



L3HARRIS™

RANDTRON ANTENNA SYSTEMS

150 CONSTITUTION DRIVE, MENLO PARK CA 94025

STANDARD QUALITY REQUIREMENTS (QR's)

Sellers shall comply with the applicable QR / Quality numbers shown in the Purchase Order line items. **QR 1, 2 and 3, are combined, with incorporated by reference QR's, that shall apply to ALL PO line items by default, and additional QR's as stated in the PO text.**

QR 1, 2 or 3 QUALITY SYSTEM – COMPLIANCE

The Seller shall maintain a Quality System acceptably compliant with a recognized standard for a quality system, inspection system, laboratory, or calibration laboratory, as applicable. Such standards may include:

- AS9100 Series (AS9100, AS9003, AS9110, AS9120),-- QR1
- ISO 9001 Series (QMS Requirements),-- QR2
- ISO/TS 16949 (Automotive QMS Requirements) -- QR2
- Nadcap AC7004 AQS (Aerospace Quality System), --QR2 or QR3
- MIL-Q-9858 (Quality Program Requirements),-- QR3
- MIL-I-45208 (Inspection System Requirements),--QR3
- A2LA (American Association for Laboratory Accreditation),--QR3
- ISO/ASQ 17025 (Testing and Calibration Laboratories).--QR3

Applicable Notes:

1. Seller shall notify L3Harris immediately if any change in status to the Seller's Quality System.
2. Acceptable compliance includes; Third party certification / accreditation, OR
3. The following quality requirements are INCORPORATED BY REFERENCE as part of the Purchase Order requirements, in addition to other QR- Quality Requirements listed in the Purchase Order.Seller shall review these requirements for applicability to each purchase order line item.

- QR5, Calibration System Requirements
- QR43, Buy American Act
- QR46, Domestic Specialty Metals (Berry Amendment)
- QR49, Suspect / Counterfeit Parts and Materials*
- QR50, Use of Government Owned Property
- QR51, General Requirements
- QR52, Seller Control of Sub-Tier Suppliers and Special Processors (Not Applicable to COTS)
- QR53, Foreign Object Debris / Damage (FOD) Prevention
- QR56, Minimum 3% Lead Required for Solder Connections or Plating
- QR57, Parts and Materials Obsolescence
- QR58 Configuration Management

The above Quality Requirements of QR 1, 2 and 3- Quality System, AND Note #3 with Quality Requirements "incorporated by reference" are applicable to ALL PO Line items.

The incorporated by reference Quality Requirements include; QR5, QR43, QR46, QR49, QR50, QR51, QR52, QR53, QR56, QR57 and QR58

If any inconsistency between Engineering drawing, PO instructions and clauses/ content of Standard Quality requirements occur, Supplier shall seek written clarification from L3Harris.

In ADDITION to the above, more specific QR- Quality Requirements below, MAY be listed in the PO.



STANDARD QUALITY REQUIREMENTS

QR4 PHYSICAL INSPECTION REPORT

SEND DATA ITEM

Each shipment shall be accompanied by one (1) legible and reproducible copy of a Physical Inspection Report. The report shall include the drawing parameters, tolerances, notes, lot size, and sample size. Record the actual measurement readings or range for the lot sample, and indicate if the drawing parameters, tolerances and notes have been met.

QR4 Notes:

1. Sampling shall be in accordance with ANSI/ASQC Z1.4, Level II / Normal, Single Lot Sampling Plan.
2. ACCEPT the lot based on zero (0) defectives in the sample, or REJECT on one (1) or more defectives in the sample for any given attribute per AS9100 requirements (C=0). Screen the lot 100% for the defect type(s) found.
3. See Appendix B for suggested QR4 report format; contact the Buyer for an electronic MS Word template of the QR4 format.

QR5 CALIBRATION SYSTEM REQUIREMENTS

The Seller shall provide for maintenance and calibration of all inspection, measuring, and test equipment used to determine the acceptability of delivered items. The Seller's calibration system shall comply with ANSI/NCSL Z540.3, ISO 10012, ISO/IEC 17025, or as a minimum MIL-STD-45662. The system will apply to inspection, measuring, and test equipment supplied for the use of the Seller, as well as the Seller's own equipment. The system shall be subject to audit by L3Harris representatives.

QR6 TOOL PROOFING

SEND DATA ITEM

Acceptance of production tooling on this purchase order shall be contingent upon inspection and acceptance by L3Harris of the applicable characteristics of the number of dimensional samples specified in the purchase order. The dimensional samples produced by this tooling must conform to the tolerance limits of engineering drawings and specifications stated on this purchase order.

QR6 Notes:

1. The Seller shall furnish with the first shipment one (1) legible and reproducible copy of a tool proofing certification listing the tool number affected and inspection variables data signed or stamped by the Seller.
2. This inspection may be subject to surveillance by L3Harris Quality Assurance at the Sellers facilities. In that case, the tool proofing certification must also be signed or stamped by the L3Harris Quality Representative.
3. If directed by the Buyer, the tool(s) will be shipped to L3Harris for inspection, in which case, dimensional samples must be identified with the tool number, tool serial number and, when applicable, individual cavity number.
4. The Seller shall maintain process records for molded parts which shall include mold release agents used, temperature, pressure and time cycle data for preheat, molding and cure as applicable.
5. When duplicate tools are made to the same tool number, each must be serialized and proofed separately.
6. After initial proofing, any change to a tool (beyond normal maintenance) shall require subsequent reproofing and L3Harris approval.

QR7 SELLER INSPECTION AND TEST PLAN

SEND DATA ITEM

The Seller shall prepare and maintain an Inspection and Test Plan including a product flow chart of operational sequence, inspection and test points, and process control points for the items to be fabricated on this purchase order. The type of inspection or test at each point must be sufficiently described and identified.

QR7 Notes:

1. One (1) legible and reproducible copy of the plan shall be submitted through the Buyer to the Project Quality Engineer a minimum of two weeks prior to the start of fabrication. The plan is subject to the disapproval of L3Harris.
2. L3Harris may designate in writing certain operations as mandatory L3Harris Quality Surveillance points. L3Harris may, at its option, furnish written notice of the acceptability status of the Sellers plan.

QR8 INSPECTION AND TEST INSTRUCTIONS

SEND DATA ITEM

The Seller shall prepare and maintain instructions for inspection and tests performed on this purchase order. The instructions shall include identification of the item to be inspected, tested, or measured and the equipment used. The Seller's procedures must contain details of the inspection and test operations to be performed and the criteria for determining conformance or nonconformance to purchase order requirements.

QR8 Notes:

1. The Seller shall furnish one (1) legible and reproducible copy of each instruction to L3Harris at the time of preparation.
2. The Seller shall make instructions available for review by L3Harris and the cognizant Government agencies when requested.



STANDARD QUALITY REQUIREMENTS

QR9 SOURCE SURVEILLANCE

All items covered by this purchase order are subject to source surveillance by an L3Harris Quality Representative. This may include surveillance of the Seller’s system, procedures, facilities and products. The Seller shall, at no additional cost, supply inspection records and perform when specified, selected inspections and tests (that are required by applicable drawings, specifications and inspection instructions) for the Quality Representative. Directed surveillance points shall be inserted in the Seller’s planning; do not proceed beyond those points without L3Harris Quality authorization.

QR9 Notes:

1. The Buyer will advise the Seller in advance of planned source surveillance requirements. Sellers shall provide a minimum of three business days notice to L3Harris Buyer to permit scheduling of source surveillance by Quality Representative. Sellers outside California shall provide a minimum of seven business days notice to L3Harris Buyer.
2. Compliance with this clause in no way relieves the Seller of the final responsibility to furnish fully acceptable parts, materials, and services.

QR10 SOURCE INSPECTION (PHYSICAL INSPECTION)

All items covered by this purchase order require source inspection at the Seller’s facility by an L3Harris Quality Representative prior to shipment. Detailed parts of assemblies may also be subject to physical inspection by the Quality Representative prior to assembly. Inspection of such detailed parts does not negate physical inspection of the finished article by L3Harris Quality Representative prior to shipment if so required. The Seller shall supply inspection records and perform, when specified, selected inspections and tests (that are required by applicable drawings, specifications and inspection instructions) for the L3Harris Quality Representative to witness. Evidence of source inspection must be shown on the shipping document.

QR10 Notes:

1. Sellers in California shall provide a minimum of three business days notice to L3Harris to permit scheduling of source inspection by L3Harris Quality Representative. Sellers outside California shall provide a minimum of seven business days notice.
2. Compliance with this clause in no way relieves the Seller of the final responsibility to furnish fully acceptable parts, materials, and services.

QR11 SOURCE INSPECTION – GOVERNMENT

Government inspection is required prior to shipment from your plant. 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. If a Government Representative does not service your plant, contact the nearest Army, Navy, Air Force, or Defense Supply Agency Inspection office. In the event the representative or office cannot be located, immediately contact the L3Harris Buyer.

QR11 Notes:

1. Compliance with this clause in no way relieves the Seller of the final responsibility to furnish fully acceptable parts, materials, and services.
2. Evidence of Government source inspection acceptance must accompany the shipment to L3Harris, or be sent to separately as directed by the Buyer.

QR12 FIRST ARTICLE INSPECTION

SEND DATA ITEM

First Article Inspection (FAI) shall provide evidence that all engineering, design, and specification requirements (including any additional product requirements contained in the purchase order) are understood, accounted for, producible, verified, and recorded. An FAI is required:

- For a new part prior to, or as part of, the first production run.
- When changes have occurred that invalidate the original results (for example, changes in engineering design, tooling, manufacturing process, or location).
- If the product has NOT been manufactured at the facility for a period longer than 24 months. Note: Similar dash number variations of a basic part number count as a manufactured product under that part number.

QR12 Notes:

1. If only a portion of the engineering design, tooling, or manufacturing process has changed, a delta FAI may be prepared covering only the changed features.
2. First Article Inspection Report (FAIR):
 - a. The FAIR shall be prepared using AS9102 format of latest revision, or a format approved by L3Harris. One (1) legible and reproducible copy of the FAIR shall be submitted with the first shipment. The FAI part shall be tagged as “First Article Unit” and segregated.
 - b. The FAIR shall identify all characteristics, the required limits, the actual findings, and indicate if the readings meet the specification as verified by the Seller’s inspection.



STANDARD QUALITY REQUIREMENTS

- QR12 cont'd**
- c. The FAIR for an assembly may consist of incremental FAI reports for component parts, and a top level FAIR for the assembly.
 - d. When an alternate tooling approach, manufacturing method, or facility will also be used, the Seller must submit first article reports covering each approach, method, or facility.
 - e. FAI reports for molded or formed parts shall be identified to show the tool, tool serial number and, when applicable, the individual cavity number used.

QR13 PHYSICAL PROPERTIES AND CHEMICAL ANALYSIS REPORT SEND DATA ITEM

The Seller shall provide with each shipment, evidence that the materials being purchased or used in fabrication conform to the material requirements described in the purchase order and applicable product specification documents. Submit with each shipment one (1) reproducible record of actual physical properties and chemical analysis, and a Certification of Conformance to the applicable product specifications. The report shall contain:

- A list of applicable specifications including revision letters;
- Traceability identification by lot, batch, heat, or melt number;
- Values for actual physical properties measured and chemical analysis;
- Statement of conformance;
- Signature and title of authorized manufacturer representative certifying the report.

QR13 Notes:

- 1. Chemical analysis portion is required for metal alloy content, and typically is NOT required for non-metal commercial formulations or proprietary blends.
- 2. Report should include the allowed minimum and/or maximum values found in applicable product specification documents, for physical properties and chemical analysis.

QR14 PHYSICAL PROPERTIES REPORT - SUPERSEDED; SEE QR13 INSTEAD

QR15 FUNCTIONAL TEST REPORTS SEND DATA ITEM

Each shipment shall be accompanied by one (1) legible and reproducible copy of reports of actual functional test results identifiable with test parameters and products submitted. These reports must contain the signature of a responsible representative of the agency performing the test and must assure conformance to specified requirements. The specification must be listed including the specification revision letter(s) or revision number(s).

QR16 PRESSURE OR LEAK TEST REPORTS SEND DATA ITEM

Each shipment shall be accompanied by one (1) legible and reproducible copy of a report covering all products in the shipment with actual pressure or leak test results, including test parameters, identifiable to the individual products submitted. The report must contain the signature of a responsible representative of the agency performing the test and must assure conformance to specified requirements. The specification must be listed including the specification revision letter(s) or revision number(s).

QR17 NONDESTRUCTIVE TESTING AND REPORTS SEND DATA ITEM

Each shipment shall be accompanied by one (1) legible and reproducible copy of reports of actual nondestructive test results identifiable with acceptance requirements and material submitted. These reports must contain the signature of a responsible representative of the agency performing the test and must assure conformance to specified requirements.

QR17 Notes:

- 1. When parts are serialized, serial numbers must appear on the reports. Specifications must be listed including the specification revision letter or revision number.
- 2. An NDT technique sheet shall be developed and maintained for each part number to ensure repeatability.
- 3. Personnel performing tests and interpreting results shall be subject to examination and certification in accordance with NAS 410, and the certification/ facility controls stated therein.

QR18 SPECIAL PROCESS CONTROL AND CERTIFICATION (N/A TO COTS) SEND DATA ITEM

Special Process is defined as a method controlled by a contractually required specification, where a product undergoes a physical, chemical or metallurgical transformation, or a non-destructive inspection process, and conformance to the specification cannot be readily verified by normal inspection methods. Examples of Special Processes are heat treating, welding, painting, plating, chem film (conversion coat), surface preparation, metallization spray, or other treatments, and non-destructive testing (NDT) such as inspection by magnetic particle, penetrant, radiographic, ultrasonic, eddy current, or other means.

QR18 Notes:



STANDARD QUALITY REQUIREMENTS

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1. All Special Processes imposed by engineering drawing, specification, or Purchase Order shall be performed by either:
 - a. Sources approved by L3Harris. L3Harris Supplier Quality maintains both an Approved Supplier List, and a list of Approved Special Processors; contact the Buyer for details, **OR**
 - b. Sources fully accredited for the particular process by Nadcap. Nadcap is administered by PRI/SAE. A searchable Qualified Manufacturers List (QML) of Nadcap accredited Special Process providers can be found at the eAuditNet website <https://www.eauditnet.com/eauditnet/ean/user/login.htm>. However, NUCAP compliance certification is NOT accepted by L3Harris Antenna Systems.
2. Where special processes are performed by a sub-tier Special Processor, it is the responsibility of the Seller providing items to L3Harris to ensure the sub-tier special processor is approved by L3Harris for the processes, **OR** is fully Nadcap accredited for the specific processes as listed at eAuditNet.
 - a. The Seller shall accurately flow down to sub-tier special processors all portions of drawings, specifications, or other purchase order requirements applicable to the special process, NDT, or service to be provided.
 - b. The Seller shall require from the sub-tier special processor a reproducible signed copy of a certification for the special process, NDT, or service being provided, including NDT results (see below for certificate requirements).
3. Each shipment shall be accompanied by a legible and reproducible signed copy of certification(s) for Special Processes performed on the product, stating that the processes were performed to requirements of the specification, including the full process description from the Engineering drawing, specification, or Purchase Order.
 - a. An NDT certificate will require the signature of a responsible agency representative, and the name and certification level of the reader/operator, certified for the specific NDT process in accordance with the provisions of NAS 410, Certification and Qualification of Nondestructive Test Personnel.
 - b. A welding certificate will require the signature or stamp of a Certified Welder or Weld Inspector.
4. The Seller's Certificate of Conformance (see QR21) shall include:
 - a. The applicable Special Process specification(s), including the full process description from the Engineering drawing, specification or Purchase Order.
 - b. The name of the agency that performed the process, if other than Seller.
 - c. The date and signature of a responsible representative of the Seller.
 - d. When parts are serialized, serial numbers must appear on the certification.
 - e. The Sellers Certificate of Conformance (see QR21) must be accompanied by a reproducible copy of each certification for special processes and/or NDT testing performed by a sub-tier provider/agency.
5. Chem Film (Conversion Coat) shall be gold in color, unless otherwise specifically requested by the procuring activity.

QR19 FUNCTIONAL TEST CERTIFICATION

SEND DATA ITEM

Each shipment shall be accompanied by one (1) legible and reproducible copy of a certification stating that Functional Test Reports, which assure conformance to specified requirements, are on file and available for examination. The certification must be identifiable with articles submitted and must contain the signature of a responsible representative of the Seller. The specification must be listed including the specification revision letter(s) or revision number(s).

QR20 CERTIFICATION OF MATERIAL COMPLIANCE

SEND DATA ITEM

Each shipment shall be accompanied by one (1) legible and reproducible copy of a certification stating that the items were produced:

- From materials for which the Seller has available for examination, specified data or other objective evidence of conformance to the applicable specifications, **AND/OR**
- From materials furnished by L3Harris for the production of each item.

QR20 Notes:

1. These materials include components, parts, and hardware installed such as fasteners or threaded inserts, and chemicals that become part of the deliverable item, such as adhesives and sealants.
2. Include with the certification statement, reproducible copies of sub-tier supplier certifications for these materials.
3. For L3Harris supplied material, list the traceability identifier and shipper/purchase order number when the material was delivered to the Seller, **OR** include a reproducible copy of the L3Harris shipper.
4. The certificate must contain the signature of a responsible representative of the Seller.

STANDARD QUALITY REQUIREMENTS

QR28 QUALITY REQUIREMENTS FOR SOLDERED ELECTRICAL CONNECTIONS

The Seller shall provide and maintain a system that meets the requirements of IPC J-STD-001, Class 3, “Requirements for Soldered Electrical or Electronic Assemblies.” System approval must be established prior to fabrication under this contract. The soldering process, system, and facility shall be made available for audit by L3Harris representatives upon request.

QR29 RENTAL EQUIPMENT CALIBRATION CERTIFICATION

SEND DATA ITEM

The rental equipment shall be accompanied by one (1) legible and reproducible copy of a Certificate of Calibration stating that the item (s) are calibrated and will be maintained in calibration during the rental period.

QR30* PACKAGING AND HANDLING

The following guidelines define the minimum requirements for packaging of material by L3Harris’ suppliers for their in-house handling, storage, and shipment, and for use during storage at L3Harris.

- Items with sharp points shall be adequately padded to prevent damage to other parts.
- Electrical connectors, studs, and external threads must be capped or protected to prevent thread damage and provide protection from dust and dirt.
- Items shall be packaged to prevent abrasion. There shall be no metal to metal contact on finished surfaces.
- All painted materials shall be completely dry and packaged to prevent damage to the finish.
- Printed circuit boards with exposed copper shall be individually packaged in sealed plastic bags, with a desiccant pack enclosed in each bag, to prevent corrosion of the copper surfaces.*
- Expanded foam “popcorn” is not allowed at L3Harris and must NOT be used in packaging.

QR30A PACKAGING TO BEST COMMERCIAL PRACTICE

Seller shall prepare and package the goods to prevent damage or deterioration, and shall use best commercial practice for packing and packaging of items to be delivered, unless otherwise specified in the Purchase Order.

- Expanded foam “popcorn” is not allowed and must NOT be used in packaging.

QR31* IDENTIFICATION OF LIMITED SHELF-LIFE MATERIALS*

All limited shelf-life materials received by L3Harris must have a minimum of 2/3 of its shelf-life remaining to be acceptable. Seller shall label each item, package, or container of limited shelf-life material with the L3Harris purchase order number (PO#), L3Harris part number (P/N) from the purchase order, date of manufacture or shipment as applicable (DOM) or (DOS), and expiration or use-by date (EXP), at the unit dispensable level, as illustrated and directed below.*

PO# xxxxxxxx	DOM or DOS mm/dd/yy
P/N xxxxxx-xx	EXP mm/dd/yy

PO# xxxxxxxx	P/N xxxxxx-xx
DOM or DOS mm/dd/yy	EXP mm/dd/yy

QR31 Notes:

1. Examples of unit dispensable level are as follows:
 - Single unit can, box, bag, or roll – Place one label on each lowest level unit.
 - Two part chemical kit – Place one label on each lowest level container A & B.
 - Package of adhesive backed nameplates or other shelf life items too small to label – Affix a reproducible label to the package (per the above examples) that can be copied by L3Harris for issuing with the individual items.
 - Place these label(s) under any disposable overwrap material.
2. The above labeling instructions are in addition to normal product identification requirements such as manufacturer, product name, part or code number, specification number, type, size, quantity, and special storage or handling conditions.
3. The identification requirements of QR31, including any special storage or handling instructions, shall be recorded on certifications and shipping documents for the lot of material.

QR32* CONTROL OF SHELF-LIFE MATERIALS USED IN PARTS OR ASSEMBLIES

SEND DATA ITEM

Parts or assemblies that incorporate a limited shelf-life material, which does not require age control after application (e.g., adhesives, resins, paints, part marking ink, etc.) must be documented as follows. The Seller shall furnish with each shipment one (1) legible and reproducible copy of a certification listing such materials and stating that the limited shelf-life materials



STANDARD QUALITY REQUIREMENTS

QR32 were properly controlled prior to use, and were applied within the manufacturer’s stated shelf-life period or within a Buyer approved extension.*
Cont’d QR32 Notes:

1. The certificate must contain the signature of a responsible representative of the Seller, and shall state that Manufacturer certification(s) for such materials are maintained on file at the Seller’s facility.
2. Material shelf life may be extended, subject to restrictions, with the prior written approval of the L3Harris Buyer after consideration by L3Harris Engineering. Include the Seller certification, written Buyer approval for extension, and extension testing results with each affected shipment.

QR33 **HEAT AND/OR MELT IDENTIFICATION**

All parts and/or material and applicable documents must be identified by a heat number, heat code, heat lot number or melt number by the Seller. Where stamping of individual parts is not practical due to size or shape, the heat number, heat code, heat log number, or melt number shall be stamped on the package by the Seller.

QR34 **MANUFACTURING LOT, BATCH, OR SERIAL NUMBER IDENTIFICATION**

All deliverable parts, assemblies, or material and applicable documents must be identified by a manufacturing lot, batch, or serial number by the Seller. Serialization is typically defined in the drawing or specification when it is required.

QR34 Notes:

1. Where stamping of individual parts, assemblies, or material is not practical due to size or shape, then lot or batch number identification shall be labeled on the package by the Seller.
2. In the absence of a Lot Control Specification required by this purchase order, a lot or batch number shall be defined as deliverable parts, assemblies, or material produced for one purchase order by one manufacturer in one unchanged process run in accordance with the same drawing and/or specification revision.

QR35* **RAW MATERIAL IDENTIFICATION**

Raw material shall be identified by;

- Tagging or labelling (example, copper clad PC board material, etc.).*
- Strip marking in accordance with FED-STD-183 or 184 or by other material specification requirements as applicable (example, conduit, mill stock, etc.).*

QR36 **LOCKHEED MARTIN FLOWDOWN- APPROVED PROCESSOR LISTING**

When the Seller uses a sub-tier supplier to provide special processes, only Lockheed Martin Approved Processors shall be used. Such suppliers are identified at the following website, accessed by company name:

<https://www.lockheedmartin.com/en-us/suppliers/business-area-procurement/aeronautics/quality-requirements/control-specs.html.aspx> (Copy address into browser)

QR37 **BOEING FLOWDOWN- APPROVED PROCESSOR LISTING**

When the Seller uses a sub-tier supplier to provide special processes, only Boeing Approved Processors shall be used. Such suppliers are identified at the following website, accessed by company name:

<http://www.boeingsuppliers.com/d14426/index.html> (Copy address into browser)

QR38 **RAYTHEON AIRCRAFT COMPANY FLOWDOWN- APPROVED PROCESSOR LISTING**

When the Seller uses a sub-tier supplier to provide special processes, Raytheon Special Process Control Requirements, as described in section 12 of the linked document, shall be consulted. Contact the L3Harris Buyer and project quality engineer to confirm the processor selection, and to provide applicable Raytheon quality requirements.

https://qnotes.raytheon.com/?fireglass_rsn=true#fireglass_params&tabid=a135719d4c5ed6fc&start_with_session_count_r=4&application_server_address=l3harris-e1.prod.fire.glass (Copy address into browser)

QR39 **NORTHROP-GRUMMAN FLOWDOWN- APPROVED PROCESSOR LISTING**

When the Seller uses a sub-tier supplier to provide special processes, only Northrop-Grumman Approved Processors shall be used. Such suppliers are identified at the following website, accessed by company name:

<https://oasis-aspl.myngc.com/> (Copy address into browser)

Additionally, definitions of processes requiring Northrop-Grumman approval are included at the website below:

https://oasis.northgrum.com/contract/cadapl/contract_cadap_specification.pdf (Copy address into browser)



STANDARD QUALITY REQUIREMENTS

- QR40 QUALIFIED PRODUCTS LIST (OPL) CERTIFICATION SEND DATA ITEM**
- Qualified products from Manufacturer or Distributor listed on QPL. Manufacturer or Distributor shall furnish with each shipment his name and the commercial designation of the product on the parts, affixed by label or nameplate or preprinted on the wrapping, or on an accompanying certificate.
 - Qualified products from supplier or dealer not listed on QPL. Seller shall furnish with each shipment one (1) legible and reproducible copy of a certification as follows: “Seller hereby certifies that (product designation or part number) shipped under purchase order (Seller to enter the actual purchase order number) has been qualified by (manufacturer name) under referenced Test Number _____ and QPL (or interim approval) number. Manufacturer’s certification is on file at Seller’s facility.”
 - Qualified products incorporated into a prime item. Seller shall furnish one (1) legible and reproducible copy of a certification with each shipment as follows: “Seller hereby certifies that that the following subsidiary items (list the QPL products involved, QPL reference numbers and manufacturer’s name and designation) which are incorporated into the prime item, are QPL products in accordance with qualification tests.”
- QR41 SELLER CONTROLLED PRODUCTS SEND DATA ITEM**
- One (1) legible and reproducible copy of Seller’s applicable specifications, drawings and/or catalogs is to accompany the initial shipment of the purchase order. No changes shall be made in subsequent shipments unless approved by the Buyer.
- QR42 PROPRIETARY PRODUCTS CONTROL**
- The Seller shall notify the Buyer in writing of any changes proposed in product design, fabrication methods or location, materials or processes of proprietary products. This would include those items procured from secondary sources and/or included as assembly components. The Seller shall obtain the Buyer’s approval prior to affecting such proposed changes or supplying such products to the Buyer. If L3Harris approves the proposed changes, the Seller shall identify those articles on which the change was incorporated.
- QR43 BUY AMERICAN ACT**
- In support of DFARS 252.225-7001 all materials and components deliverable to L3Harris, if at all possible, must be made in America or a qualifying country and verifiable by certification. All L3Harris suppliers and their chain of sub-tier suppliers are bound by this requirement.
- QR43 Notes:
1. The Seller shall inform the L3Harris Buyer, when accepting the purchase order, of any components, parts, supplies, or materials that cannot be purchased from an American source or a qualifying country source.
 2. According to DFARS 225.872-1, a “qualifying country” is any of the following: Australia, Belgium, Canada, Czech Republic, Denmark, Egypt, Estonia, Federal Republic of Germany, Finland, France, Greece, Israel, Italy, Japan, Latvia, Luxembourg, Netherlands, Norway, Portugal, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom of Great Britain and Northern Ireland; and subject to purchase-by-purchase determinations, Austria.
- QR44 REPORT OF NONCONFORMING MATERIAL– SUPERSEDED; SEE QR51 INSTEAD**
- QR45 QUALITY PROGRAM SURVEY**
- Acceptance of products and services under this contract will be contingent upon a survey and approval of the Supplier’s quality program by L3Harris Quality Assurance.
- QR46 DOMESTIC SPECIALTY METALS (BERRY AMENDMENT)**
- The Berry Amendment (10 USCA 2533a and 2533b) requires any “specialty metals” incorporated in articles delivered under DoD contracts to have been melted in the United States, its outlying areas, or a “qualifying country” (or incorporated in an article manufactured in a qualifying country) unless specific exceptions apply by L3Harris. The regulation applies to all DoD contracts, including contracts and subcontracts for the procurement of commercial items.
- QR46 Notes:
1. Commercially available electronic components, however, whose specialty metal content is minimal in value compared to the overall value of the lowest level electronic component produced that contains such specialty metal, are exempt from this requirement.

STANDARD QUALITY REQUIREMENTS

**QR46
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2. "Outlying areas" are defined as the Commonwealths, Territories, and certain islands subject to the laws of the United States.
3. "Qualifying countries" are listed in QR43.
4. According to DFARS 252.225-7008 and 252.225-7009, "Specialty metal" means –
 - (i) Steel –
 - (A) With a maximum alloy content exceeding one or more of the following limits: manganese, 1.65 percent; silicon, 0.60 percent; or copper, 0.60 percent; or
 - (B) Containing more than 0.25 percent of any of the following elements: aluminum, chromium, cobalt, molybdenum, nickel, niobium (columbium), titanium, tungsten, or vanadium;
 - (ii) Metal alloys consisting of –
 - (A) Nickel or iron-nickel alloys that contain a total of alloying metals other than nickel and iron in excess of 10 percent; or
 - (B) Cobalt alloys that contain a total of alloying metals other than cobalt and iron in excess of 10 percent;
 - (iii) Titanium and titanium alloys; or
 - (iv) Zirconium and zirconium alloys.
5. "Steel" means an iron alloy that includes between 0.02 and 2.0 percent carbon and may include other elements.

QR47 PROTOTYPE / DEVELOPMENT COTS AND CUSTOM MATERIALS

Commercial off the shelf (COTS) and custom hardware / materials used exclusively for prototype and development work at L3Harris will be received by:

- Verifying items are free of shipping damage.
- Verifying quantity and part number to the receiving document.

QR47 Notes:

1. Items to be used exclusively for prototype or development work do not need Approved Supplier List sources.
2. Items procured exclusively for prototype or development work must not be used for deliverable L3Harris production without prior conformance inspection acceptable to L3Harris QA and appropriate documentation.

QR48 PROTOTYPE / DEVELOPMENT TO L3HARRIS DRAWINGS

When inspection is required for prototype or development items purchased to L3Harris drawings, a reduced inspection plan may be used.

- Attributes to be inspected will be determined by L3Harris Design Engineer and Quality Engineer.
- An inspection report reflecting the L3Harris engineers' inspection criteria will be generated for quality records.

QR48 Notes:

1. Items to be used exclusively for prototype or development work do not need Approved Supplier List sources.
2. Items procured exclusively for prototype or development work must not be used for deliverable L3Harris production without prior Quality Assurance conformance inspection and appropriate documentation.

QR49* SUSPECT / COUNTERFEIT PARTS, COMPONENTS, AND MATERIALS*

New and authentic parts, components, and materials are to be delivered, or used in products delivered to L3Harris. Electronic parts, components, and materials shall be purchased directly from OCMs/OEMs, or through OCM/OEM Franchised/Authorized Distributors, or Authorized Resellers. Documentation must be available on file that authenticates traceability or chain of custody to the applicable OCM/OEM.*

QR49 Notes:

1. All occurrences of suspect counterfeits, and/or counterfeit parts, components and materials shall be reported immediately to the Buyer.*
2. Independent Distributors (Brokers) shall not be used without written consent from L3Harris. L3Harris maintains a list of authorized Independent Distributors; contact the Buyer for details. If an Independent Distributor must be used, L3Harris Corporate Policy OPS-3 will apply.*
3. Authorized Distributor/Authorized Reseller to disclose if they are not authorized for the EEE parts they are supplying.
4. No counterfeit or suspect counterfeit parts, components, or materials are to be delivered, or contained within any delivered product; this includes COTS items. If suspect / counterfeit items are furnished under this purchase order or are found in any of the goods delivered hereunder, such items shall be impounded by the Buyer. The Seller shall promptly replace such suspect / counterfeit items with items acceptable to the Buyer.*
5. As defined below, Refinishing, Up Screening, and Up Rating parts are NOT considered counterfeiting, but must be specifically authorized in the purchase order prior to application.

QR 49 Definitions:



STANDARD QUALITY REQUIREMENTS

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- **Authorized Distributor / Authorized Reseller** – An OCM or OEM agent or outlet authorized to buy, stock, re-package, sell, and/or distribute its product lines. Chain of custody is maintained throughout the process.*
- **Commercial Off the Shelf (COTS)** – A commercial item, sold in substantial quantities in the marketplace, and offered without modification in the same form in which it is commonly sold in the commercial marketplace.*
- **Counterfeit** – A part that is a copy or substitute without legal right or authority to do so, or one whose material, performance, or characteristics are misrepresented.
- **EEE**- Electrical, electronic and electromechanical.
- **Suspect Counterfeit** – A part in which there is an indication that it may have been misrepresented by the supplier or manufacturer, and may meet the definition of a counterfeit part.
- **OCM** – Original component manufacturer.
- **OEM** – Original equipment manufacturer.
- **Franchise Distributor** – A distributor with which the OCM or OEM has a contractual agreement to buy, stock, re-package, sell, and/or distribute its product lines.
- **Independent Distributor (Broker)** – A distributor that purchases non-franchise parts with the intention to sell or redistribute them. *
- **Refinishing** – Reworking electronic parts to support assembly production and ensure equipment reliability.*
- **Up Screening** - Testing electronic parts to satisfy customer requirements.*
- **Up Rating** – Testing electronic parts to assess their capability to meet the performance requirements of the application in which the part is used outside the manufacturer’s specification range.*

QR50 USE OF GOVERNMENT OWNED PROPERTY

Seller shall comply with FAR Part 45 (Government Property), Sub Parts 104 through 107, and FAR Part 52 (Government Property), Sub Parts 245-1 through 245-2, as applicable. Seller shall maintain an adequate property control system for the use, maintenance, repair, protection, preservation, and traceability of Government Property as called for in these Federal Regulations.

QR50 Notes

1. Seller shall return Government Property to the Buyer in as good condition as received, except for reasonable wear and tear.
2. Seller shall use Form DD1149 (Requisition and Invoice / Shipping Document) as shipment documentation.
3. Seller will assure that the property is clearly and correctly identified and appropriately packaged to prevent damage.

QR51 GENERAL REQUIREMENTS

SEND DATA ITEM

The following General Requirements apply to all purchase orders for parts, components, materials, special processes, and production services:

1. REPORT OF NONCONFORMING MATERIAL - The Seller shall notify the Buyer of any departure from drawing, specification, or other purchase order requirements. Disposition of these departures must be formally approved by L3Harris in writing prior to shipment. By virtue of submittal, the Seller certifies that all such requirements have been met.
 - a. Nonconforming items which the Seller wishes to submit to Buyer for consideration shall be documented on form RS1000Q, Request for Deviation/Waiver (DW), and submitted to the responsible L3Harris Buyer for evaluation by Quality Assurance and Engineering.
 - b. If Source Surveillance (QR9) or Source Inspection (QR10) is required by the Purchase Order, nonconforming items will be coordinated with L3Harris Quality Assurance prior to the date of source visit to avoid unnecessary travel.
 - c. Nonconforming items shall NOT be shipped unless specifically authorized by the L3Harris Buyer. A copy of the Request for Deviation/Waiver (DW), letter of approval, or material review record (as applicable) must accompany each affected shipment.
 - d. Any acceptance of nonconforming item shall NOT be considered a precedent for future actions.
 - e. Material Review Board (MRB) authority (e.g., Repair or Use-As-Is disposition) is NOT granted to the Seller unless specifically conveyed in writing by L3Harris Antenna Systems.
2. CORRECTIVE ACTION -The Seller shall respond to L3Harris requests for corrective action in a timely manner. The Seller’s response to any such requests shall include:
 - a. The identified Root Cause of the problem;
 - b. A statement of Corrective Actions taken to remedy the nonconformance and to eliminate its Root Cause;
 - c. A statement of Preventive Actions taken to avoid the same or similar occurrence in other products or processing;



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d. An assessment of the effectiveness of Corrective and Preventive Actions (this assessment may be submitted by an agreed upon due date).

Note: When Source Surveillance (QR9) or Source Inspection (QR10) is required by the Purchase Order, the Seller shall coordinate corrective action with, and obtain approval signature of the L3Harris Quality Assurance representative on the Seller's written response.

3. **NOTIFICATION OF CHANGES** - The Seller shall notify the Buyer in writing of any change(s) in product design, fabrication methods or location, parts, materials or processes.
4. **RIGHT OF ACCESS** – Subject to applicable national security regulations, Buyer and Buyer's representatives shall have the right of access, on a non-interference basis, to any area of the Seller's premises or Seller's sub-tier supply chain premises where any part of the work is being performed. Seller shall flow this requirement down to its sub-tier supply chain suppliers as a condition of this contract. Seller shall, without additional costs to Buyer, provide all reasonable in-plant accommodations, facilities, and assistance for the safety and convenience of the Buyer and the Buyer's representatives in the performance of their duties.
5. **DOCUMENTATION REQUIREMENTS** – All documentation shall be traceable to the item(s) delivered. Each page of documentation supplied shall be legible and photographically reproducible. The required documentation specified in the Purchase Order and Quality Requirement clauses, shall be constructed as a "Documentation Package" with the following elements:
 - a. Shipping Documents.
 - b. Seller's Conformance/Configuration Certification.
 - c. Supporting Documents (examples: completed inspection plan, inspection reports, test reports, NDT/Special Process certifications, and/or material certifications).
 - d. Nonconformance Reports and/or Corrective Action Reports, if applicable.
6. **RECORD RETENTION** – Seller shall keep and maintain applicable inspection, test, and related records, which shall be available to Buyer or Buyer's representative. Seller shall allow copies to be made, and shall furnish such copies as required by the Buyer or Buyer's representative. Seller shall notify L3Harris prior to records disposal. L3Harris retains the right to have applicable records delivered in lieu of disposal. The same shall apply if the Seller experiences a change of ownership or business status that might preclude further access to these records.
7. **SELLER RESPONSIBILITY** – L3Harris product verification activities performed at any level of the supply chain do not relieve the Seller of final responsibility to furnish fully acceptable parts, components, materials, and services. The Seller shall promptly notify the Buyer when nonconforming product, or potentially nonconforming product is detected after delivery to L3Harris. The Seller shall then make available all related documentation upon request, and assist in the identification of scope and determination of impact of the nonconformance.
8. **PRODUCTION AUTOMATION AND CONTROL** – Production equipment, tools, and software programs used to automate and control/monitor product realization processes, shall be validated prior to release for production and shall be maintained (examples - CNC program, automated test box, or temperature controller).
9. **PRE-PRODUCTION DRAWING REVIEW** – L3Harris may request an informal pre-production drawing review meeting with the Seller to go over the drawings, purchase order, quality clauses, and other requirements prior to start of fabrication. Likewise, the Seller may request such a meeting, which can be conducted onsite at either facility, or by conference call. The purpose of this review is to allow both L3Harris and the Seller the opportunity to ask questions, clarify drawing details, address concerns, and help ensure a successful build.
10. **SELLER EMPLOYEE AWARENESS*** – L3Harris requests that the Seller provide periodic employee awareness training, and maintain a record of such training. Topics should include:*
 - a. Employee contributions to product conformance and on time delivery (which affect supplier ratings).
 - b. Employee contributions to product safety and system performance for national defense applications.
 - c. Importance of work place safety, and ethical work place behavior.
11. **3rd PARTY CERTIFICATION AUDIT** – L3Harris may require access to Quality audit information from audits undertaken by Seller's certification body. Audit information may be provided upon request as detailed below.
 - a. For Seller with AS91xx certificate, the preferred approach is access to IAQG OASIS or by electronic copy of audit report
 - b. For Seller with ISO9001 certificate, electronics copy of audit report is required.

QR52 SELLER CONTROL OF SUB-TIER SUPPLIERS AND SPECIAL PROCESSORS (N/A TO COTS)

The following requirements apply to Seller purchases (other than commercially available off the shelf items or materials) from sub-tier suppliers and special processors:

1. **QUALITY SYSTEM** – Seller shall maintain a list of approved sub-tier suppliers and special processors, and shall require each to provide a Quality Program and Calibration System appropriate to the complexity of the products or services being procured.

STANDARD QUALITY REQUIREMENTS

2. **FLOWDOWN OF REQUIREMENTS** – The Seller shall accurately flow down to sub-tier suppliers and special processors all portions of drawings, specifications, L3Harris purchase order requirements, and L3Harris quality requirements (QR codes) that are applicable to the product or service being procured.

QR53 FOREIGN OBJECT DEBRIS/DAMAGE (FOD) PREVENTION

Seller shall maintain a FOD prevention program in accordance with NAS 412, Foreign Object Damage/Debris (FOD) Prevention; and ensure that applicable FOD prevention requirements are also flowed down to the Seller's subcontractors at every tier, whenever and/or wherever FOD entrapment can occur or foreign objects can migrate.

- Prior to closing inaccessible or obscured areas and compartments during assembly, Seller shall inspect for foreign objects/materials and ensure no FOD, or FOD barriers remain embedded (example, protective plugs).
- Seller and sub-tier subcontractors shall ensure tooling, jigs, fixtures, and test or handling equipment are maintained in a state of cleanliness and repair sufficient to prevent FOD.
- Packing and packaging materials used shall not contribute to the generation of FOD.
- By delivering items to Buyer, Seller shall be deemed to have certified to Buyer that such items are free from any foreign materials that could result in FOD.

QR54 U.S. CONTENT ONLY FOR FOREIGN MILITARY FINANCING OF DIRECT COMMERCIAL CONTRACTS

Defense articles delivered under this purchase order shall be manufactured and assembled in the United States; and defense services provided under this purchase order shall be performed by U.S. manufacturers and suppliers. Materiel, components, goods, and services (hereafter called "U.S. content") shall be of U.S. origin.

QR54 Notes:

1. First and second tier suppliers shall not be disbarred, under suspension, excluded, or otherwise ineligible to export material under the International Traffic in Arms Regulations (ITAR).
2. The supplier and sub-tier suppliers shall flow down to any subsequent suppliers the full text of clause QR54 and its notes.
3. The supplier shall notify L3Harris for written approval before any non-U.S. content is introduced into product deliverable under this purchase order.

QR55 PRODUCTION READINESS REVIEW

Prior to production of deliverable components, parts, or materials under this purchase order, the Seller shall host and conduct a Production Readiness Review with team members from L3Harris, to document and resolve any outstanding concerns, and ensure full agreement and understanding of requirements and proposed methodology. The PRR may be conducted via electronic conferencing technology if appropriate. Agenda items shall be as agreed upon in advance by L3Harris and the Seller. See sample PRR agenda in Appendix A for suggested content.

QR56 MINIMUM 3% LEAD REQUIRED FOR SOLDER CONNECTIONS OR PLATING

All solder connections, solder processing, plating or finishes shall use tin-lead (SnPb) solder blend with a minimum of 3% lead composition for the following items delivered under this purchase order. Pure tin shall NOT be used in these items.

- Electronic, electrical, electromechanical, and mechanical piece parts and assemblies.
- Component leads, terminations, carriers, bodies, cages, brackets, housings, and hardware.
- COTS items, specifically including their internal hardware, components, and fabrication materials.

QR56 Notes:

1. Any exception(s) to this minimum 3% lead requirement must be allowed in writing by L3Harris in the form of purchase order text, drawing note, specification, or Statement of Work.
2. Any items delivered under this purchase order or contract NOT meeting this minimum 3% lead requirement where applicable shall be identified on the certificate of conformance, and clearly marked on the product packaging.
3. Solderability testing shall be performed when, and as called out in the purchase order text, drawing note, specification, or Statement of Work
4. QR56 is based on Level 2C compliance per GEIA-STD-0005-2.



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QR57 PARTS AND MATERIALS OBSOLESCENCE

Diminishing Manufacturing Sources and Material Shortages (DMSMS) is concerned with the loss or impending loss of manufacturers or suppliers of critical items and raw materials due to discontinuance of production. DMSMS can be caused by rapid changes in item or material technology, uneconomical production requirements, foreign source competition, environmental or safety requirements, and limited availability or increasing cost of items and raw materials. Suppliers and producers doing business with L3Harris are urged and requested to support continued participation by taking the following on-going actions:

- Notify the Buyer at the earliest opportunity whenever part or material shortages, late deliveries from sub-tier suppliers, or other impending loss of available supply is detected, including both COTS and custom parts or materials.
- Notify the Buyer at the earliest opportunity whenever the supplier or producer anticipates a change in its location, ownership, business status, product lines, or services normally provided to L3Harris.

QR57 Notes:

1. Refer to “DMEA Program Managers Handbook – Common practices to Mitigate the Risk of Obsolescence” available at <http://www.dmea.osd.mil>.
2. Suppliers and producers are encourage to participate in the Government - Industry Data Exchange Program (GIDEP) found at <http://www.gidep.org>.
3. Suppliers are encouraged to participate in the Electronics Resellers Association International (ERAI), an information services organization that monitors, investigates and reports issues affecting the global supply chain of electronics, found at <http://www.erai.com>.

QR58 CONFIGURATION MANAGEMENT REQUIREMENTS

The Seller shall have processes or procedures within their system to accomplish these CM requirements.

- Sellers submittal of a Certificate of Conformance, C of C, shall attest to their system capabilities for dealing with CM related activities, including meaningful, relevant CM process measurement/metrics, which should be available for L3Harris review upon request.
- Configuration Identification by the supplier shall be in accordance with applicable drawings and or Purchase Order requirements. Seller shall establish and maintain the current configuration identification (drawings, 3D datasets, product structure, specifications, part numbers, serial numbers, software, etc.) of the item(s) to be delivered under the subject Purchase Order. This activity should also validate that only the current/official configuration documentation is being used to manufacture the item(s). Parts shall be marked per contract and IAW MIL-STD-130.
- Configuration Changes by Seller shall be controlled by internally initiating, reviewing, classifying, and dispositioning proposed changes to a deliverable item(s) and L3Harris requirements. This shall include proposed Major or Minor changes that affect the technical and/or cost provisions, terms and conditions of the Purchase Order or that affect interchangeability (form, fit, function). Products that incorporate a known departure from requirements shall not be delivered to L3Harris unless a Deviation/Waiver with applicable detailed description is submitted and authorized by L3Harris prior to acceptance of the nonconforming item(s).
- Seller shall support Configuration verification audits of their CM system with L3Harris if deemed applicable for the specific purchase order. In all cases L3Harris retains design authority.
- Configuration Status Accounting by the Seller shall be accomplished by internal records defining their configuration, by part number and serial number, for the item(s) delivered to L3Harris under the subject Purchase Order and available for review as requested. Information of Shipment with delivery of a hardware item, shall include a copy of the packing sheet (DD Form 250, DD Form 1149 or equivalent); including destination of shipment, nomenclature of items, part number, serial number, and Deviation/Waiver number if applicable.
- Interface Definition may be defined to the Seller, via SCD Specification Control Document or equivalent. If defined, the Seller must control these defined interfaces per established Configuration Management practices.
- The Seller shall flow down to sub-tier suppliers the same Configuration Management requirements outlined in this document if applicable.
- Configuration Management Data, if required, will be specifically listed in the Purchase Order and submitted by Seller as defined.

APPENDIX A - Sample QR55 Production Readiness Review Agenda (Content TBD)

- I. Introduction**
 - Personnel in Attendance/Roster and Contact Information
 - Organizational Charts
- II. Contract Review**
 - Drawing Revision Incorporation
 - Revised Quantities and Delivery Dates
 - Quality Requirements (QR) Purchase Order Codes and Revisions
- III. Documentation Status**
 - Incorporation of Randtron Drawing and Specification Requirements
 - Drawing and Specification Questions and Clarifications
 - Manufacturing Planning/Traveler Content
 - Qualification Testing and Requirements
 - Lot Acceptance Testing Plan
 - Final Acceptance Testing Plan
 - Sample Transmittal Data Package/Certifications and Reports
- IV. Material Status**
 - Traceability System
 - Shortages/Delivery Schedules
 - Stock Material Levels/CFM
 - Packaging and Handling
 - Part Marking Requirements
- V. Quality Plans**
 - First Article Inspection Plan
 - Manufacturing Inspection Planning
 - Incorporation of Customer Mandatory Inspection Points
 - Product Acceptance/Workmanship Criteria
 - Destructive Physical Analysis
 - Failure Analysis Plan and Support
- VI. Problem Resolution**
 - Review of Related Nonconformances and Corrective Actions
 - Review of Corrective Action System
 - Nonconformance Containment Measures
- VII. Production Schedule**
 - Production Capacity and Constraints
 - Gantt Charts or Other Scheduling Plans
 - Estimating, Planning, and Shop Loading
 - Production Tooling Capacity
 - Special Tools and Equipment
- VIII. Facility Tour**
 - Staging Areas and Work Cells
 - Cleanliness and FOD Controls
 - Equipment Maintenance and Calibration
- IX. Wrap-Up**
 - Recap action items list
 - Record actionees and estimated completion dates

