

LIGHTING SYSTEMS	
PROCUREMENT QUALITY REQUIREMENTS	
Quality Assurance Requirement Codes	
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APPLICABILITY: The quality assurance requirements are applicable to UTC (Goodrich) purchase orders when incorporated by reference to the applicable clause or clauses by code numbers in such purchase orders. Acceptance of the articles or material specified on this order will be withheld pending receipt of all required data and documentation.

RESPONSIBILITY FOR CONFORMANCE: Neither surveillance, inspection, and/or tests made by Buyer, or his representatives of the Government at either Suppliers or Buyer's facility, nor Suppliers compliance with all applicable Quality Assurance requirements, shall relieve Supplier of the responsibility to furnish items which conform to the requirements of the Procurement Documents.

SIGNIFICANCE: These requirements shall be in addition to and not in derogation of other purchase order requirements.

REFERENCED MILITARY DOCUMENTS: Unless specifically stated, all military specifications and standards referenced herein shall be the issue in effect on the date of quotation for this order, unless prior written approval had been granted by UTC(Goodrich).

CODE DESCRIPTION

- 101 QUALITY SYSTEM Supplier shall provide and maintain their quality management system which complies according to AS9100 or ISO9001 or equivalent international standard, UTC(Goodrich) requirement & other regulatory requirements. The Quality program shall be in accordance with the most current revisions. A change in supplier name or ownership could subject the supplier's Quality System to be reevaluated by UTC(Goodrich). A change in manufacturing process (es), location of facility shall be cause for reevaluation of the suppliers Quality System. The supplier shall notify their buyer of any of these aforementioned changes in writing. The buyer will notify UTC(Goodrich) Quality of the changes with the latest relevant documents, so appropriate actions can be taken.
Supplier does not have (Material Review Board) MRB authority.
- 102 INSPECTION SYSTEM The inspection system(s) which the supplier is required to maintain shall be in accordance with the most current revision of military specification MIL-I-45208 or ISO 9001. **Supplier does not have (Material Review Board) MRB authority.**
- 103 STANDARD INSPECTION The Government has the right to test all supplies called for by the contract/purchase order, to the extent practicable, at all places and times, including the period of manufacture, and in any event before acceptance. **Supplier does not have (Material Review Board) MRB authority.**
- 104 GROUP I PURCHASE - MIL-STD-1535A This group includes (A) purchases or services that are either complex or have critical application and for which conformance to contract/purchase order requirements cannot or should not, for economical reasons, be fully determined upon receipt, and (B) purchases requiring direct shipment from the supplier to the Government.
- 105 RIGHT OF ENTRY UTC(Goodrich) and UTC(Goodrich) Customer Representatives (Airbus, Boeing,

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Lockheed Martin, Northrop, FAA) reserve the right to conduct on-site Supplier/Subcontractor visits and surveys. Suppliers/Subcontractors denying access to manufacturing facilities or refusing to provide required information or providing false information will not be approved sources of supplies or services to UTC(Goodrich).

- 106 The following COMMERCIAL/EAR DESTINATION CONTROL STATEMENT applies to this order for all items designed for a civilian/commercial application, or technical data related thereto:
“These commodities, software, or technology were exported from the United States in accordance with the export administration regulation. Diversion contrary to U.S. law is prohibited”.
- 107 The following DOMESTIC ITAR DESTINATION CONTROL STATEMENT applies to this order for all items designed or modified for a military application, or technical data related thereto:
“These articles or technical data are controlled by the International Traffic in Arms Regulations (ITAR). They are subject to the export control laws of the U.S. government. They are not to be placed in the public domain, exported from the U.S., or given to any foreign person in the U.S., without the prior, specific written authorization of UTC(Goodrich) and the U.S. Department of State.”
- 110 GOVERNMENT SOURCE INSPECTION Government source inspection may be required at supplier/subcontractor facility prior to shipment. Upon receipt of this order, please furnish a copy of this contract/purchase order to your local DCMA representative. The supplier/subcontractor shipping document must bear a Government source inspection stamp if this requirement is imposed.
- 111 SOURCE INSPECTION Source inspection may be required at supplier/subcontractor facility by UTC(Goodrich) inspection prior to shipment. UTC(Goodrich) QA to be notified at least 48 hrs prior to shipment.
- 113 FIRST ARTICLE INSPECTION Supplier shall submit a First Article Inspection Report (FAIR) per AS9102 to UTC(Goodrich) demonstrating compliance with the requirements of the contract/purchase order and referenced documents. The report shall reflect 100% inspection verification of all drawing characteristics specifying each drawing characteristic and the corresponding actual measurement. This is accomplished by providing a “bubbled” drawing with each characteristic or requirement clearly marked with a unique identifier number which corresponds to the same number listed on the FAIR.

If this is the first time the product has been produced by the supplier it shall include as applicable to the manufacturing process of the product:

- Raw material certification showing actual chemical and physical requirements for the material used.
- Certifications for any processing (i.e., anodizing, chemical conversion coat, heat treat, welding, etc.). These certifications shall be from a UTC(Goodrich) or Customer approved supplier when required by drawing or P.O.
- Certifications for any testing (i.e., voltage, thermal shock, chromaticity, etc.) when required by drawing or P.O.
- Certificate of Compliance (C of C) & FAIR shall reference the UTC(Goodrich) part number and revision level of product being certified.
- C of C shall, or FAIR will reference specifications and callouts when on the drawing (i.e., material specification for gasket material and the durometer reading)
- FAIR shall include all notes on the drawing with a notation of (“noted”) in the remarks section of the FAIR if there are no actual measurement or other data that can be recorded.
- FAIR and C of C shall have signature of responsible person at the supplier.

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- 118 SHIPMENT OF NON-CONFORMING MATERIAL All non-conforming material requires UTC(Goodrich) authorization prior to shipment.
- 120 QUALIFICATION TEST Supplier shall conduct all tests in accordance with UTC(Goodrich) specifications. Functional test data records shall be submitted for all items tested. Copies of calibration certifications for all equipment used for testing shall be submitted with the certified test reports.
- 130 FUNCTIONAL TEST DATA Recorded functional test data will be supplied by the supplier with each lot of material shipped. Submitted data shall be traceable by serial number or other identification to the particular part(s) to which it applies.
- 131 FUNCTIONAL TEST (SUPPLIER) Supplier certifies that functional test requirements will be conducted on each part prior to shipment and that functional test records will be on file subject to examination. Each unit shipped to UTC(Goodrich) shall be legibly rubber stamped near the production identification label with the supplier's functional test identification and the date on which testing was conducted.
- 132 CHEMICAL ANALYSIS & PHYSICAL PROPERTIES Supplier shall furnish certified chemical/physical reports for raw materials supplied or used in the manufacture of articles delivered under this purchase order/contract. The reports shall include actual data for chemical analysis; physical results of testing. Reports must accompany shipment.
- 134 RECORD OF SPECIAL PROCESSING When special processing is required, parts must be processed/controlled in accordance with the current revision (at date of contract/purchase order) of the UTC(Goodrich)/Government specification referenced, unless otherwise specified. The supplier is responsible for all subcontracted supplies/services. The certification automatically attests that all special processing was performed in accordance with the referenced special process document(s) and revision(s). This certification must be submitted with First Article Inspections only. Subsequent processing certifications must be kept on file at the Supplier's facility for a minimum of 10 years unless otherwise directed.
- 135 DIMENSIONING OF PROCESSED PARTS When the drawing indicates special processes will be performed after machining, the dimensions noted indicate finished product dimensioning.
- 136 CERTIFICATE OF COMPLIANCE **C of C required with each shipment.** The certification automatically attests that all material and/or finished parts are controlled and inspected/tested in accordance with specific order requirements and applicable UTC(Goodrich)/Government specifications, that all applicable test equipment and gaging is controlled in accordance with Calibration System Requirements and that material shipped against UTC(Goodrich) purchase orders referencing military contracts is controlled with one of the "FAR" requirements as defined on the purchase order/contract. The certification shall reference the applicable purchase order number and must bear the signature and title of a responsible company representative and revision level of part.
- 137 EXPORT REGULATIONS In order for UTC(Goodrich) to ensure Compliance with all applicable Export Regulations, it is necessary to have detailed information about all parts being provided to UTC(Goodrich) by your company. It is important that you provide UTC(Goodrich) with the Jurisdiction of your product, whether it is controlled under the US Munitions List (USML) in the International Traffic in Arms Regulation (ITAR) by the US Department of State or controlled under the Commerce Control List (CCL) in the Export Administration Regulations (EAR) by the US Department of Commerce. Once the jurisdiction is determined, please provide the USML category for the ITAR controlled commodities or the Export Control Classification Number (ECCN) for EAR Controlled commodities. **In addition, the name of the**

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- manufacturer and the country of origin MUST be identified.** For Technical Data related to a CCL or USML controlled commodity, please provide the ECCN or USML category for the associated technical data. This information may be included on the Supplier Certificate of Compliance or on a separate document , but **MUST** include: Part or item number, part or item description, USML or ECCN number, Manufacturer name and country of origin and **MUST** bear the signature and title of the responsible company representative making the determination.
- 138 RETENTION OF RECORDS Copies of records initiated and indicating the results of manufacturing processes, tests, inspection results, audits and certifications received from sub tier suppliers must be legible, identified, collected, protected, easily retrievable, stored and retained for ten (10) years at Supplier's facility or off site storage provided the records are easily accessible.
- 142 PART NUMBER/PROCESS/DESIGN CHANGES Supplier shall notify the buyer of any proposed change in design, fabrication method, or process, and obtain approval from UTC(Goodrich) **before** making the change. Appropriate identification of those articles on which the change is incorporated shall be required. The supplier shall request, in writing, UTC(Goodrich) approval of any change in part number of nomenclature that differs from contract/purchase order information prior to shipment.
- 143 SOLDERING REQUIREMENTS All printed circuit board assemblies shall be manufactured in accordance with the latest IPC-A-610 Class 3 and ANSI/J-STD-001. In situations where IPC-A-610 and ANSI/J-STD-001 conflict, the J Standard shall take precedence.
- 150 SHELF LIFE / SHELF LIFE CURE DATE Cure date must be shown on the certification of compliance or on the shipping document. In no case shall material or articles be supplied to UTC(Goodrich) with less than 70% of the useful life remaining.
- 151 HAZARDOUS MATERIALS Supplier shall mark all containers with appropriate precautions, warnings, instructions, and storage conditions. MSDS documents must accompany each shipment.
- 152 PART IDENTIFICATION All materials shall be identified by part number, permanently and legibly affixed to the surface of each article. If the size of the material prohibits marking, an identification tag will be affixed to the container.
- 160 PACKAGING Supplier shall incorporate good practices for preservation and packaging of all articles submitted under the contract/purchase order and shall identify each package permanently and legibly with the purchase order number, date shipped, and packing slip number. Components with fragile leads and items susceptible to breakage; i.e., glass lens, flashtubes shall be packaged in individual compartments to prevent intermingling and damage.
- 161 ESDS PACKAGING All ESDS sensitive components supplied to UTC(Goodrich) on this contract/purchase order shall be identified as being ESD sensitive and shall be handled and packaged in such a manner to preclude damage due to static discharge. All packages shall be identified with suitable precautionary labels.
- 167 CALIBRATION Supplier shall provide certification that calibration is traceable to NIST. Actual test reports supporting verification shall be provided with the item.
- 170 PACKAGING OF SOLDERABLE COMPONENTS Packaging of solder able components shall be consistent with good commercial packaging; however, heat sealing or plastic bags and paper products containing sulphur or desiccators shall not be utilized.

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- 180 STATISTICAL PROCESS CONTROL DATA If drawing indicates dimensional characteristics as “KEY” the Supplier shall collect measurements and maintain control charts for UTC(Goodrich) identified key characteristics. Supplier to submit control charts with each lot of material supplied. Each control chart for the key characteristic tracked must be a continuation from the previous chart submitted.
- 186 100% INSPECTION REQUIRED The supplier shall perform 100% inspection for compliance of each characteristic of all parts delivered against this contract/purchase order.
- 187 BOEING/UTC(GOODRICH) END USE ITEM Parts delivered against this contract/purchase order are for Boeing/UTC(Goodrich) end use. Parts must be in accordance with D590 requirements. All testing required by D590 must be completed per requirements. Results of D590 testing must accompany shipment.
- 188 ORIGINAL PART MANUFACTURER Supplier must identify the original part manufacturer of the part being supplied, the manufacturer’s part number, lot number and serial number if applicable.
- 189 APPROVED SOURCES Work to be accomplished in performance of this contract/purchase order is directly related to a **Lockheed Martin Corporation** contract/purchase order and must be accomplished in accordance with process specification stated/requested on contract/purchase order and the requirements of **QCS-001**.
- 190 FOD DAMAGE/PREVENTION Supplier shall maintain a FOD control program. Supplier’s FOD prevention program shall include the review of manufacturing processes to prevent introduction of foreign objects into any item delivered under this purchase order (“PO”). Supplier shall assure work is accomplished in a manner preventing foreign objects or material from entering and remaining in deliverable items. Supplier’s maintenance of the work area and control of tools, parts and material shall preclude the risk of FOD incidents. Supplier shall document and investigate all FOD incidents assuring elimination of the root cause. Buyer shall have the right to perform inspections, verification and FOD Prevention Program audits at supplier’s facility to assure program documentation and effectiveness. Supplier shall provide a statement of certification that deliverable products are free of any foreign materials that could result in foreign object damage to the installed product or companion components/systems.
- 191 DELTA FIRST ARTICLE INSPECTION If the FAIR is for a revision change of product that has previously been purchased from the supplier, an FAIR is required for only the characteristics that were changed. AS9102 forms must be used and a bubbled drawing for the revised characteristic must be included.
- 192 COTS/INDUSTRY STANDARD FIRST ARTICLE INSPECTION Supplier shall submit documentation to UTC(Goodrich) demonstrating compliance with the requirements of the contract/purchase order and referenced documents. This requires a complete Certificate of Conformance from the manufacturer incorporating all specifications and processes listed on the drawing, special processes (i.e., plating, welding, Non Destructive Testing, painting) shall be performed only by Customer approved suppliers when required, and raw material certifications where applicable.
- 193 COUNTRY OF ORIGIN MARKING REQUIRED Final Assembly - Every article of foreign origin imported into the United States **and** its container shall be marked in a conspicuous location as legibly,

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indelibly, and permanently as the nature of the article and container will permit.

Piece parts – The container for individual piece parts of the same part number shall be marked with the country of origin in a conspicuous location as legibly, indelibly, and permanently as the intermediate and outer container will permit.

- 194 DFARS clause 252.225-7014, Preference for Domestic Specialty Metals (ALT I) Where DFARS clause 252.225-7014 (ALT I) is applicable, UTC(Goodrich) must ensure that any “specialty metals” (regardless of value) incorporated into products sold to the DoD (either directly or through higher-tier contractors) were acquired from within the United States or from one of the “qualifying countries.” “Specialty metals” 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, columbium, molybdenum, nickel, titanium, tungsten, or vanadium; (ii) Metal alloys consisting of nickel, iron-nickel, and cobalt base alloys containing a total of other alloying metals (except iron) in excess of 10 percent; (iii) Titanium and titanium alloys; or (iv) Zirconium and zirconium base alloys.
- 195 APPROVED SOURCES Work to be accomplished in performance of this contract/purchase order is directly related to a **Boeing Corporation** contract/purchase order and must be accomplished in accordance with process specification stated/requested on contract/purchase order and the requirements of **D1-4426**. Go to http://www.boeing.com/companyoffices/doingbiz/index_quality.html to find the approved process sources.
- 196 NADCAP APPROVED SOURCES: All special Process such as; Heat Treat (HT), Non-Destructive Testing (NDT), Chemical Processing (CP), Welding (WELD), Coating (CT), Material testing Lab (MTL), etc... must be performed by a NADCAP approved source. Ref. [http://www.UTC\(Goodrich\)-lighting.com/quality/procurement.asp](http://www.UTC(Goodrich)-lighting.com/quality/procurement.asp) SQAR Section 4 for detail. Supplier is responsible for flowing down requirements to their sub-tiers as applicable.
- 200 **DELEGATED SOURCE INSPECTION:** Identified supplier Representatives would be trained on the source inspection & then personal stamp & acceptance stamps would be issued. These stamps are not transferable & to be used by the trained personal only. LS has authority to withdraw the same. The delegated source qualification process is based on the criteria list.

Criteria for Delegating source	Target
AS9100 certification	Yes
No of Approved parts	4
Annual Business	> 100000 INR

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Supplier quality rating	> 90 %
Supplier delivery rating	> 90 %

201 TRACEABILITY: Supplier shall maintain the complete traceability from the raw material to the finished part of the products shipped to LS till the end of retention period as agreed upon

202 SUPPLIER PERFORMANCE: Suppliers with Quality & delivery performance less than 90 % consecutively for three months would be screened by LS and Corrective & Preventive Action Plan would be initiated with those suppliers whose delivery performances as not meeting expectation within lead time agreed upon.

203 NONCONFORMING HARDWARE: All items rejected by LS and subsequently resubmitted by the Supplier shall have indication of those items returned on the C of C. Reference shall be made to the Non-Conforming Material (NCM) report number and objective evidence provided that the reworked characteristics have been 100% inspected. Supplier shall notify LS Procurement if they know or suspect they may have delivered nonconforming goods.

204 PART INSPECTION: The supplier is responsible for verifying compliance to all requirements specified on the purchase order, Drawings, LS requirements. LS reserves the right to inspect all parts delivered under the purchase order, Drawings, LS requirements. Evidence of any non-compliance shall be cause for rejection of the entire lot. Any lot so rejected, may be returned to the Supplier at their expense for re-inspection, reprocessing or replacement as directed by LS Procurement. Supplier will address any Supplier Corrective Action Request (SCAR) if requested should any product submitted be found to be non-conforming or lacking certification.

205 ORDER OF PRECEDENCE:

The order of precedence for documents is as follows:

1. LS purchase orders and attachments
2. LS Drawings/Specifications
3. Customer Specifications
4. Military Specifications

206 MODIFIED LS FURNISHED MATERIAL:

When parts supplied by LS are processed to a new configuration, the supplier will furnish documents cross-referencing the former part number, lot number(s) and serial number(s), (when applicable) with those of the new configuration.

207 ZGLS (QA-GLS QUALITY REQUIREMENTS):

The following documents are to be enclosed along with the supply:

1. COC as per the LS requirement (Refer UTAS Lighting website).
2. Test or Dimensional inspection report as per the drawing.
3. Material test report for the raw material as & when the validation is carried out.

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4. Full / Partial FAI report to be submitted as per the AS 9102. Requirements wherever applicable.

ADDITIONAL REQUIREMENTS:

1. PCBs and Electronic parts => ESD and ROHS requirements as Applicable.
2. Plastic and metallic parts => ROHS Requirements as applicable.
3. Glue, Paints and hazardous material => MSDS Instructions are applicable.
Parts to be shipped with MSDS and minimum remaining shelf life should be at least 70%.
4. Lens and painted parts (Fragile material) => Lighting Systems Packing instructions are applicable.
5. Special Processes => NADCAP Requirements are applicable.
6. Quality Assurance Requirement Codes => as applicable as per Lighting Requirement (Refer UTAS Lighting website).
7. Packing Requirements => Applicable as per Lighting Requirement (Refer UTAS Lighting website).

208 AEROSPACE SUPPLIER QUALITY REQUIREMENTS as per ASQR-01

Suppliers and all members of their supply chain that provide Member product shall be Compliant to all applicable Quality Management System and ASQR-01 requirements.

This specification defines supplier quality requirements as agreed upon by the following Business entities herein referred to as "Member". This specification applies to OEM aerospace suppliers and their subcontractors who furnish product, material, processes, or services (as a manufacturer or maintenance provider) to any of the above members as a contract requirement regardless of supplier's industry, regulatory accreditation, or certification status. Members reserve the right to flow down additional requirements to satisfy specific customer and / or business requirements that will apply only to the Member. Each Member has the individual right to disapprove a supplier's Quality System as well as the Quality System of their subcontractors. This document employs, as a foundation, SAE Aerospace Standard (AS) 9100 requirements and is supplemented by Member requirements as defined herein. In an effort to standardize the use and application of the common quality system requirements, the SAE AS 9100 paragraph numbering scheme has been used. Each member, their representatives, and their customer's government/regulatory agencies shall have the right of entry into a supplier's facility or that of their subcontractors. Entry shall provide for access to quality system documentation, quality records as well as the ability to conduct audits, verify product and processes.

For details please refer ASQR-01 in the Supplier portal details in the UTC website.

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