspection records.</p> <p>QC-420 – Corrected a typo changing 720C to 720C.</p> <p>QC-610 Incorporated latest ISO update; updated guidance associated with Software Development Programs; Limited Life Product Requirements.</p> <p>QC-990 – Update to change QC-990-A to a 50% shelf life requirement for certain items for Limited Life Product Requirements.</p> <p>QC-1020 – Packaging Beryllium Copper, Albemet or Any Other Beryllium Composite Material Requirements updated to remove "Brush Wellman" as it is a company and not a specification.</p> |

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|----------|---|
| 11/20/19 | <p>Section 2.0 Definitions—revised and reformatted.</p> <p>Section 5.0 Harmonized Q-Clauses—revised as follows:</p> <ul style="list-style-type: none"> • QC-1—Quality Control General <ul style="list-style-type: none"> ○ General—moved section from bottom of QC-1 to top and combined with existing text. Bulleted text. ○ Definitions—moved to section 2.0, Definitions. ○ Change in Approved Drawings, Processes, Materials or Procedures—moved part substitution paragraph from unauthorized submittal section of QC 1 to this section and revised to indicate that seller shall submit an SSR with suggested part number for technical evaluation and approval ○ Resubmittal of Rejected/Returned Items—Revised to include a requirement for submittal of an SIR with a RCCA attached with shipment. ○ Unauthorized Submittal of Production-Deleted section—Reference to first article FAI requirement is not needed in QC-1 as QC clause for FAI should be applied as a QC clause if a FAI is required. Part substitution paragraph moved to change in approved drawings, processes, materials or procedures section of QC1 ○ Part Marking—Deleted section that indicates that when the PO, Design Media, or SOW do not address part marking and replaced with bullet that states "If part marking is not addressed on P.O., design media, or SOW supplier shall provide materials/parts to L3Harris without part marking." ○ Configuration Management Requirements—Changed last sentence FROM: The seller shall not accept changes via verbal or email direction from anyone other than Harris Supply Chain TO: The seller shall not accept changes via verbal or email direction. All changes shall be documented via an SSR and a PO change order, as applicable. ○ Shelf Life—Shelf life section deleted in its entirety, effort being worked to revise shelf life requirements independently of this mass update ○ Documentation—Deleted incomplete sentence in second paragraph that read " If Harris Drawing(s) specified in this order requires dimensions that differ from the seller catalog items referenced on drawing". Also deleted sentence that read "Unless otherwise specified in the PO, SOW, or Design Media, final acceptance is performed at Harris". ○ Electronic Delivery—Updated to indicated that L3Harris Supply Chain prefers that all documentation is uploaded to expo, which may include OEM C of C, test data, and any other applicable, as required by the PO. Also revised to indicate that if supplier is unable to upload data, that they shall notify buyer at time of PO to coordinate an alternate means of document delivery to avert non-conformance. Removed definitions of an SSR from this section and moved to definitions section 2.0 of the document. ○ Supplemental Quality PO Requirements—deleted this section and sentence as it is redundant to the general information • QC-430 Packaging Temperature Sensitive Material—combined bullets from QC-450 and deleted QC-450 • QC-570 Minimal QMS Requirements—revised verbiage for Control of Inspection, Measuring and Test Equipment as well as Corrective Action • QC-700 PWB Requirements Drawing 2012559—Complete rewrite to clarify deliverables and order of precedence for SI2 organization. • QC-1120 Packaging Container Marking—deleted one asterisk (currently shows 2) • QC-1220 Component Part Number Substitution—added paragraph on part substitution |

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| | <ul style="list-style-type: none"> • QC-1360 Packaging Flex Assemblies Packaging Mil-Std-2073-1-removed reference to “and/or Stockroom Material Planning” • QC-1420 First Article Inspection-added "Note that Line Item inputted to SSR-FAI will be that of Part Number and not the FAI Line Item" • QC-1440 Electrostatic Discharge Controls—minor corrections to call outs of STM, ANSI and MIL-STD • QC-1540 Procurement of Connectors, Backshells, and Contacts (Hi-Rel Space)—added acceptable sources of supply • QC-1740 Certificate of Conformance—added clarification to letter designations B and C to clarify acceptable traceability to OEM C of C. • QC-1810 Prohibitive Materials and Platings—revised to clarify A and D on XRF requirements required by supplier or by L3Harris. • QC-1820 QPL Article Certificate of Conformance—revised reference to QC-1470D in first paragraph to 1740D (Full C of C with CAGE). • QC-1850 Special Process Requirements—complete rewrite • QC-1980 Electronic Data Delivery–Required—revised to clarify electronic delivery requirements of documentation. • QC-2010 APQP (Advance Product Quality Planning)—complete rewrite. <p>Deleted Q-Clauses:</p> <ul style="list-style-type: none"> • QC-30 Visual Inspection • QC-40 Workmanship Mil-HDBK-454 • QC-90 Ceramic Data • QC-100 Chemical and Physical Analysis (Typical Values) • QC-110 Customer/Router Specified Test Data • QC-130 Deliverable Pressure Vessel Data • QC-220 One Piece Inspection • QC-440 RFID Label • QC-450 Shipping Documentation and Material Handling • QC-470 Crimp Test Samples • QC-480 Elastomer Samples shipped to Navy • QC-500 Molding Material Samples • QC-510 Rubber Samples • QC-520 Tensile Test Samples • QC-530 Operational Time Documentation • QC-560 Completed Item Inspection and Test • QC-600 Safety and Mission Success—NPD 8700.1 • QC-620 Seller QA Plan • QC-630 Flex Circuit Coupon Processing by GSFC or Delson Labs • QC-640 G-10 Material Substitution |

Q-CLAUSE REVISION RECORD

| Date | Revision Description |
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| | <ul style="list-style-type: none"> • QC-660 Packaging Printed Circuit Board Assemblies Mil-STD-2073-1 • QC-740 PWB Marking and Data Delivery • QC-780 PWB's Packaged in Moisture Barrier Bags • QC-820 Quality and MFG Control Plan • QC-870 Microcircuit and Semiconductor Dice Evaluation • QC-880 Mil-PRF-38534, Hybrid Microcircuits • QC-900 Precap High Resolution Digital Color Photographs • QC-930 Anti Tamper Process Requirements • QC-950- L3Harris Provided Material • QC-960 L3Harris Supplied Material Cadmium Free • QC-970 L3Harris Supplied Material Mercury Free • QC-1010 Mercury Free • QC-1090 Supplier Pre-Wired Connectors • QC-1130 UID Identification • QC-1150 3rd Party Inspection, Sort, Rework • QC-1160 Additional Part Requirements • QC-1180 Best Repair Effort • QC-1200 Buyer Supplied Information (A and B) • QC-1230 Electro-Ceramic FAA-PMA Fuel Sensor Probe P/N 378211 • QC-1250 Master Drawing • QC-1270 NADCAP Plating Processes • QC-1320 Unincorporated Notice of Revision • QC-1350 Flex Circuits Packaged in Moisture Barrier Bags • QC-1400 First Article Inspection • QC-1410 First Article Inspection • QC-1430 HPQP (L3Harris Part Qualification Process) • QC-1620 Controlled Goods Registration Program (CGRP) • QC-1630 Additive Manufacturing Part Certification • QC-1650 Aviation/Avionics Documentation • QC-1720 Contact Corrosivity Testing Certificate of Conformance • QC-1750 Harris C of C (Certificate of Conformance) • QC-1780 Mercury Free Certificate of Conformance • QC-1800 Non-Deliverable Certificate of Conformance • QC-1870 Welder Certification Delivery • QC-1920 Chip Capacitors with Designators CN, C, and CT |

Q-CLAUSE REVISION RECORD

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| | <ul style="list-style-type: none"> • QC-1930 Mil-PRF-28861 Filters and Capacitors • QC-1970 NASA NPD 8730.1C Calibration Addendum |
| 01/24/20 | Updated instances where a standard ANSI/ESD S541 was called out by the old name EIA-541 and where standard ANSI/ESD STM 11.31 was called out by ESD STM 11.31 per QPCR 740. |
| 06/02/20 | <ul style="list-style-type: none"> • QC-1 Quality Control General—updated to enable distributors and commercial suppliers to not require SSRs for processes that are not applicable to their operations. Updated Counterfeit section to align with updates in the Federal Counterfeit Regulations. • QC-1380 Procurement of Fasteners (Hi-Rel)—revised to include a non-US-approved manufacturer for space hardware. • QC-1420 revised to add (B) a 12 months lapse in production in support of customer requirements when applicable. Added “COTS Items” exempt from FAI’s and incorporated clarification of previous FAI and C of C. • QC-1340 Foreign Object Damage (FOD) Prevention – Quality Assurance—revised to prohibit use of Styrofoam packing peanuts. • QC-2060 Variation Management of Key Characteristics—added (required for some contracts). |
| 01/22/21 | <ul style="list-style-type: none"> • QC-120 Deliverable Inspection/Test Data: Updated to add flight and group test parts requirements. • QC-290 Seller 100% Inspection Reporting Requirements: Added requirement for a bubble/balloon drawing is to be included to denote unique identifiers to be referenced on the inspection report. • QC-295 L3Harris In-Process Inspection: Added new clause. • QC-540 Records & Retention: Retitled clause; updated thresholds for retention; Added supplier/distributor requirement to provide records with material delivered. • QC-650 Independent Laboratory Coupon Processing: Amended title; revised all associated requirements. • QC-680 Printed Wiring Boards Constructed and Tested in Accordance With 8252313: Deleted 5/20. • QC-690 Printed Wiring Boards Construction and Test General: Added requirement for Section E, L3Harris’ drawing 8193759 to indicate that seller will provide coupon with each shipment.. • QC-810 Factory/Quality Assurance Acceptance Test Procedures and Data: Added Section C to include requirements for ATPs and digital data. • QC-990 Limited Life Product Requirements • QC-1090 Supplied Pre-Wired Connectors: Reinstated clause. • QC-1830 Raw Material Certificate of Analysis: • QC-2070 Fastener Material Test Report Requirement: Add new clause. • QC-2080 Optical and Telescope Inspection Requirements: Added new clause. • QC-2090 Silver Plated/Coated Copper Wire/Braid Red Plague Control Requirement: Added new clause. • QC-3000 AS Designed As-Built List: Added new clause. • QC-3010 Packaged In Syringes Requirement: Added new clause. • QC-3020 Obsolescence/End of Life (EOL): Added new clause |

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 L3Harris Existing Suppliers website.

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1.0 PURPOSE

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

2.0 DEFINITIONS

L3Harris - The legal entity which is the contracting party with Seller with respect to the Purchase Order.

Buyer- The L3Harris authorized procurement representative that originates the Purchase Order with the Seller.

Seller- The legal entity which is the contracting party with L3Harris with respect to the Purchase Order.

L3Harris Supply Chain – The collection of L3Harris procurement, supplier quality, commodity management, and subcontracts management personnel.

Item- Products or services contracted for by the Purchase Order.

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.

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.

COTS- Commercial off the shelf

HCOTS- L3Harris Commercial off the Shelf

XRF- X-Ray Fluorescence

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.

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)

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)

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)

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)

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 a FAI to L3Harris. A Supplier Support Request (SSR) is required for each shipment where approval to a deviation to a contractual requirement is needed. If the Supplier has opened any SSRs requiring information, review, deviation and/or approval to L3Harris contractual requirements, those SSRs shall be approved prior to delivery of product to L3Harris.

- **FAI (First Article Inspection)** Submit an SSR-FAI First Article Inspection Report (Reference AS9102) when the Drawing specifies or if the 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. All SSRs are specific to a single part number, quality, PO number, and PO line item. The same SSR shall not be referenced for any other PO number and line item.
- **SCN (Supplier Change Notification)** Submit an SSR-SCN Supplier Change Notification when the supplier wants to notify L3Harris 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. All SSRs are specific to a single part number, quality, PO number, and PO line item. The same SSR shall not be referenced for any other PO number and line item.
- **SDR (Supplier Deviation Request)** Deviation request if the parts/product do not meet the L3Harris contractual requirements from the supplier, an SDR shall be submitted. This request is made when parts/product are in process and/or finished. All SSRs are specific to a single part number, quality, PO number, and PO line item. The same SSR shall not be referenced for any other PO number and line item.
- **SIR (Supplier Information Request)** Information request for a print change, clarification to Purchase Order requirements such as drawings, specifications, etc., or approval of documentation that is required to the start of production or prior to shipment to L3Harris. This request shall be made before parts are built. All SSRs are specific to a single part number, quality, PO number, and PO line item. The same SSR shall not be referenced for any other PO number and line item.

3.0 QUALITY ASSURANCE REQUIREMENTS

The following Q Clauses are a requirement of the procurement when specified by number and letter designation paragraph (Q-XX or QC-1-QC-XXXX), as applicable on the Purchase Order. The general Quality Assurance requirements, QC-1 apply to all applicable procurements including L3Harris Interdivisional procurements.

Requests shall be submitted to L3Harris 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 DELETED

(This section has been deleted and replaced by the Q Clauses in Section 5.0, Harmonized Q Clauses. Q-XX Clauses are no longer used for Purchase Orders. Legacy Purchase Orders which contain Q-XX Clauses have been mapped to new clauses internally and will be verified upon receipt using the text of the new Q Clauses.)

5.0 HARMONIZED Q CLAUSES (FOR USE ON ALL PURCHASE ORDERS)**QC-1 QUALITY CONTROL GENERAL****GENERAL**

- Unless otherwise specifically stated in the Purchase Order, design media, or Statement of Work (SOW), the conditions defined in the Supplemental Quality Purchase Order Conditions (Q-Clauses) assigned also 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 Supplier (or Distributor) does not perform a task or service listed in a section of this clause, (i.e., testing, processing of moisture sensitive parts, etc.), that section of the clause does not apply and an SSR or waiver is not required.
- 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/waiver from L3Harris 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.
- When the Seller is unsure about Q-Clause applicability they should contact L3Harris Supplier Quality for clarification/ consensus.
- Changes to this Purchase Order can only be approved by the L3Harris Buyer.
- Materials furnished by L3Harris become the responsibility of the Seller. Seller shall maintain an inventory list and processes for material control for all L3Harris 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.

QUALITY MANAGEMENT SYSTEM

The Seller shall maintain a quality program that assures that all supplies and services furnished to L3Harris conform to contractual requirements. The quality program shall be documented and available for review by L3Harris throughout the life of the P.O.

CHANGE IN APPROVED DRAWINGS, PROCESSES, MATERIALS OR PROCEDURES

This section is not relevant for Commercial and/or Military Part Numbers.

- Seller shall not change any drawing, process, material, or procedure without prior written L3Harris approval, if such drawing, process, material, or procedures were originally approved by L3Harris. Should the Supplier make any changes, an SIR shall be submitted and approved to validate that form, fit, or function is not changed. A first article inspection report (FAIR) may be required if the change impacts form, fit or function.
- 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 L3Harris.
- Any change in chemical compounds shall be communicated to L3Harris to determine if a chemical compatibility study is required.
- In the event of a change, L3Harris, 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.
- The change approval must be referenced on the Seller's shipping documents and applicable certifications/test reports.
- Failure to notify L3Harris of these changes may result in rejection of the material.
- 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. If the ordered part is not available, and there is a replacement part, the seller shall submit an SSR/SIR to L3Harris with a suggested part number for a technical evaluation and approval prior to delivery of the replacement part.

RESUBMITTAL OF REJECTED/RETURNED ITEMS

Items rejected by L3Harris, and subsequently resubmitted to L3Harris, shall be clearly identified as resubmitted items on Seller's shipping document. Any required documentation submitted with the original shipment shall be resubmitted with this shipment.

An SIR with the RCCA attached along with references to the L3Harris' rejection document and new lot control identification numbers are to be provided with the shipment, if required by L3Harris. Supplier shall perform a full ATP on each returned item unless abbreviated testing has been authorized by L3Harris in advance. This would not apply to Distributors with the exception of part replacement when an incorrect/wrong part is received.

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 L3Harris without promptly notifying L3Harris and affording L3Harris an opportunity to examine such facilities for compliance with Quality Assurance requirements.
- For Distributors: When notified by the OEM/OCM of changes (as detailed in OEM/OCM section), the Seller shall notify L3Harris.

SELLER RESPONSIBILITY FOR CONFORMANCE

The Seller named on the Purchase Order retains full responsibility for ensuring products, catalog items, 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 L3Harris Purchase Order.

Acceptance of the Purchase Order and receipt of product at L3Harris' 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 L3Harris Quality personnel of compliance to this provision.

No one except the Buyer 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 Buyer.

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 L3Harris, or their representatives, or representatives of the L3Harris' Customer at either Seller's or L3Harris' 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 L3Harris' 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 L3Harris 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.

L3HARRIS SURVEYS, SURVEILLANCE, AUDITS, AND INSPECTION

- L3Harris, L3Harris' 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.
- L3Harris, L3Harris' 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 L3Harris' facility, unless otherwise specified on the Purchase Order.
- Neither surveillance, inspection and/or tests made by L3Harris or their representatives at either the Seller's or L3Harris' 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.
- L3Harris reserves the right to use Structured Sampling at L3Harris facilities 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, L3Harris 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);

MEASURING AND TEST EQUIPMENT

- When test equipment and calibrated tools are used, 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 L3Harris 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 L3Harris Supply Chain.

- No repair or rework shall be allowed outside of the specific specification limits unless prior approval is obtained by the Seller from L3Harris. 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 L3Harris on a Supplier Support Request (SSR) through the expo Portal. All SSRs are specific to a single part number, quantity, PO number, and PO line item. The same SSR shall not be referenced for any other PO number and line item.
- For the purpose of this section the following definitions apply:
REWORK – Action being taken to correct a discrepancy that will bring the part to full compliance with the drawing/specification, (Supplier or L3Harris).
REPAIR – An action required that will make the part useable, but the part will not be in full compliance with the drawing/specification (Supplier or L3Harris).
- Seller shall be aware of their contribution to product or service conformity
- Decisions to accept nonconformances (variances from drawings and specifications, Repair/Use As Is) detected at Seller's facilities must be made by L3Harris, unless otherwise specified by the Purchase Order. Shipment of nonconforming items must be accompanied by a L3Harris-Approved Supplier Discrepancy Report on a Supplier Support Request (SSR) through the expo portal. The Supplier Discrepancy Report must be dispositioned and approved by the Quality Engineer prior to shipment. All SSRs are specific to a single part number, quantity, PO number, and PO line item. The same SSR shall not be referenced for any other PO number and line item.
- Seller does not have MRB authority without express written authorization of L3Harris. 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 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.
- 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.

INSPECTION RECORDS

The Seller and their sub-tier suppliers shall maintain records of all essential inspections and tests for a minimum period of 4 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 L3Harris and other regulatory entities upon request. After the retention period, all records shall be archived or destroyed as required by the Purchase Order, or at the discretion of the Seller if no further requirements exist.

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.
- Machine/Fabricated Parts shall be clean, free of oil, FOD and other contaminants prior to packaging. Packaging shall be IAW ASTM D3951 unless otherwise specified on the purchase order. Parts shall be packaged using materials IAW ASTM D3951, reference APPENDIX X1.4 – X1.5 with material selection based on part size, mass and fragility prior to packaging in shipping box.
- Parts shall be packaged in a way that restricts shifting inside the box during shipping and handling. The selected shipping box shall have strength to support and protect the contents. The shipping box material shall be IAW ASTM D4727/D4727M with Single or double wall corrugated fiberboard having a minimum bursting strength of 275 psi.
- The shipping box shall be sealed using tape and/or strapping IAW ASTM D1974/D1974M to secure for shipping, but also allow to be opened without destroying the box.
- Weight of box packaged for shipping shall not exceed 40lbs. Individual machined/fabricated parts exceeding 40lbs shall be palletized for shipping in a manner as to not incur damage during the shipping process under normal environmental conditions.
- 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 L3Harris 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 L3Harris 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 L3Harris 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 L3Harris is required to be marked on any part, contact L3Harris Supply Chain for clarification.
- If marking is to be identified with a L3Harris serial number, as required per drawing, the Seller shall contact L3Harris Supply Chain for serialization assignment.
- Seller shall maintain serialization and/or other identification on L3Harris 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 L3Harris Purchase Order) are to be assigned the same serial number.
- 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
- If part marking is not addressed on P.O., design media, or SOW supplier shall provide materials/parts to L3Harris without part marking.

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 L3Harris. 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.

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 L3Harris.

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 when the item was manufactured. 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 L3Harris upon 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 L3Harris.

The Seller, and its sub-tier suppliers, shall not provide items through non-franchised distributors unless first approved in writing by L3Harris 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 SAE AS6171 as determined by L3Harris. Sellers are required to submit validation reports for L3Harris material disposition instructions prior to shipment.

No alterations of requirements are permitted until a Deviation is issued by L3Harris or Seller and approved by L3Harris. 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 L3Harris 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 L3Harris which contain an item procured from sources other than OEMs or OCMs or their Authorized Distributors. Upon L3Harris 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 L3Harris' in a format which is acceptable to L3Harris/Industry standards prior to deliverable product being inspected at L3Harris' 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 L3Harris 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 L3Harris' facility. L3Harris 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. L3Harris 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 segregated until formally dispositioned by L3Harris. Counterfeit parts 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 or are listed on the "Prohibited Suppliers Suspected of Delivering Counterfeit Parts" list maintained by L3Harris.

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 approved by L3Harris. 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.

TEST SAMPLES/REJECT/REWORK PART PACKAGING AND IDENTIFICATION

All test samples and/or reject parts to be shipped to L3Harris 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 L3Harris 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 L3Harris drawing or specification. Upon L3Harris approval of a supplier design package, no changes shall be made without submittal to and approval by L3Harris. This system shall also control any software product delivered to L3Harris.

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. All changes shall be documented via an SSR and a PO change order, as applicable.

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 L3Harris in compliance to the requirements of the applicable standard specified by the Purchase Order.

SOLDERABILITY/MOISTURE-SENSITIVE PARTS

Product that have leads, terminations, wiring, etc. intended to be soldered by L3Harris 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, approved by L3Harris. 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 approved by L3Harris. Received items shall have a minimum of nine months of dry pack shelf life remaining upon receipt. Component users (this includes anyone storing, packaging, handling, or performing high temperature operations like soldering) and suppliers shall handle moisture or process sensitive components (as classified by J-STD-020, J-STD-075, or equivalent, approved by L3Harris Supply Chain) per J-STD-033, or equivalent approved by L3Harris.

DOCUMENTATION

All documentation delivered to L3Harris shall be in English and shall be legible.

The responsibility for verification of dimensional correctness of the items supplied to L3Harris lies with the recipient of this Purchase Order.

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

ELECTRONIC DATA DELIVERY

L3Harris Supply Chain prefers that all documentation is uploaded to L3Harris' expo data portal through the link (<https://supplychain.harris.com/secure/logon.aspx?FORCE=true>) in a format which is acceptable to L3Harris/Industry standards. L3Harris shall provide access (login and password) to this secure site at time of order. L3Harris Supply Chain may request an email notification of data upload. This includes the OEM C of C, test data and other applicable documentation, as required by the PO.

If Supplier is unable to upload data, Supplier shall notify Buyer at time of purchase order to coordinate an alternate means of ensuring documents are received with shipment to avert a non-conformance.

Test data should be submitted electronically either through upload to expo or through the provision of CD ROMs. All test data shall be compatible with Microsoft Office. Any exceptions to this requirement must be obtained through the buyer via an SSR Supplier Deviation Request (SDR) in expo.

A Supplier Support Request (SSR) is required for each shipment where approval to a deviation to a contractual requirement is needed. If the Supplier has opened any SSRs requiring information, review, deviation and/or approval to L3Harris contractual requirements, those SSRs shall be approved prior to delivery of product to L3Harris. All SSRs are specific to a single part number, quality, PO number, and PO line item. The same SSR shall not be referenced for any other PO number and line item.

Documentation provided on digital media does not have to be uploaded to the L3Harris expo Supplier Document List.

REQUIREMENTS FOR PROVIDED ELECTRONIC DATA OR CAD FILES

- Standard Drawings

Electronic Data or CAD neutral files (STP, IGES, DXF etc.), when provided by L3Harris, 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 an SSR for clarification as it may be an indication of a drawing issue. All SSRs are specific to a single part number, quality, PO number, and PO line item. The same SSR shall not be referenced for any other PO number and line item.

- Simplified Drawings

Electronic Data or CAD neutral files (STP, IGES, DXF etc.), when provided L3Harris 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 an SSR for resolution. All SSRs are specific to a single part number, quality, PO number, and PO line item. The same SSR shall not be referenced for any other PO number and line item.

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 L3Harris including test software, and these records shall be available for L3Harris review.

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 L3Harris
- 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 L3Harris.

QC-30 DELETED 11/19

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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 L3Harris through an SSR prior to shipping goods that do not meet this single lot/date code requirement. When mixed lot/date codes are 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 L3Harris 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 poling 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 suppliers purchasing document and its associated documents, including key characteristics where applicable, be flowed down to all sub-tier suppliers.

For all Purchase Order items 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 L3Harris source control drawing, L3Harris 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 can meet the requirements of the Purchase Order. L3Harris 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 L3Harris 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 L3Harris 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 (L3Harris 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 L3Harris 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
 - L3Harris 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.

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QC-100 DELETED 11/19

QC-110 DELETED 11/19

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. QC Attributes data for lot specific screening tests in accordance with the Purchase Order part number Qualified Products List (QPL) document.
- 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 in accordance with the Purchase Order part number Qualified Products List (QPL) document.
- G. Group B Test/Inspection Data in accordance with the Purchase Order part number Qualified Products List (QPL) document.
- H. Group C Test/Inspection Data in accordance with the Purchase Order part number Qualified Products List (QPL) document.

- I. Group D Test/Inspection Data in accordance with the Purchase Order part number Qualified Products List (QPL) document.
- J. Group E Test/Inspection Data in accordance with the Purchase Order part number Qualified Products List (QPL) document.
- 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 L3Harris) 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 L3Harris 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 L3Harris 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 L3Harris 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 L3Harris. 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 L3Harris' 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
- T. The supplier shall provide a serialized and itemized list of all Flight and Group Test (Destruct) parts. The supplier shall package Flight Parts separately from Group Test (Destruct) Parts. The packaging shall be clearly labeled "Flight" or Destruct" on their respective containers. All "Destruct" parts shall be marked with a permanent red dot prior to test.

QC-130 DELETED 11/19**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 L3Harris 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 L3Harris Corporation prior to shipping any lot that fails DPA.
- B. The (DPA) shall be performed in accordance with L3Harris Specification 2016745
- C. L3Harris approval of Seller's DPA procedure is required prior to implementation. If Seller chooses to have the analysis performed by an outside Supplier, L3Harris approval of that Supplier is required.
- D. L3Harris 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 L3Harris' 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

L3Harris Corporation acknowledges and accepts the seller's exception to perform actual DPA processing. the responsibility for satisfying this requirement shall be that of L3Harris corporation.

QC-170 L3HARRIS SOURCE INSPECTION ALTERNATIVE

Prior to shipment, and in lieu of tests witnessed by a L3Harris product assurance representative, test data sheets shall be submitted to L3Harris 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 L3Harris 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 L3Harris 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 L3Harris 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 DELETED 11/19

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 L3Harris 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 L3Harris 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

L3Harris approval of Scanning Electron Microscope (SEM) Analysis is required for wafer lots to be incorporated in parts supplied to L3Harris. The SEM Analysis shall be performed by Seller and must be approved in writing by L3Harris 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 L3Harris, 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 L3Harris' 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.

A bubble/balloon drawing shall be included that provides a unique identifier to each attribute that shall be referenced on the inspection report.

QC-295 L3HARRIS IN-PROCESS INSPECTION

Items will be inspected by Buyer Source Inspection during manufacture at one or more of the following:

- Defined machining steps
- Prior to cleaning
- Prior to plating
- Prior to assembly close-up
- Prior to encapsulation/ conformal coating
- *Inner Layer Inspections
- Other points specified in the Procurement Document.

Seller or agent of seller shall notify the Buyer's Procurement or Quality Organization representative not less than five (5) working days prior to the time that items are ready for Buyer inspection. Evidence of in-process inspection shall be included with shipment.

*Inner Layer Inspections: Inner Layer CSI is not required if Automated Inner Layer Inspection is accomplished via an L3Harris approved process (PQE must approve). Detailed results must be provided for review at final CSI, and be included with associated delivered product.

QC-300 L3HARRIS SOURCE INSPECTION

Inspection by L3Harris 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 L3Harris at the Seller's facility or where designated in the Order.

Seller shall provide reasonable inspection facilities for L3Harris to verify conformance to requirements and shall make available to the PQAR all applicable drawings, specifications, procedures, statements of work, Seller'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.

L3Harris Source Inspection may include validation of Seller's automatic test programs, procedures to L3Harris specification requirements, witnessing Seller's performance of acceptance testing, and review of acceptance test data to L3Harris' 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 L3Harris Corporation quality representative at the time of presentation of produced items.

At the discretion of the L3Harris Corporation quality representative, a review/acceptance of the Seller's documentation may be performed at L3Harris 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 L3Harris Source Inspection.

L3Harris 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 L3Harris 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 L3Harris to repeat source inspection.

Evidence of L3Harris source inspection must accompany or be shown on the shipping documents.

L3Harris reserves the right of final acceptance at L3Harris' 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 L3Harris' Quality Representative prior to assembly, test and/or delivery.

When Government Source Inspection is imposed, the Seller is required to schedule L3Harris 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 L3Harris 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, NASA or Defense Supply Agency inspection office. In the event the representative or office cannot be located, L3Harris 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.

When corrective action is required for Government Source Inspected items, Seller shall coordinate such action with the L3Harris and Government Quality Assurance Representative assigned to Seller's facility.

QC-330 L3HARRIS HARDWARE PROCESS AUDITS/SYSTEM AUDIT

L3Harris Hardware Process Audits/System Audit is required on this order. Notify L3Harris Corporation Supplier Quality Department (notification must reference L3Harris Corporation Purchase Order Number) as to the availability of in process material.

QC-340 L3HARRIS SOLDER INSPECTION

This component requires a L3Harris 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 L3Harris Source Inspector subsequent to 100 percent precap visual inspection performed by the Seller. Seller shall notify L3Harris' 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 L3Harris, 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 L3Harris 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 L3Harris 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 L3Harris quality representative, or
- B. Items produced by production tooling may be shipped to L3Harris 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

L3Harris reserves the right to:

- 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 L3Harris' selected sampling plans (i.e. MIL-STD-1916 or equivalent) for the acceptance or rejection of items
- Waive L3Harris source inspection by notifying the Seller in writing.
- Make use of Sellers facility, documentation and instrumentation as required
- L3Harris Source Inspection may include validation of Seller's automated test programs and procedures to L3Harris' specification requirements and witnessing Seller's performance of acceptance tests/ inspections to L3Harris' specification/ drawing. Seller may be required to perform additional acceptance test/ inspections when Seller's original acceptance test/ inspections have not been witnessed by L3Harris' Source Inspector. L3Harris Source Inspection may also include review of lot qualification (groups B, C, or D) test data to L3Harris specification requirements. After L3Harris 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 L3Harris to verify conformance to requirements. L3Harris in-process, source, and/ or surveillance inspection or tests shall not constitute final acceptance by L3Harris; 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 L3Harris' 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 L3Harris 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.
L3Harris/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 L3Harris.

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: 72°C and 85% R.H.

Thereafter, followed by the Edge Dip Method per IPC-J-STD-003. L3Harris 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.

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-440 DELETED 11/19

QC-450 DELETED 11/19

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."
- E. **GRAIN FLOW ANALYSIS REPORT** – The Supplier shall forward with the first shipment of material, a report of grain flow analysis. The report shall be in accordance with the requirements of the forging specifications listed on the drawing and shall contain legible photographs of a sectioned and suitably etched forging showing grain flow structure. An inspection report listing actual measurements of all forging dimensions must be forwarded with the laid out part to L3Harris for First Article approval.
- F. **SHOT PEENING PROCESS CONTROL** – The Supplier shall furnish with shipment of material, a report of process control and intensity value of the shot peen operation for each lot of parts processed on this Order and a witness test specimen processed with the lot. The report shall list the information specified in AMS-S-13165 under "Test Records" and "Acquisition Requirements". The test specimens shall be as described in the "Quality Assurance Provisions" section of AMS-S-13165.
- G. A radiographic inspection report per PS 21206, PS 23001.1 and PS 23001 (Para. 5.2 and Table 1). (Class 2B castings require only first article foundry control radiography). Heat treatment and hardness testing report for castings.

Penetrant inspection per PS 21202 and pre penetrant etch per PS 12050.

Tensile testing of test bars cast for each casting heat treated with castings. Testing shall be in accordance with the material specification and PS 23001.
- H. Ultrasonic inspection report per PS 21211 Class a (for raw forging stock). Magnetic particle inspection report per PS 21201 Class A. Hardenability testing report in accordance with the material specification. Macrostructure and grain size analysis in accordance with material specification.

QC-470 DELETED 11/19

QC-480 DELETED 11/19

QC-490 LOT ACCEPTANCE COUPONS

The Seller shall provide representative Surrogate Test Coupons and/or Qualification Test Articles as defined by L3Harris 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 DELETED 11/19

QC-510 DELETED 11/19

QC-520 DELETED 11/19

QC-530 DELETED 11/19

QC-540 RECORDS & RETENTION

Seller shall maintain records of all inspections and tests performed on items delivered to L3Harris. 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 include heat and lot number of materials, unit or lot serialization and be traceable to the L3Harris' Purchase Order number. If identified in L3Harris 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 L3Harris Design media. All records and test samples shall be made available to L3Harris and/or Government/Regulatory Representative upon request. These records shall identify nonconformances and shall be made available for L3Harris, L3Harris' 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 (Non-Government)

- B. Record Retention – 4 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. L3Harris-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 L3Harris, in writing, prior to contract award. The Seller shall not accept the P.O. without receipt of the record retention timeframe.
- I. Records created by the supplier or distributor of products produced or delivered to Buyer shall be included with material delivered to Buyer as specified in Purchase Order.

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 to satisfy this requirement. All deviations to this requirement must be issued in writing 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 L3Harris' 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 DELETED 11/19**QC-570 MINIMAL QUALITY MANAGEMENT SYSTEM REQUIREMENTS**

L3Harris' Quality Organization and Supply Chain personnel may review Sellers Facility and Business Practices to assess Sellers ability to execute the requirements of this Purchase Order/subcontract.

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 shall be in written form to the extent practicable and shall be made available for review/audit by L3Harris' 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 Buyer's 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/Subcontract 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/L3Harris 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 L3Harris-Furnished Product

The Seller shall have provisions for segregation, identification and control of L3Harris 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 reserves the right to audit any documentation, as deemed necessary, to validate compliance.

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. 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. Documented

schedules shall be maintained to provide for periodic calibration to adequate standards. Objective evidence of calibrations shall be recorded and made available for L3Harris 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.

Corrective Action

Seller shall provide and maintain a program for control of nonconforming product, and for corrective and preventive action. This program shall include documented procedures for addressing the identification, quarantine and disposal of nonconforming product and the 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 L3Harris.

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, L3Harris 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 L3Harris and Government Quality Assurance Representative assigned to Seller's facility.

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 L3Harris 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 L3Harris Corporation at all times.

- A. Third Party registration is required for the QMS identified below. Copies of the registration certificates shall be provided to L3Harris 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 L3Harris utilizing the SSR – Supplier Change Notice (SCN) process within 10 business days after such changes.

- 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 L3Harris Corporation representatives.
- C. MIL-I-45208 or Equivalent approved by L3Harris 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 L3Harris Corporation representatives.
- D. MIL-Q-9858 or Equivalent approved by L3Harris 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 L3Harris 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 L3Harris 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 L3Harris 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 L3Harris Corporation representatives.
- H. MIL-STD-1520 or equivalent approved by L3Harris 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 L3Harris 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 L3Harris 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 L3Harris. 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 an SSR.

The government's authorized representative and/or L3Harris may review the Seller's inspection system; i.e., documentation to determine conformance with these specifications.

QC-600 DELETED 11/19

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 L3Harris Supply Chain.
- H. Seller shall provide and maintain a software development program, which is in conformance MIL-STD-498, or Equivalent approved by L3Harris 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.
- J. Seller shall provide and maintain a software development program, which is in conformance with AS9100- Quality Management System Aerospace Requirements by adhering to AS9115: Quality Management Systems - Requirements for Aviation, Space, and Defense Organizations - Deliverable Software (Supplement to 9100:2016).

QC-620 DELETED 11/19

QC-630 DELETED 11/19

QC-640 DELETED 11/19

QC-650 INDEPENDENT LABORATORY COUPON PROCESSING

- A. PWB suppliers shall manufacture and supply independent laboratory coupons in accordance with 8252313, latest released revision. These coupons shall be submitted to GSFC per GFSC PCB C coupon submittal form (No. GSFC 23-16) or an GSFC approved laboratory indentified by L3Harris for evaluation. Supplier will then ship material, original GSFC or approved lab report, and the analyzed coupons to L3Harris.
- B. PWB suppliers shall manufacture and supply independent laboratory coupons in accordance with 8193759, Revision K. These coupons shall be submitted to GSFC per GFSC PCB Coupon submittal form (No. GSFC 23-16) or an GSFC approved laboratory identified by L3Harris for evaluation. Supplier will then ship material, original GSFC or approved lab report, and the analyzed coupons to L3Harris.
- C. The supplier 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 supplier, are required. Two (2) of these coupons, from opposite ends, shall be submitted to GSFC per GFSC PCB Coupon submittal form (No. GSFC 23-16) or an GSFC approved laboratory indentified by L3Harris for evaluation. Supplier will then ship one of the remaining coupons, material, original GSFC or approved lab report, and the analyzed coupons to L3Harris.
- D. In accordance with 8193759, Revision K. Two (2) 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 submitted to GSFC per GFSC PCB Coupon submittal form (No. GSFC 23-16) or an GSFC approved laboratory indentified by L3Harris for evaluation. Supplier will then ship material, original GSFC or approved lab report, and the analyzed coupons to L3Harris.

QC-660 DELETED 11/19

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 DELETED 5/20

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. L3Harris' drawing 8147294
- E. L3Harris' drawing 8193759

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.

- F. L3Harris' drawing 8190126
- G. L3Harris' Drawing A3012969 (Multi-Layer)
- H. L3Harris' Drawing A3018534 (Double-Sided)
- I. L3Harris' 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 L3Harris' 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 L3Harris.
- J. L3Harris' Drawing 8252313

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.

QC-700 PRINTED WIRING BOARD REQUIREMENTS

- **Order of precedence is as follows:**
 1. Purchase Order
 2. Printed Wiring Board Master Pattern Data
 3. Printed Wiring Board (PWB) Drawing
 4. Printed Wiring Board Requirements Document - Supplier shall use 2012559 PWB requirements document unless other document for PWB requirements are called out on the drawing or specification.
 5. Applicable PWB specifications (i.e., IPC-6012, etc.)

- **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 L3Harris through the use of the Supplier Support Request (SSR) in expo.

- **Deliverables**

- Coupons and Microsections

Note: A/B Coupons and microsections shall be retained for a minimal of 7 years unless otherwise directed by PO or Drawing.

- AB Coupon Microsection or Mounted Sections: Retained at the Seller. **Do not deliver unless directed by PO or Drawing.**
- Impedance Control Test Coupons: Retained at the Seller. **Do not deliver unless directed by PO or Drawing.**
- Coupon strip 1: Retained at the Seller. One as-received unmounted coupon strip from each panel so identified to the parent panel. **Do not deliver unless directed by PO or Drawing.**
- Coupon Strip 2: **Delivered with PWB shipment.** One as-received unmounted Coupon Strip from each panel. 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.

- **Seller Shall Deliver the Following Along With the Final Material**

Note: Ref QC-1980- Electronic Data: If applicable/required by Purchase Order, all deliverable data will be uploaded to L3Harris expo system.

1. **Standard Certificate of Conformance (CofC):** Information shall include: Seller Name, Purchase Order Number, Line Item, Part Number, Revision, Quantity and Serial Number(s)
2. **One Un-Mounted as-received coupon from each panel:** (Coupon Strip 2) (If coupons have already been provided on previous purchase order, make notation and reference previous Purchase Order Number on CofC)
(Example: Coupons D/C XXXX previously supplied on PO XXXXXXXX)
3. **Solderability Test Results:** Current Solderability test result report. (Note: Retesting shall be conducted, and results supplied if shipping date is past 90 days from date code. SSR-Deviation is required, and Buyer will only accept product with passing test results)
4. **Supplier Support Requests:** Copies of approved Supplier Support Requests related to the product being shipped.
5. **Source Inspection:** Copy of applicable Source Inspection Reports or Waiver Authorization.
6. **Ref QC1800-Certificate of Conformance:** (If Applicable/Required by Purchase order)
7. **Impedance Test results:** (If Applicable by Drawing or Purchase order)
8. **Gold Measurement Data:** (If Applicable by Drawing or Purchase order)
9. **Additional reports as applicable per drawing:** This can include wire bond testing, buried resistor testing, IST or D-coupon testing, RF via testing, etc.
10. **IPC-6012 & 6013 Class 3 Orders:**
Group A/Microsection Report—Seller format may be used (see 2012559 section 5.0 for all applicable reference information)

- **Solder Samples (Scrap PWB): DO NOT SHIP WITH PWBs.** If available and requested by the Purchase Order, solder samples shall be shipped separately and directly to and attention of L3Harris' Supply Chain representative.
 - Marking PWB Solder Sample: Mark with an "X" with indelible ink on the primary side of the PWB.
 - Marking Bag: Label as "Solder Sample" and applicable part number.

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 L3Harris 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 L3Harris. Final acceptance/rejection of the PWBs shall be upon completion of the real time x-ray inspection performed by L3Harris. The Seller shall send the original report to L3Harris 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 L3Harris 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 L3Harris ship coupons to the following or a L3Harris approved lab. Robisan Laboratory, Inc. Attn: Susan--P.O. _____ 6502 East 21st Street, Indianapolis, In, 6219-0451 or a L3Harris approved lab.

QC-740 DELETED 11/19

QC-750 PWB REQUIREMENT DRAWING NUMBER 3132450

The requirements of L3Harris 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 L3Harris Statement of Work (SOW – Q00006, latest revision) applies to this Purchase Order. L3Harris 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 L3Harris and provide adequate traceability to lot fabrication and testing processes.

Requirement:

All images are to be serialized.

Each PWB lot delivered to L3Harris-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 L3Harris 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 DELETED 11/19**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 L3Harris 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 L3Harris 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 L3Harris quality representative a minimum of two weeks prior to start of fabrication; and
- B. Such plans shall be available, in file, for review by L3Harris 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. L3Harris, 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 L3Harris, 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.
- C. An acceptance test procedure (ATP) and digital data shall be provided with the hardware. ATP requires L3Harris' approval prior to start of acceptance testing. Digital data shall be provided as ascii sequential files on CD or DVD.

QC-820 DELETED 11/19**QC-830 SDS REQUIREMENT (PER ITEM)**

The Seller is required to provide a Safety Data Sheet (SDS) for each of the items included in each shipment in accordance with the Federal Hazard Communication Standard. The SDS 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 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 L3Harris 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 L3Harris 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 DELETED 11/19**QC-880 DELETED 11/19****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; L3Harris' 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; L3Harris' 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 L3Harris 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 L3Harris.

- L3Harris Source Inspection

Inspection by L3Harris 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 L3Harris Source Inspection. Source inspection is required at the following points:

- Preseal Visual Inspection
- Final Inspection After Screening

After L3Harris 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 L3Harris to repeat source inspection.

L3Harris 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 DELETED 11/19**QC-910 RE-BALLED BGA'S AND BALLED LGA'S**Evidence of Item Alteration:

With each shipment of material against this Purchase Order, the Supplier shall provide evidence of the item alteration specified in L3Harris' drawing.

Any of the following evidence is acceptable to verify that the correct alloy, in the form of a solder sphere, has been attached.

List of acceptable evidence – depends on alteration – see below

Re-Balling

Material composition testing (e.g., XRF testing) of the replacement solder balls of the component. At a minimum, two solder balls shall be tested.

Manufacturing documentation (e.g., Work Order) showing the solder balls were replaced.

Balling

Material composition testing (e.g., XRF testing) of the attached solder balls of the component. At a minimum, two solder balls shall be tested.

Processing documentation (e.g., Work Order) showing the solder balls were attached.

QC-920 WIRE BOND

Wire bond lifts that occur during group B inspection shall be considered rejectable. During L3Harris' independent destructive physical analysis, wire bond lifts shall also be considered a rejectable condition.

QC-930 DELETED 11/19**QC-940 GOVERNMENT FURNISHED MATERIAL**

Government Furnished Material—All Government furnished property must be routed through L3Harris Asset Management.

QC-950 DELETED 11/19**QC-960 DELETED 11/19****QC-970 DELETED 11/19****QC-980 HEXAVALENT CHROMIUM**

Any L3Harris 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 L3Harris.

QC-990 LIMITED LIFE PRODUCT REQUIREMENTS

A. Minimum Age (50% Shelf Life): Product that has a shelf life requirement shall be supplied according to the following minimum requirements:

Shelf Life:

1. All materials furnished under this Purchase Order shall have, as a minimum, 50% of the useable product shelf life remaining

Documentation Requirements:

Required to be supplied on the certifications and shipping documents for each item, package or container (based on the OEM method to determine useful life):

2. Buyers P.O. number
 3. Batch number
 4. Chemical name and part or code number, type, size, and quantity
 5. Specification number,
 6. Date of manufacture or cure date
 7. Date of shipment or expiration date
 8. Storage and special handling information (when specified material has variable shelf life periods based on specific storage conditions, ex. 1 year at -40oC or 6 months at 0oC)
 9. 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
- B. Maximum Age (4 years) – The maximum age of parts supplied to L3Harris 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. Minimum Age (Shelf Life): Product that has a shelf life requirement shall be supplied according to the following minimum requirements:

Shelf Life Requirement:

- All materials furnished under this Purchase Order that have a 364 day or LESS shelf life shall have, a minimum, 75% of the useable product shelf life remaining.
- All material furnished under Purchase Order that have a 365 day or MORE shelf life, shall have a minimum, 50% of useable product shelf life remaining.

Documentation Requirements:

Required to be supplied on the certifications and shipping documents for each item, package or container (based on the OEM method to determine useful life):

- Buyers P.O. number
- Batch number
- Chemical name and part or code number, type, size, and quantity
- Specification number,
- Date of manufacture or cure date
- Date of shipment or expiration date
- Storage and special handling information (when specified material has variable shelf life periods based on specific storage conditions, ex. 1 year at -40oC or 6 months at 0oC)

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

- 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:
- Buyers P.O. number
 - Date of the manufacture or cure date (date in which the shelf life starts)
 - Part number
 - Manufactures 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 L3Harris 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 DELETED 11/19

QC-1020 PACKAGING BERYLLIUM COPPER, ALBEMET OR ANY OTHER BERYLLIUM COMPOSITE MATERIAL REQUIREMENTS:

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.

All material and components shipped to L3Harris Technologies, Inc. must demonstrate surface beryllium cleanliness levels below 25 micrograms per square foot. L3Harris Technologies, Inc. reserves the right to analyze incoming shipments for conformance to this requirement. 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) that certifies all external Beryllium or Beryllium Composite surfaces meet the cleanliness levels of < (less than) 25 micrograms (ugms)/sq.ft. before the shipment of parts to L3Harris 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 L3Harris.

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 L3Harris. 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 L3Harris 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 L3Harris 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 L3Harris 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 L3Harris Corporation Quality representative in advance of accepting the order.

QC-1080 SPECIALTY METALS DFARS 225.7003-3

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 225.7003-3 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. L3Harris 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 L3Harris 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)
- L3Harris' Part Number*

*Purchase Document Number, plus L3Harris' 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 DELETED 11/19**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 L3Harris. 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 DELETED 11/19

QC-1160 DELETED 11/19

QC-1170 ASSET TAG – FOR L3Harris INTERNAL USE ONLY

An asset tag for L3Harris 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 DELETED 11/19

QC-1200 DELETED 11/19

QC-1210 CLASSIFIED PROGRAM

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

QC-1220 COMPONENT PART NUMBER SUBSTITUTION

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 L3Harris, a technical evaluation and approval prior to delivery of the replacement part.

Component part number Substitution as applied to L3Harris 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 L3Harris document 251800).

Deviations from the specified manufacturers shall not be allowed without prior approval from L3Harris utilizing the Supplier Deviation Request (SDR) 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 L3Harris 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 L3Harris.

QC-1230 DELETED 11/19

QC-1250 DELETED 11/19

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 L3Harris approval. The Seller must submit a written request (SDR) and shall include root cause/corrective action for all requested deviations to L3Harris 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 SSR – Supplier Deviation Request (SDR) form and submitted to L3Harris Corporation for approval along with root cause corrective action prior to actual release/usage of the nonconforming product.

QC-1270 DELETED 11/19

QC-1280 DELETED 03/17

QC-1290 INDIVIDUAL PACKAGING

Each part on this PO line shall be packaged and/or boxed individually so as not to incur damage to the hardware. Cushion all exposed metallic surfaces that are susceptible to damage as a result of scratches or dents. Package individual packages within a larger box with a minimum of 2 inches of dunnage on all sides. Do not use loose fill dunnage in inner box or outer box. Each individual package shall be clearly labeled per PO/Specification requirements.

QC-1300 POTENTIALLY CALIBRATED ASSET – FOR L3Harris 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 Buyer.

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 the written approval of L3Harris 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 L3Harris permission.

QC-1320 DELETED 11/19**QC-1330 CONTAMINATION CONTROL PROGRAM**

The Seller shall provide and maintain a program for contamination control approved by L3Harris. L3Harris 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

- A. 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 L3Harris and/or government representative and disapproval when the Seller’s procedures or policies do not accomplish their objectives. Styrofoam/Packaging “peanuts” shall not be used as packing for any item.
- B. The Seller shall establish and maintain an effective Foreign Object Damage (FOD) Prevention Program IAW AS9146. The Seller and Sellers’ subcontractors shall utilize effective FOD prevention practices that are compliant with the standard to prevent, detect and eliminate FOD. By delivering items to L3Harris, Seller shall be deemed to have certified to L3Harris that such items and packaging are free from any foreign object or foreign object debris. The written procedures or policies developed by the Seller shall be subject to review and audit by L3Harris and/or government representative and disapproval when the Seller’s procedures or policies do not accomplish their objectives. Styrofoam/Packaging “peanuts” shall not be used as packing for any item.

QC-1350 DELETED 11/19

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 Poly-ethylene or Anti-Stat Polyurethane | <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. ● Design shall be review by L3Harris 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 L3Harris before implementation. |

If a packaging strategy is other than the aforementioned design Shall be reviewed with L3Harris prior to PO placement.

Please contact the Buyer to determine standard pack quantities and suggested package dimensions

All deviations to these requirements must be approved by L3Harris 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 below listed approved distributors only or USA manufacturers. The approved distributors shall utilize only domestic manufacturers (Made in USA). The approved distributors may ship from other domestic (USA site) stocking locations which may reflect a different Cage code within the C of C.

- Hardware Specialty Co. (CAGE Code 7R019)
- Century Fasteners Corp. (CAGE Code 8R639)
- ServTronics, Inc. (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 shall 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 (not applicable if supplied by USA manufacturer)
 - Purchase Document Number

Only domestic (Made in USA) manufacturers, which have a past history of supplying reliable fasteners, shall be utilized. NAS1130 inserts are approved (No SSR required) from manufacturer KATO (CAGE Code 0YC40) made in UK. 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 L3Harris. Approval requests shall be submitted to L3Harris in writing via SSR. No alterations of requirements are permitted until a Seller's request is dispositioned and signed by L3Harris. 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 (C of A) 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). 200 and 300 series corrosion resistant "stainless" steel do not require C of A.
- 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), 200 and 300 series corrosion resistant “stainless” steel do not require Lot Test Data.

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 L3Harris. Approval requests shall be submitted to L3Harris in writing. No alterations of requirements are permitted until a dispositioned and approved SSR is issued by L3Harris.

Original fastener manufacturers are authorized to alter their parts without approval from L3Harris 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 DELETED 11/19**QC-1410 DELETED 11/19****QC-1420 FIRST ARTICLE INSPECTION (FAI) I.A.W. AS9102**

A. The processes and requirements of AS9102 apply to this First Article Activity and the report shall be compliant to all AS9102 requirements. The revision of AS9102 to be used shall be the released revision at the time of purchase order acceptance. All data required for the acceptance of the First Article shall be submitted to L3Harris via SSR-FAI for review and acceptance five days prior to the planned shipment date. Note that the line item input to the SSR-FAI will be that of part number and not the FAI Line Item. SSR-FAI shall be approved prior to shipment. (Ref QC-1 for further details)

An FAI is required if:

- New part number for the seller
- An FAI has never been submitted/approved before for the part number
- 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)—these items may require partial FAI’s
- Otherwise as specified by L3Harris

COTS items and reworked hardware as a result of a return from L3Harris are excluded from this FAI requirement.

Printed Wiring Board (PWB) Digital Product Definition data (DPD) is not required on the AS9102 FAIR unless identified on drawing or purchase order.

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

AS9102 Forms 1, 2, and 3 are required. Form 1 Optional (O) fields 11, 12, 21, 22, 23, 24 are considered mandatory by L3Harris 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. In Form 1, L3Harris requires that the revision levels of the drawing and parts list are entered in fields 7 and 5 respectively. For Detail FAI, which the drawing will not have a parts list, enter the drawing revision in field 7, and enter "N/A" in field 5. For Assembly FAI, enter the drawing revision in field 7 and enter the parts list revision in field 5.

All First Article inspections performed by the seller Shall be accompanied with a report showing conformance to all drawings or performance requirements specified by L3Harris.

Each detail part number shall have its own complete FAI package submitted with the assembly's FAI package.

Seller shall not submit parts from a production run for L3Harris inspection prior to L3Harris' acceptance of the associated FAI Report.

L3Harris reserves the right to verify First Article results at the Sellers facility.

- B. QC-1420-A applies with the exception that an FAI is required after a 1 year break in production.

QC-1430 DELETED 11/19

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 L3Harris. 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 L3Harris. 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 ANSI/STM 11.31 and 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 ANSI/STM 11.31 and ANSI/ESD S541..The Sellers ESD control program is subject to review and approval by L3Harris.

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 or 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 ANSI/ESD S541. 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 ANSI/ESD S541.
- 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 ANSI/ESD S541. Packaging shall be designed to provide physical protection for device case and leads.

QC-1460-A Electronic Components Tape and Reel Required

QC-1460 applies, however, for parts procured in quantities of less than 200 per line item the product must be on tape and reel. Passive components with maximum surface area equivalent to SMD Package Type 0402 (dimensions 0.04 in. x 0.02 in. or 1.0 mm x 0.5 mm) or smaller shall be packaged in punched paper carrier tape.

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 L3Harris.
- Seller shall purchase material directly from Authorized Sellers. Any deviation to this policy shall require prior approval from L3Harris. Seller is required to submit a Supplier Support Request per L3Harris procedure MS-899 for review and final disposition. Upon L3Harris request, Seller shall provide all documentation regarding the chain of custody of material back to the original manufacturer or an Authorized supplier.
- L3Harris reserves the right to require additional 3rd party testing and submission of test reports via Supplier Support Request per L3Harris procedure MS-899 to supplement evidence obtained by the seller to confirm authenticity of material.
- If seller is an OEM, any materials approved by L3Harris 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 L3Harris, 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 L3Harris with the pertinent facts if Seller suspects items delivered in accordance with the L3Harris Purchase Order contain suspect or confirmed counterfeit items. Seller shall submit Supplier Support Request per L3Harris procedure MS-899 at earliest practicable moment upon discovery of suspect material. Seller shall also notify L3Harris 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 L3Harris acknowledgement of Seller notification(s) regarding suspect material discovered in the supply chain. Seller shall obtain L3Harris 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 parts will not be returned. 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 L3Harris' 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

L3Harris' 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 L3Harris' 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, L3Harris' Customer written approval is required prior to use of any Non-Franchised Distributor/Broker.

QC-1510 COUNTERFEIT PARTS RISK MITIGATION—COTS ITEMS

L3Harris considers COTS items as those that are commercially available to any and all customers without any special modifications made per request(s) by a L3Harris 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 L3Harris are those requested by L3Harris representative. Seller therefore certifies that no part replacements or equivalent parts were used to fulfill L3Harris 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 L3Harris are those requested by L3Harris representative. Seller therefore certifies that no part replacements or equivalent parts were used to fulfill L3Harris requirements. Seller however shall maintain traceability records and will make such records available to L3Harris 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 and test data (if required) shall be submitted on a SSR (Special Processor Related

Request) prior to shipment. Upon receipt, L3Harris 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, L3Harris Shall not pay for the material, parts shall not be returned to the supplier, and notification to GIDEP authorities may occur. All exceptions to this clause must be approved in writing via approved SSR-SIR.

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/screening shall be from the continental USA. The three (3) Coupling Nut Inspection Holes in all Plug Connectors shall be Round Configuration only (ITT Cannon Kidney Shaped Holes Prohibited).

L3Harris 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, BACKSHELLS AND CONTACTS (HI-REL SPACE)**A. CONNECTORS**

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, Silver, 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. L3Harris Receiving Inspection to remove any crimp contacts supplied as part of connector kit and scrap.

B. BACKSHELLS

All Backshells (M85049 Part Numbers, Commercial Part Numbers and Source Control Drawing "SCD" Part Numbers) shall have platings, assembly and testing/screening in continental USA. All aluminum piece parts shall have a double Zincate coating applied prior to 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, Silver, and Pure Tin (>97 percent Tin by weight) Finishes are Prohibited. Zincate coating under plating(s) is allowed.

All Saddle Clamps “Strain Reliefs” screw threads shall be American/English Threads (UNC, UNF, etc.) in accordance with Unified National Thread Standard (Metric screw threads are Prohibited on all Saddle Clamps). Example: Amphenol India manufacturer is Prohibited because their M85049 Part Number Backshells are not processed in continental USA and have Saddle Clamps with Metric screw threads.

Acceptable manufacturers are: Glenair, Electro Adapter and Joslyn Sunbank.

C. CONTACTS

All Contacts (M39029 Part Numbers, Commercial Part Numbers and Source Control Drawing “SCD” Part Numbers) shall have platings, assembly (if applicable) and testing/screening in continental USA.

Prohibited Finishes. Cadmium, Zinc, Silver, and Pure Tin (>97 percent Tin by weight) Finishes are Prohibited.

Contact Manufacturers shall have their Insignia (Mint Mark) marked/stamped on each Contact in accordance with AIR1351 “Manufacturers’ Identification of Aerospace Electrical and Electronic Wiring Devices and Accessories”. If Manufacturers’ Insignia is Not identified in AIR1351 then Manufacturer shall notify Buyer with a SSR including a Company Letter with their Insignia identified.

Acceptable Manufacturers are: Ella Engineering, Glenair, Positronic Industries (made in USA) and Carlisle “Tri-Star” (made in USA – Not Mexico)

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 L3Harris 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 Sellers’ drawings, specifications, or special process procedures.

The Seller and L3Harris shall document the agreements as to the extent of organization internal 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) L3Harris 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 L3Harris 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 L3Harris 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 L3Harris 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 L3Harris' 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 L3Harris 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 L3Harris 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 DELETED 11/19

QC-1630 DELETED 11/19

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 L3Harris:

- 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 L3Harris.
- If available, supply Manufacturer's certification and associated data submitted to authorized distributor at time of purchase.
- Substitution of equivalent part from another OEM is not authorized. L3Harris 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 L3Harris.

QC-1650 DELETED 11/19

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

- 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 DELETED 11/19**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 L3Harris 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 L3Harris with documents and information sufficient to demonstrate your entitlement thereto.

QC-1740 GENERAL CERTIFICATE OF CONFORMANCE

A legible and reproducible Certificate of Compliance (C of C), 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 C of C

- 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 Traceability Identification: Serial Numbers, Date Codes, Shop/Job Numbers, other pertinent traceability data of L3Harris supplied materials contained in the shipment, etc. (if applicable)

B. OEM C of C

- 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 Traceability Identification: Serial Numbers, Date Codes, Shop/Job Numbers, other pertinent traceability data of L3Harris supplied materials contained in the shipment, etc. (if applicable)
- For consumable commodities (e.g., Metal stock or Chemicals) a Certificate of Analysis is acceptable in lieu of the C of C.

If the Supplier is not the OEM, the supplier shall ensure there is traceability between the Supplier documentation and OEM documentation.

C. OEM C of C 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 Traceability Identification: Serial Numbers, Date Codes, Shop/Job Numbers, other pertinent traceability data of L3Harris supplied materials contained in the shipment, etc. (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.

If the Supplier is not the OEM (i.e., the Supplier is a Distributor), the OEM C of C shall contain the Purchase Order Number (and Line Number) between the Supplier and OEM. Supplier shall list the OEM name and Cage Code on the Supplier documentation and ensure there is traceability between the Supplier and OEM documentation.

D. Full C of C 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 Traceability Identification: Serial Numbers, Date Codes, Shop/Job Numbers, other pertinent traceability data of L3Harris 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 C of C 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 C of C 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 C of C 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 L3Harris.

In cases where the procured articles are to be drop shipped the C of C and any associated material certifications, test reports shall be submitted directly to L3Harris at the time of shipment.

Any discrepancies within the C of C identified upon L3Harris review, or lack of a C of C, could impact the Sellers rating, require formal corrective action, or result in the articles being returned at the Sellers cost.

QC-1750 DELETED 11/19

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 L3Harris 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 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 DELETED 11/19**QC-1790 NICHROME FILM FREE CERTIFICATE OF CONFORMANCE**

A legible and reproducible Certificate of Compliance (C of C), 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 (Basic C of C) and shall also include:

A statement on the C of C certifying that the articles supplied comply with all the requirements of QC-2020.

QC-1800 DELETED 11/19**QC-1810 PROHIBITIVE MATERIALS AND PLATINGS****A. Space Prohibited Material- Verification Testing Required by Supplier**

The following materials shall not be contained in any deliverable product except where specified on drawing or material specification:

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.

- Pure, unalloyed cadmium or alloys containing 5 percent by weight or greater cadmium not completely over-plated by a L3Harris approved material.
- Pure, unalloyed zinc or alloys containing 20 percent by weight or greater zinc not completely over-plated by a L3Harris approved material.
- Compound (e.g., plating, paint, other surface finishes) containing greater than 1 percent by weight of cadmium or zinc. Only applies to EEE components; excludes connectors, contacts, wire, lugs, and other mechanical or structural components.
- Corrosive solder fluxes, unless detailed cleaning procedures are specified, along with appropriate verification methods to insure removal of residual contaminant.
- Pure tin, or >97 percent tin by weight, internally or externally. Tin-Lead finishes and connections shall be alloyed with a minimum of 3 percent lead (Pb) by weight. Note that Sn96/Ag4, Au80Sn20, and Sn95/Sb5 are standard solder-attach materials used in high temperature soldering applications and are acceptable for those applications only.
- Magnesium or selenium shall not be used unless inside a hermetically sealed device.
- Mercury, alloys of mercury, or compounds of mercury.
- Materials exhibiting or known to exhibit natural radioactivity such as uranium, potassium, radium, thorium, and/or any alloys thereof.

- Materials exhibiting or known to exhibit health hazards such as unalloyed beryllium, toluene, lithium, and/or any alloys thereof.
- Gold plating over silver without a nickel barrier coating, silver under plate on gold contacts and silver-plated terminals and contacts, except movable contacts.

Verification testing, such as XRF testing, shall be required to demonstrate the surface of the item complies with the requirements listed above as a minimum. At a minimum, a single sample shall be tested for each lot/date code. Non-metallic items (e.g., tape, labels) are exempt from the verification testing requirement. The Seller shall supply the test results.

The Seller shall alert L3Harris of the presence of any restricted or prohibited materials prior to the execution of the purchase order.

Incompatible Dissimilar Metals used in conjunction with each other is discouraged. The Seller shall notify the Buyer of any instances in which incompatible dissimilar metals are used in conjunction with each other.

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.

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-lead alloy with composition of less than 3% lead by weight.

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

C. 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-lead 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 perform finish verification testing, such as XRF testing. At a minimum, a sample of at least two parts shall be tested for each lot/date code. The Seller shall supply the test results with each shipment.

D. Space Prohibited Material – Verification Testing Not Required by Supplier

The following materials shall not be contained in any deliverable product except where specified on drawing or material specification:

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.

- Pure, unalloyed cadmium or alloys containing 5 percent by weight or greater cadmium not completely over-plated by a L3Harris approved material.
- Pure, unalloyed zinc or alloys containing 20 percent by weight or greater zinc not completely over-plated by a L3Harris approved material.
- Compound (e.g., plating, paint, other surface finishes) containing greater than 1 percent by weight of cadmium or zinc. Only applies to EEE components; excludes connectors, contacts, wire, lugs, and other mechanical or structural components.
- Corrosive solder fluxes, unless detailed cleaning procedures are specified, along with appropriate verification methods to insure removal of residual contaminant.

- Pure tin, or >97 percent tin by weight, internally or externally. Tin-Lead finishes and connections shall be alloyed with a minimum of 3 percent lead (Pb) by weight. Note that Sn96/Ag4, Au80Sn20, and Sn95/Sb5 are standard solder-attach materials used in high temperature soldering applications and are acceptable for those applications only.
- Magnesium or selenium shall not be used unless inside a hermetically sealed device.
- Mercury, alloys of mercury, or compounds of mercury.
- Materials exhibiting or known to exhibit natural radioactivity such as uranium, potassium, radium, thorium, and/or any alloys thereof.
- Materials exhibiting or known to exhibit health hazards such as unalloyed beryllium, toluene, lithium, and/or any alloys thereof.
- Gold plating over silver without a nickel barrier coating, silver under plate on gold contacts and silver-plated terminals and contacts, except movable contacts.

The Seller shall alert L3Harris of the presence of any restricted or prohibited materials prior to the execution of the purchase order.

Incompatible Dissimilar Metals used in conjunction with each other is discouraged. The Seller shall notify the Buyer of any instances in which incompatible dissimilar metals are used in conjunction with each other.

Vinyl and Polyvinyl chloride (PVC) shall not be used as wire insulation or in any other product usage.

No Silicone/Fluorosilicone is allowed on exterior component surfaces unless the Parts by design have Silicone/Fluorosilicone **exterior** components designed in them.

Verification Testing will be performed at L3Harris. Data from the supplier may be submitted but is not required.

E. Space Prohibited Material – Exceptions to Section 1810-A

All products on this Purchase Order shall meet the requirements of QC-1810-A with the exception of the conditions listed below

- Alloys containing Cadmium, Zinc, Mercury, or Selenium in concentrations greater than 15% (Purity>15%) shall not be used unless suitably covered with a flight approved plating (e.g. gold, nickel, or copper) or inside a hermetically sealed device or in a Space Proven Detector Device.
- 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 (except nonmagnetic electrical contacts which do not require a nickel barrier), and Zinc plating without an overcoat of a suitable flight approved metal.

QC-1820 QPL ARTICLE CERTIFICATE OF CONFORMANCE

- A. A legible and reproducible Certificate of Compliance (C of C), 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-1740D (Full C of C with CAGE) 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 or semi-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 or non-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.
- D. Each Shipment of nonmetallic raw material must be accompanied by 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.
- F. Shipment of finished or semi-finished items manufactured from metallic or non-metallic raw materials shall be accompanied by manufacturer test reports containing:
 - Name and location of raw material manufacturer or mill.

- Material identification by specification number and material condition.
- Manufacturer's mill lot identification number or batch or heat number of the raw material.
- Actual chemical and physical property test results as specified in the applicable specification.

QC-1840 DELETED 03/17

QC-1850 SPECIAL PROCESS REQUIREMENTS

Seller and any sub-tier supplier engaged in special processes as defined by a process that produces outputs which cannot be fully verified on a part by part basis prior to shipment to customer/L3Harris, shall have special processes approval. L3Harris Supplier approvals will be input into the Approved Special Processor List (ASPL). The ASPL is the list of controlled process specifications and L3Harris approved sources to perform those processes and is available in expo under Supplier Quality. Suppliers shall review the ASPL to ensure sources have not expired and independently verify the source's capability and quality specific to the supplier's product. Upon receipt of material, any C of C from unapproved or expired sources (based on manufacturing date) as per the ASPL or Nadcap will be considered a supplier escape.

The supplier is responsible for ensuring the details of Nadcap or L3Harris accreditation for the special process being performed. The special process supplier is responsible for the cost of the Nadcap accreditation.

Upon PO receipt and acceptance, the Seller shall verify the special processor alignment to L3Harris on eauditnet.com for Nadcap approved suppliers, this alignment can only be verified by the Nadcap accredited supplier under their company's account on eauditnet.com. If special processor is not aligned to L3Harris, the Seller shall submit an SSR-SIR with the below information requesting alignment to be created.

If utilizing a L3Harris approved special processor, Seller shall validate its alignment to the sub-tier supplier on the L3Harris ASPL, found under "first tier alignment". If the applicable alignment is not present, Seller shall provide to L3Harris via an SSR-SIR, the following documentation showing evidence of special processor qualification and/or certification:

- Special Process Supplier Name and Location
- Special Process Specification being performed
- Supplier's Special Process certification

L3Harris reserves the right to audit or otherwise review the special processor and its associated controls. Commercial off the shelf/MIL-SPEC items are an exception to this clause and do not require special processes approval.

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 ensure systematic, periodic evaluation of personnel, equipment, methods, and material required in these special processes to ensure positive control at all times. Objective evidence of these evaluations shall be made available to L3Harris upon request. Nadcap or L3Harris' approval of these systems does not relieve the seller of this responsibility.

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 an SSR- Supplier Deviation Request (SDR) shall be submitted to L3Harris and approved prior to any shipment of product.

The Seller shall flow-down this requirement, including document and retention requirements, to all lower-tier subcontracts for work performed under this contract. The table below lists but is not limited to commonly defined special processes by Nadcap.

| Category | Sample Specifications |
|---|---|
| Chemical Processing | Paint/Dry Film Coatings, Chem Film, Anodize, Chem Etching, Chem Cleaning, Plating, Stripping, Surface Treatment / Passivation |
| Coatings | Thermal Spray, Diffusion Coatings, Vapor Deposition, Coating Evaluation Laboratory, Stripping of Coatings, Heat Treating of Coated Parts, Dry Film Lubrication of Coated Parts, Plating of Coated Parts |
| Composites | Compression Molding (CMP), Core Processing (CP), Liquid Resin Processing (LRP), Metal Bonding (MB), Prepreg/Adhesive Bonding/Resin Film Infusion (PAR) |
| Elastomer Seals | O-rings, Seals |
| Electronics | Printed Boards, Flexible and Rigid-Flexible Printed Boards, High Density Interconnect Printed Boards, Circuit Card Assemblies, Printed Board Assemblies, Printed Board Assemblies Personnel Qualification, Plated Through-Hole Technology (PTH), Surface Mount Technology (SMT), Mixed Metallurgy for Ball Grid Array (BGAs), Conformal Coating of Printed Board Assemblies, Encapsulation, Programming, Final Testing, Repackaging, Cable and Harness |
| Heat Treatment | Metal Systems (Carbon & Alloy Steel / Tool Steel / Stainless Steel / pH Steel Cast Iron / Aluminum Alloys / Titanium Alloys / Heat Resisting Alloys / Other Nonferrous Metals), Heat Treating Processes (Normalizing / Annealing / Hardening & Tempering / Solution Heat Treating / Aging / Carburizing / Nitriding / Stress Relieving), Heat Treating Equipment (Furnace / Pyrometry / Instrumentation / Atmospheric Control), Brazing (Vacuum Brazing / Induction Brazing), Hot Forming |
| Material Testing | Chemical Analysis, Mechanical Testing, Metallography (Micro & Macro), Micro-Indentation Hardness Vickers, Knoop, Macro-hardness Brinell, Rockwell, Vickers, Corrosion, Mechanical Test Specimen Preparation, Differential Thermal Analysis (DTA), Specimen Response/Capability to Heat Treat, Fastener Testing |
| Non-destructive testing | Liquid Penetrant Testing, Magnetic Particle Testing, Ultrasonic Testing, Radiographic Testing, Eddy Current Testing, Digital Radiographic Testing (DDA) |
| Nonconventional Machining and Surface Enhancement | Nonconventional Machining, Electrochemical Machining (ECM), Electrochemical Grinding (ECG), Electrical Discharge Machining (EDM) (Fast Hole / Sinkers / Wire), Laser Beam Machining (LBM) (Cutting / Drilling / Marking), Surface Enhancement, Shot Peening (Automated, Computer Controlled / Flapper / Manual / Peen Forming) |
| Non-Metallic Materials Manufacturing | Manufacturing Resin, Manufacturing Prepreg, Manufacturing Adhesive Films, Manufacturing Core, Manufacturing Fibers (Currently Carbon Fibers Only) |
| Sealants | Adhesion Promoters Coatings & Coating Processes Peel Panels, Shear Specimens, Tensile Bars, Polyurethanes Silicones & Fluorosilicones, Two Part Polysulfide Sealants |
| Welding | Torch / Induction Brazing, Flash Welding, Electron Beam Welding, Resistance Welding, Fusion Welding, Laser Welding, Friction / Inertia Welding, Diffusion Welding, Percussion Stud Welding |

- A. **(Nadcap/Site Audit)** Special Processes shall be Nadcap accredited or pre-approved by L3Harris quality assurance personnel. If approval is required, then an SSR-SDR shall be submitted to L3Harris prior to any processing of product and approved prior to shipment. If the Seller (or its sub-tiers) has been audited for the specific special process by a L3Harris onsite assessment and has been approved for use of the special process, the Seller does not need to submit an SSR-SDR for each shipment. The audit is documented within L3Harris internal system of the approval. The audit of the special process is valid for two years, the Seller will need re-certification from L3Harris prior to the expiration date. Any special processes that are used shall be documented on the supplier's or sub tier's C of C. This is required for each shipment.
- B. **(Nadcap/Site Audit/Self-Survey)** Special Processes shall be Nadcap accredited or pre-approved by L3Harris quality assurance personnel. If approval is required then an SSR-SDR shall be submitted L3Harris and prior to any Processing of product and approved prior to shipment. If the Seller (or its sub-tiers) has been audited for the specific special process by a L3Harris onsite assessment or supplier self-survey and has been approved for use of the special process, the Seller does not need to submit an SSR-SDR for each shipment. The audit is documented within L3Harris internal system of the approval. The audit of the special process is valid for two years, the Seller will need re-certification from L3Harris prior to the expiration date. Any special processes that are used shall be documented on the supplier's or sub tier's C of C. This is required for each shipment.
- C. Special Processes shall be approved by L3Harris 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. The certification will be verified upon receipt of the hardware by L3Harris 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. 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 DELETED 11/19

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 L3Harris' 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 L3Harris 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 L3Harris.

QC-1920 DELETED 11/19

QC-1930 DELETED 11/19

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 -55°C and +85°C,
- 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 L3Harris 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 L3Harris for deviation consideration. The Seller must maintain records of calibration for all measuring and test equipment and made available to L3Harris for review upon request. Reference ISO 9001-2008, ISO 10012, ANSI/NCSL 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/NCSSL-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 L3Harris.

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 DELETED 11/19**QC-1980 ELECTRONIC DATA DELIVERY – REQUIRED**

All documentation shall be uploaded to L3Harris' expo data portal through the link <https://supplychain.harris.com/secure/logon.aspx?FORCE=true> in a format which is acceptable to L3Harris/Industry standards. L3Harris shall provide access (login and password) to this secure site at time of order. L3Harris Supply Chain may request an email notification of data upload. This includes the OEM C of C and test data, if required by the PO.

If supplier is unable to upload data, supplier shall notify buyer at time of purchase order via SSR to coordinate an alternate means of ensuring documents are received with shipment to avert a non-conformance. In the case that this is coordinated prior to shipment and the SSR has been approved and closed, Supplier shall include paper copies of all required data with the shipment or as per other direction provided on the SSR.

Documentation provided on digital media does not have to be uploaded to the L3Harris expo Supplier Document List.

QC-1990 EW GREEN PROCUREMENT PROGRAM (GPP)

Supplier shall verify compliance to the Green Procurement Program (GPP) as outlined by Contracts Circular No. 21/2011 via C of C. See <http://environment.gov.mt/en/decc/Pages/environment/gpp/gpp.aspx>

QC-2000 EW SOW PAINTED PARTS, (Q00025)

The requirements of L3Harris EW Statement of Work (SOW) – Painted Parts – [Q00025 Rev. (Latest Version)], are applicable to this purchase order.

QC-2010 APQP (ADVANCED PRODUCT QUALITY PLANNING)

In accordance with AS9145, Seller shall begin implementation of APQP at the time of order or prior to start of production. Seller shall submit an APQP PPAP package IAW AS9145, as defined by elements listed below, a minimum of (5) days prior to shipping for review and approval. The APQP Package shall be submitted through a Supplier Support Request (SSR) type (Supplier Information Request) and approved prior to the shipment of hardware. If an approved package is on file for this part number with no changes in location, process, design or lapse in production of more than 2 years, a resubmittal is not required. As defined by AS9102 guidelines, if changes or lapse in production has occurred, Seller shall submit a delta APQP package validating only those conditions, such as changes in location, process, or design, that have changed since the last package approval. Seller shall not ship parts from a production run for L3Harris inspection prior to L3Harris' acceptance of the associated APQP Package.

- Design Failure Mode and Effect Analysis (DFMEA) (only applicable if seller has design authority)
- Key Characteristics (KC)
- Process Flowchart(s)
- Process Failure Mode and Effects Analysis (PFMEA)
- Control Plan(s)
- Measurement Systems Analysis (Gage R&R)

- First Article Inspection Report IAW AS9102 Form 3 (if not already required by contract)

QC-2020 USE OF UNPASSIVATED NICHROME BASED FILMS

The use of unpassivated Nichrome film chip resistors is not acceptable for this procurement. Unpassivated Nichrome film is susceptible to corrosion/dissolution when exposed to humid conditions which will cause changes in the resistance value of the element. Nichrome based resistive elements which are trimmed shall have their passivation applied after the trim operation. The use of Tamalox, tantalum nitride thin films with low ohms/square sheet resistance, or ruthenium oxide thick films are acceptable.

QC-2030 LEGACY WORKMANSHIP 980300 AND 15215

- A. Electrical workmanship shall be in accordance with the requirements called out on applicable drawing or specification. In the event no requirements are specified, L3Harris Specification or an acceptable supplier equivalent approved by L3Harris shall be used. L3Harris spec 980300 "Requirement for Soldered Electrical Electronics Assemblies".
- B. Mechanical workmanship shall be in accordance with the requirements called out on applicable drawing or specification. In the event no requirements are specified, L3Harris Specification 15215 or an acceptable supplier equivalent approved by L3Harris shall be used.

QC-2040 BOEING APPROVED SPECIAL PROCESS SOURCES

When L3Harris Engineering drawing cites Boeing Process Specification "PS" Document Number then the following requirement shall apply. The supplier and all of its' subcontractors shall use Boeing-approved special processors as called out in the Boeing document D1-4426. If the source the supplier plans to use is not listed in the D1-4426, authorization must be obtained from L3Harris prior to use. Boeing document D1-4426 is in <http://www.boeingssuppliers.com/d14426/index.html>.

QC-2050 RAYTHEON P8658300 SILVER-COATED COPPER WIRE CORROSION CONTROL

Items delivered under this purchase order must conform to the latest revision of Raytheon specification P8658300, Silver Coated Copper Wire-Corrosion Control. Supplier shall manufacture and package product in accordance with this specification. P8658300 content shall be imposed as requirements for handling materials certified as having a silver coating thickness of 40 micro-inches minimum when measured in accordance with ASTM B298. A Raytheon approved red plaque risk mitigation plan shall be in effect for materials certified as having a silver coating thickness of 80 micro-inches minimum when measured in accordance with ASTM B298. L3Harris requires that the Certificate of Conformance(s) delivered with the product specify the silver coating thickness and state that the delivered items were manufactured and packaged in accordance with Raytheon specification, P8658300.

QC-2060 VARIATION MANAGEMENT OF KEY CHARACTERISTICS

The following requirements apply if Key Characteristics are identified on L3Harris drawings:

- Supplier shall develop and maintain a Variation Management Program in accordance with AS9103.
- Supplier procedures shall include Process Control Documents (PCDs) which detail how key characteristics are manufactured, critical process steps identified, and how variation shall be analyzed, evaluated, and controlled. Supplier shall submit a procedure to L3Harris Quality for approval prior to manufacture of parts via the L3Harris SSR process.
- Supplier shall submit to L3Harris, control charts, histograms and/or other analytical charts upon request via the L3Harris SSR process. Supplier shall provide evidence of analysis of data and actions taken in response to identified variations, outside of established statistical control limits
- Supplier shall flow down to sub tier suppliers the applicable requirements in the purchase order, including key characteristics, when the control of key characteristics are a requirement of this order.

QC-2070 FASTENER MATERIAL TEST REPORT REQUIREMENT

The fastener manufacturer shall produce a document that certifies information required including:

- Fastener Lot Number
- Manufacturing Date

- Lot Quantity
- Raw Material Heat Number
- Chemical Composition
- Mechanical and Metallurgical Test Results

QC-2080 OPTICAL AND TELESCOPE SOURCE INSPECTION REQUIREMENTS

A. Optical elements such as:

- Lenses
- Filters
- Beam Splitters
- Fold Mirrors
- Windows
- Mirror Blank

should have a pre-coat optical inspection and a post-coat optical inspection.

B. Telescopes shall have a post-coat optical inspection:

- Primary Mirrors
- Secondary Mirrors

Telescope final inspection shall consist of Optical, Mechanical, and Engineering inspection.

C. Prior to acceptance and/or shipment of any "optics*", the associated CD of spectral response data shall be approved by the L3Harris Radiometric Systems Engineer for the project.

For the purposes of this note "optics" includes individual parts, sub-assemblies, and full assemblies. Examples include:

- Scan Mirror Assemblies
- Telescopes
- Lenses
- Fold Mirrors
- Beam Splitters
- Windows
- Focal Plane Modules
- Detectors
- Orientation Dependant Optic Mark Verification
- Suppliers that mark orientation dependant optics shall demonstrate and document that the orientation mark adheres to the drawing at the final customer source inspection (CSI).

D. Verification of Properties Associated with Identification Marking

Suppliers that alter the properties of a part based on an applied identification mark (including but not limited to side dependant optical coatings or masking) shall demonstrate and document that the applied properties adhere to the requirements of the identification mark in the drawing and/or specification at the final customer source inspection (CSI).

QC-2090 SILVER PLATED/COATED COPPER WIRE/BRAID RED PLAGUE CONTROL REQUIREMENT

For Red Plague mitigation, all silver plated/coated copper wire or braid in this order shall be packaged per IPC WP-113.

QC-3000 AS DESIGNED AS BUILT LIST

Supplier shall provide a final “As Designed As Built” summary of build with material delivery.

QC-3010 PACKAGED IN SYRINGES REQUIREMENT

When packaged in syringes, with the exception of RTV and silicone-based materials, all materials shall be packaged in syringes free of silicone or wax.

QC-3020 OBSOLESCENCE/END OF LIFE (EOL)

Supplier shall notify L3Harris Buyer of any potential for or known obsolescence/EOL material. (Component(s) no longer in production by the manufacturer or component(s) nearing the end of life cycle. The manufacturer has plans to discontinue components(s) within the next 12 months as a minimum, and/or up to as much as 4 years.)