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Defense Systems Supplier Quality Assurance Requirements (Q-Clauses)

Q1-4-04-DSF

Director, Supplier Quality and Mission Assurance

Revision/Change Record

Revision	Date	Revision/Change Description	Sections Affected
00	1/1/2021	Initial Release	All
01	6/24/2021	<p>Miscellaneous redlines throughout.</p> <p>SQ01: Added guidance; added L.5; added to M.1; updated M.3; added website links to R; added guidance to T and corrected OASIS website reference.</p> <p>SQ05: Added C.</p> <p>SQ06: Added C.</p> <p>SQ12: Updated guidance.</p> <p>SQ17: Updated title.</p> <p>SQ20: Updated guidance; added D.5, E, F, G, H.</p> <p>SQ22: Updated guidance.</p> <p>SQ23: Updated B.</p> <p>SQ24: Updated A.</p> <p>Added SQ31.</p> <p>SQ34: Updated A.</p> <p>Added SQ40.</p> <p>SQ42: Updated guidance.</p> <p>SQ43: Updated B.1, B.1.a, D, and various redlines.</p> <p>Added SQ45.</p>	<p>1.0, 2.0, 3.0, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, SQ01, SQ02, SQ04, SQ05, SQ06, SQ08, SQ09, SQ11, SQ12, SQ13, SQ14, SQ17, SQ18, SQ19, SQ20, SQ22, SQ23, SQ24, SQ25, SQ27, SQ30, SQ31, SQ34, SQ35, SQ36, SQ37, SQ39, SQ40, SQ41, SQ42, SQ43, SQ44, SQ45, 4.0</p>

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1.0 Purpose

This document establishes the procurement quality requirements (Q-Clauses) that **shall** be incorporated into the Procurement Document, and which **shall** govern performance of the Seller issued Procurement Document. The elements of this **document supplement** those requirements levied by Northrop Grumman Defense Systems (NGDS) Global Supply Chain (GSC) within the Terms and Conditions (**Ts&Cs**).

2.0 Definitions

- A. Buyer: NGDS **GSC** Buyer or Subcontract Administrator **who** has been issued delegation of procurement authority to make commitments for the procurement of material and services. **Throughout this document, the term 'Buyer' is interchangeable with the term 'Subcontract Administrator'.**
- B. Seller (**also known as Supplier, Subcontractor, Vendor**): The legal entity that is providing products and/or services and has entered into a contractual relationship for providing products and/or services to NGDS through a Procurement Document.
- C. Procurement Document: The Purchase Order (**PO**) or Subcontract between the Buyer and Seller.
- D. Item: The product or service as specified in the Procurement Document.
- E. Rework: A documented and approved process that brings nonconforming item back into conformance with defined specifications, standards, or requirements.
- F. Repair: An operation performed to fix and return a nonconforming product to a condition that meets form, fit, and function but not into full compliance with the original requirements.
- G. Latent Defect: A flaw or other imperfection in an item that does not become evident or active until the item is used.
- H. Commercial Item: Any item, other than real property, that is of a type customarily used by the general public or by non-governmental entities for purposes other than governmental purposes, and has been sold, leased, or licensed to the general public; or, has been offered for sale, lease, or license to the general public.
- I. Commercial Off the Shelf (COTS) Item: Any item of supply (including construction material) that is a commercial item (as defined in the paragraph above) existing in substantial quantities in the commercial marketplace, and that is offered for sale for governmental purposes without modification and under the same requirements, specifications, **Ts&Cs**, and standards in which it is sold in the commercial marketplace. This excludes bulk cargo, as defined in 46 U.S.C. 40102(4), such as agricultural products and petroleum products.
- J. Independent Distributors of Electronics Association (IDEA): A non-profit trade association representing Independent Distributors that have formally committed to adhere to prescribed quality and ethical standards. The stated purpose of IDEA is to promote the independent distribution industry through media advocacy; to improve

the quality of products and services through a quality certification program, educational seminars, and conferences; and to promote the study, development, and implementation of techniques and methods to improve the business of Independent Distributors.

- K. Government-Industry Data Exchange Program (GIDEP): A cooperative activity between the U.S. Government, the Canadian Government, and Industry participants seeking to reduce or eliminate expenditures of resources by sharing technical information essential during research, design, development, production, and operational phases of the life cycle of systems, facilities, and equipment.

3.0 Standard Quality Requirements

This section applies to all procurements. Individual **Supplier Quality Assurance Requirements (SQAR)** or Q-Clauses are assigned as necessary and are in addition to the requirements of this section. Unless otherwise noted, SQ01, *General Quality Assurance Requirements*, **shall** be applicable for all procurements.

3.1 Supplier's Responsibility for Conformance

Northrop Grumman and its customers expect our suppliers to deliver material that is 100% compliant with all Procurement Document Requirements. If a Supplier has any changes to drawings, or specifications noted on the drawing, processing, materials, or contractual requirements of the Procurement Document, a Request for Change/Information (RC/I), Form PO-F030, **shall** be initiated by the Supplier to request assistance. The RC/I process and its requirements are documented in SQ01-T. **If SQ31, *Supplier Information Request (SIR)*, is required, follow SQ31 instead of SQ01-T. A RC/I or SIR is required for each part number / Procurement Document for which the Supplier is requesting additional information.**

3.2 Specialty Metals

NGDS requires products containing specialty metals to be compliant with **Defense Federal Acquisition Regulation Supplement (DFARS) 252.225-7009, *Restriction on Acquisition of Certain Articles Containing Specialty Metals***. SQ44, ***DFARS 252.225-7009 Specialty Metals***, **shall** be applicable for all products containing specialty metals.

3.3 Counterfeit Prevention

The requirements of SQ43, ***Counterfeit Prevention***, **shall** be met by all suppliers of Hardware; Electrical, Electronic, and Electromechanical (EEE) Parts; Components; Assemblies; and Systems. **If required, SQ40, *Counterfeit Prevention for Non-EEE Part Suppliers and Distributors*, shall be met by all suppliers of non-electrical parts.** The requirements of SQ09, ***Requirements for Distributors***, **shall** be met by all suppliers of non-electrical parts, including, but not limited to: fasteners, nuts, washers, springs, o-rings, inserts, and pins.

3.4 Exception to Rejections

In the event a supplier does not accept the responsibility for a discrepant condition, the Supplier **shall** initiate a letter of exception to their buyer. The letter **shall** make full reference to applicable documents and be specific in defining the area of exception.

3.5 Supplier Sub-tier Control

Supplier **shall** ensure the following:

- All items procured from its subcontractors conform to all requirements of the Northrop Grumman **Procurement Document**.
- All provisions of this document that have been incorporated into the Procurement Document are flowed to its subcontractors, including copies of the latest revision process specifications.
- For Special Processes Procurement Documents, “Northrop Grumman Defense Systems” is cited as the customer, and the Program identification (such as B-2) and latest process specification revisions are included in the Procurement Document.

3.6 Shared Suppliers

NGDS accepts other Northrop Grumman Delegated Source / Supplier Self Inspection programs for shared suppliers. Northrop Grumman and its customers retain the right to impose inspection requirements independent of the supplier’s Delegated Source authority.

NOTE: Delegated Suppliers are not exempt from audits and on-site verification of corrective action. Material currently undergoing corrective action investigation processing up to and including verification of corrective action **shall** not be shipped without the authorization of Northrop Grumman Supplier **Quality or Mission** Assurance.

SQ01 General Quality Assurance Requirements

Guidance: A through T **shall** apply when SQ01 is required. T will not apply when SQ31 is required. Other exclusions will be noted in the Automated Quality Requirements Planning System (AQRPS) Project Table or on the Procurement Document.

NOTE: Combat Systems and Mission Readiness (CSMR) Division must use SQ31 instead of SQ01-T.

A. PROHIBITED PRACTICES

1. Unauthorized Repairs: Seller **shall** not repair any damaged item, or any item found to be faulty during manufacturing or that fails to meet Buyer specification/drawing requirements, without Buyer's written approval, except when the nonconformance is minor and Material Review Board (MRB) authorization has been granted by Northrop Grumman. Seller is not authorized to perform MRB activities on nonconforming materials without Buyer authorization
2. Change in Approval, Drawing, Processes, Materials, or Procedures: Seller **shall** not change any drawing, process, material (including sub-tier supplier parts), or procedure without Buyer's **prior** written approval, if such drawing, process, material, or procedure was used to qualify items or which was used by Seller to become a qualified source.

NOTE: The following sub-articles do not apply to a Supplier that has design authority over their own products.

3. Seller **shall** notify Buyer of item latent defects found by Seller or sub-tier suppliers.
4. Re-submittal of Rejected Items: Any item rejected by Buyer and subsequently resubmitted to Buyer **shall** be clearly identified as a resubmitted item, indicating the Procurement Document number and Buyer's reject document number in Seller's Certificate of Conformance (CoC).
5. Notification of Facility Change: Seller **shall** not use any production, manufacturing, and/or processing facilities that differ from facilities previously approved by Buyer without first notifying Buyer and affording Buyer an opportunity to examine and approve such facilities for compliance with procurement quality requirements. Seller **shall** not relocate any production, manufacturing, and/or processing facilities previously approved by Buyer without first notifying Buyer and affording Buyer an opportunity to examine and approve such facilities for compliance with procurement quality requirements.
6. Changing of Test Facility: If a specific test facility was previously approved by Buyer as provided for in the Procurement Document, the Seller **shall** not change a test facility or use another test facility to meet specification/drawing requirements without Buyer's **prior** written approval.

7. Change in Quality Management System (QMS) status: Seller **shall** not make a significant change in QMS certification status without **first** notifying the Buyer. **This includes, but is not limited to**, approval of QMS to ISO 9001, AS9100, AS9110, AS9120, or **Federal Aviation Administration (FAA)** Repair Station requirements; major findings that jeopardize supplier's certification status; loss of certification; or supplier's willful decision to opt out of QMS certification to one of the standards noted above.
8. Change of Management/Owner: Seller **shall** notify Buyer when a significant change in management or ownership has occurred.

B. RESPONSIBILITY FOR CONFORMANCE

The Supplier **shall**, at minimum, conform to all Procurement Document, flow down, audit, and quality requirements.

1. Neither surveillance, inspection, and/or test made by Buyer or its representatives or U.S. Government representatives at either Seller's or Buyer's facility, or Seller's compliance with all applicable procurement quality requirements, **shall** relieve Seller of the responsibility to furnish an item that conforms to the requirements of the Procurement Document.
2. Seller **shall** control sub-tier supplier procurements to the extent necessary to ensure quality requirements specified in the Procurement Document are satisfied.
3. Seller **shall** ensure all applicable provisions of this document are flowed to its subcontractors including copies of the latest revision process specifications.
4. Seller **shall** notify Buyer of any proposed change in design, fabrication method, or process, and obtain approval from Buyer before making the change.
 - a. Articles, which have incorporated approved changes, **shall** be appropriately identified.
5. Seller **shall** notify Buyer of item latent defects found by Seller or sub-tier suppliers.
6. When required, Quality requirements **shall**, at minimum, include the following:
 - a. Sub-tier supplier pre-award survey/evaluations
 - b. Periodic auditing of supplier
 - c. Implementing a sub-tier supplier rating system
 - d. Ensuring adequate review of Procurement Documentation prior to procurements
 - e. Controlling procurement of critical items for Seller's product
 - f. Inspection of procured items to documented procedures
 - g. Control of nonconforming material, including corrective action
7. Product nonconformances **shall** be documented in accordance with **(IAW)** paragraph SQ01-H, Nonconforming Materials.

C. BUYER SURVEY, SURVEILLANCE, AUDITS AND INSPECTION

1. Buyer or Buyer's representative, as well as their customers and regulatory authorities **shall** have the right of access to conduct surveys, audits, and surveillance of Seller facilities involved in the Procurement Document and applicable records, and those of Seller's sub-tier suppliers with prior coordination with Seller. The surveys and audits will determine capability to comply **with**, and verify continuing compliance with, the requirements of the Procurement Document and applicable state or federal regulations.
2. Buyer or Buyer's representative **shall** have the right to perform an inspection at Seller's facilities and those of Seller's sub-tier supplier with prior coordination with Seller, during the period of manufacturing and inspection prior to shipment.
3. Final inspection and acceptance **shall** be performed at the Buyer's facility, unless otherwise specified in the Procurement Document.

D. FAILURE REPORTING

When an electronic item is returned to a seller for troubleshooting and/or repair, the Seller **shall** provide a document that outlines what actions were taken to return the item to a serviceable condition; minimum information requirements **shall** include the following:

1. Procurement Document number
2. Part number
3. Discrepancy from customer
4. Fault found
5. Actions taken to repair discrepancy
6. Test procedure used to verify fault has been eliminated
7. A Teardown and Failure Analysis Report must be provided at the completion of evaluation and be physically sent along with the unit.
8. Failure Reports **shall** be signed by Seller's duly authorized representative.
9. Certificate of Compliance, or FAA form 8130, indicating the electronic assembly was reworked or repaired **IAW** applicable **Original Equipment Manufacturer (OEM)** requirement(s).
10. The electronic assembly **shall** be packaged in a manner to prevent Electrostatic Discharge (ESD) and physical damage to the electronic assembly during handling and shipping.

E. SUPPLIER CORRECTIVE ACTION REQUEST

1. When a quality problem exists with Seller's items, Seller **shall** respond to and complete a Supplier Corrective Action Request (**SCAR**).

2. Responses to **SCARs** **shall** be timely and **shall** include the following information:
 - a. Root cause of the deficiency
 - b. Action taken to correct the specific deficiency
 - c. Action taken to determine if other products are affected
 - d. Effectivity date for implementation of identified corrective actions
 - e. Verification that the corrective actions are effective

F. U.S. GOVERNMENT SOURCE INSPECTION

For procurements made under U.S. Government contracts, the U.S. Government **shall** have the right to inspect any and all of the work contracted through the Procurement Document, at Seller's facilities, or at sub-tier supplier's facilities. Seller quality control or inspection system and manufacturing processes are subject to review, verification, and analysis by authorized U.S. Government representatives.

G. MEASURING AND TEST EQUIPMENT

1. When measuring and testing an item, the Seller **shall** be responsible for validating the accuracy and stability of tools, **gauges**, and test equipment used to demonstrate that an item conforms to the requirements specified in the Procurement Document.
2. Documented schedules **shall** be maintained for periodic calibration of measurement and test equipment to adequate standards.
3. Objective evidence of calibrations **shall** be recorded and made available for Buyer's review.

H. NONCONFORMING MATERIALS

Nonconforming material must be identified and documented, segregated or bonded, pending disposition when found, to prevent its unintended release or use, and evaluated to determine the actions necessary to contain its effect on other processes or products.

1. Seller **shall** provide and maintain a corrective action and disposition program for nonconforming materials.
2. Seller **shall** provide for control, segregation, and identification of nonconforming materials detected at Seller's facilities.
3. Seller **shall** not have MRB disposition authority without Buyer's written authorization.
4. No Repair **shall** be allowed outside of the specific specification limits unless **Seller obtains Buyer's** prior written approval.
5. No Rework **shall** be allowed unless prior written approval is obtained by Seller from Buyer.

I. INSPECTION RECORDS

1. Seller **shall** maintain records of all inspections and tests performed on any item delivered to the Buyer's facility, or drop shipped to another location as directed by the Procurement Document.
2. Records **shall** identify any nonconformance and **shall** be made available for Buyer's review.
3. Seller and subcontractors **shall** ensure records are available for review by Customers and Regulatory Authorities **IAW** contract or regulatory requirements.

J. SAMPLE INSPECTION

1. Seller, prior to implementation of a sampling plan, **shall** provide a copy of said plan to the Buyer. Buyer reserves the right to reject any plan **that** does not conform to the quality requirements of the program.
2. Seller **may** use sample inspection plans, when tests are destructive, or when the records or inherent characteristics of the product indicate that a reduction in inspection/testing **is achievable** without jeopardizing product quality.
3. Sample inspection **shall** be **IAW** the applicable Buyer specification. When not specified by Buyer, military standard sampling plans **shall be used, such as:**
 - **American National Standards Institute (ANSI) / American Society for Quality (ASQ) Z1.4-11, *Sampling Procedures and Tables for Inspection by Attributes*;**
 - **MIL-STD-414, *Sampling Procedures and Tables for Inspection by Variables for Percent Defective*;**
 - **ISO 2859, *Sampling Procedures for Inspection by Attributes*.**
4. All sample inspection plans **shall** provide valid confidence in specified quality levels.

K. IDENTIFICATION

1. All materials **shall** be identified by a part number and revision, permanently and legibly affixed directly to the surface of each article.
2. In the event this is not possible due to physical size or nature of material, an identification tag **shall** be securely affixed to each article.
3. If articles are supplied in individual or multi-unit containers, the container **shall** reveal the appropriate identification.

Examples of traceable information may include, but are not limited to:

- Date of Manufacture
- Serial Number
- Lot Number
- Control Number
- Heat Lot Number
- Final Inspection Date

- Batch Number
- Casting Number
- Work Order Number

L. PACKAGING, PRESERVATION, AND STORAGE

1. Seller **shall** incorporate good commercial practices for preservation and packaging of all articles that apply to this Procurement Document.
2. Seller **shall** identify each package permanently and legibly with Procurement Document number, manufacturer's name, date shipped, and packing sheet number.
3. Packaging **shall** be selected, to the extent necessary, to provide protection from physical and environmental damage during shipping and handling.
 - a. Cushioning materials **shall** be applied, as required, to protect and to restrict movement of items.
4. All volatile, toxic, or **fume-emitting materials**, which are harmful to human health, **shall** be properly contained **IAW** applicable health and safety requirements. Seller **shall** take appropriate measures to prevent handling damage, from preparation for shipment through receipt (i.e., palletizing, shrink wrapping, or otherwise securing materials for shipment to prevent degradation during transit).
 - a. Containers **shall** be **clearly** marked as to its contents with appropriate warnings, precautions, instructions, and storage conditions.
 - b. Material Safety Data Sheet (MSDS) **shall** be included with each shipment.
5. **Dies packaged in a plastic (not ceramic) package that are not on a printed circuit board assembly shall comply with JEDEC-STD-033, Standard for Handling Packaging, Shipping, and Use of Moisture/Reflow Sensitive Surface-Mount Devices.**

M. STORAGE AND SHELF LIFE

1. Seller **shall** identify materials and articles having definite characteristics of quality degradation or drift with age and/or the environment. **Where shelf life is either a specified requirement or is needed to ensure end-of-life performance, the Seller shall affix appropriate label identifying the shelf life expiration date to supplied materials.**
 - a) Identification **shall** indicate the date and/or cycle that the critical life was initiated and the date and/or cycle at which the useful life will be expended.
 - b) If environment is a factor in determining useful life, identification **shall** also include the storage temperature, humidity, etc., required to achieve the stated useful life.

2. Seller **shall** provide a copy of the manufacturer's **CoC** that defines the shelf life characteristics of any material that fits into this category. Identification **shall** include the following information **at** a minimum:
 - a) Date of manufacturer
 - b) Batch and/or lot numbers
 - c) Date of expiration
 - d) Procurement Document number
 - e) Any special storage conditions for the material

If a material has no identified shelf life, the certificate **shall** note this condition. Seller's certificate should be traceable to the place of procurement or manufacturer. A manufacturer's certificate that is traceable to the material provided is acceptable.

3. **Materials or articles with less than 75% useful life or cycles remaining shall not be supplied to the Buyer**; however, Seller **shall** verify that sufficient operating life and environmental margin remains to meet the specified requirements of the Procurement Document.
4. If Buyer so chooses, they may accept material with less than **75%** of the shelf life remaining due to critical need; Buyer will document this action on the Procurement Document directing the Seller to ship the material.

N. SELLER'S BASIC **CoC**

1. A **CoC shall** be provided with each shipment with the following information at a minimum:
 - a. Procurement Document and Line Item Number
 - b. Identifying nomenclature such as Item Name, Part Number, Revision, Serial Numbers
 - c. Quantity shipped
 - d. Conformance Clause: "The items furnished per Buyer's Procurement Document have been manufactured, tested, and inspected in accordance with the requirements of the applicable specifications/drawings and the results of such tests and inspections meet the requirements thereof." (or equivalent wording)
 - e. The Seller's duly authorized representative **shall sign the CoC**.
2. The Seller **shall** provide their standard CoC to certify that the articles delivered under this Procurement Document conform to the applicable requirements of Buyer's or Manufacturer's specifications for the article ordered.

O. CERTIFICATE OF GOVERNMENT APPROVED QUALIFIED PARTS LIST (QPL) ITEMS

When the items supplied are required to be QPL/Qualified Manufacturers Line (QML) parts, the following **shall** apply:

1. Seller **shall** submit a certification identifying that the manufacturer of the material described herein has been granted qualification by the Defense Supply Agency (DSA) **IAW** the applicable military specification.
2. The inclusion of products from the QPL **shall** not relieve the manufacturer of their responsibility for providing items, which meet all specification requirements, or for performing the qualification, inspections, and tests specified for such items.

P. CONTROL OF PROCESSES

1. Seller **shall** monitor processes to ensure supplier services and/or products meet contractual requirements
2. Seller **shall** take corrective action when process measures indicate that products or services could potentially fall outside of acceptable, contractual limits.

Q. DISCLOSURES AND NOTIFICATIONS

1. The Seller's system **shall** provide for timely reporting to the Buyer of nonconformities that may affect already delivered product, including suspect/counterfeit parts, materials, and conditions under which product malfunctions, defects, and un-airworthy conditions have to be reported and dispositioned, or any continuing airworthiness actions.
2. Seller **shall** ensure that their **QMS** has the capability to report nonconformance(s) on Critical Safety Items (CSI) in full compliance with DFARS 252.246-7003.

R. CANCELLED OR SUPERSEDED SPECIFICATIONS

1. Cancelled or superseded military specifications that are called out on legacy Northrop Grumman engineering drawings and drawings with Northrop Grumman acquired design cognizance **shall** be certified to the latest or superseding specifications, provided there is a clear linkage via **the Department of Defense Index of Specifications and Standards (DODISS) or the Information Handling Services (IHS) website.**

NOTE: Suppliers are cautioned to verify the "Cancellation Notice" is still in **effect** because certain cancelled military specifications have been reinstated in recent years.

- a. Processing **shall** be continued to the cancelled specification when the "Cancellation Notice" does not provide a clear direction for a superseding specification or as directed by the cognizant **Manufacturing and Production (M&P) Engineering.**

NOTE:

Military standards website: <https://quicksearch.dla.mil/qsSearch.aspx>

IHS website: <https://global.ihs.com>

S. CONTAMINATION/FOREIGN OBJECT DEBRIS (FOD)

1. Supplier **shall** ensure that the work environment needed to achieve conformity of product and service requirements includes the elimination of contamination or foreign objects being introduced during any manufacturing, testing, or packaging activities. This requirement is applicable to the extent of the Supplier's business activities.

NOTE: Good housekeeping practices should identify and preclude any foreign object or contamination being introduced during processing a shipment to **Northrop Grumman**, or directed customer.

T. REQUEST FOR CHANGE/INFORMATION (RC/I)

Guidance: If SQ31 is required, then SQ01-T is not applicable.

NOTE: CSMR Division must use SQ31.

1. Seller **shall** utilize the RC/I process to request clarification or change of a drawing / specification requirement.
2. Access to this form **shall** be requested by Seller.

NOTE: The **RC/I Form P0-F030** and the Help Desk contact list are available on the On-line Automated Supplier Information System (OASIS) [at https://www2.northropgrumman.com/suppliers/Pages/Forms.aspx](https://www2.northropgrumman.com/suppliers/Pages/Forms.aspx). If a Supplier has any changes to drawings, specifications noted on the drawing, processing, materials, or contractual requirements of the Procurement Document, **the Supplier can initiate an RC/I, Form P0-F030, to request assistance.** RC/Is that are considered producibility enhancements require the Supplier to submit a business case presented upon RC/I issuance. The business case **provides** justification on how the enhancement will improve quality, cost, and/or schedule. Product nonconformances are not to be documented on and will not be processed using the RC/I form.

SQ02 Buyer Inspection/Surveillance

Guidance: Select each section that is required A, B, C, D, E, F, G, or H.

A. SOURCE INSPECTION

1. Buyer **shall** be present (or provide a representative) to perform source inspection at Seller's facilities or where designated in the Procurement Document prior to shipment.
2. Inspection and test of the articles defined in this contract **shall** be performed by Seller, and **shall** be subject to witnessing by Buyer (or representative).
3. Seller **shall** provide reasonable inspection facilities for Buyer (or representative) to verify conformance to requirements.
4. Seller **shall** provide inspection/test data and reports to Buyer's Source Inspector indicating which characteristics, parameters, dimensions, etc., were actually tested/inspected for validation to Buyer's specification/drawing requirements.
5. After Buyer's 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.
6. For any nonscheduled entry, rework, or test, Seller **shall** request Buyer to repeat source inspection.
7. Buyer **shall** be notified at a minimum of seven (7) workdays prior to commencement of these activities to allow for arrangements for Buyer and/or Buyer's quality representative to be present during inspection and test.

B. BUYER IN-PROCESS INSPECTION

1. Buyer or Buyer's representative **shall** perform in-process inspection at Seller's facilities.
2. Seller **shall** submit to Buyer an inspection plan or traveler designating in-process source inspection points.
3. Buyer **shall** designate required in-process source inspection points and inform Seller in writing.
4. Seller **shall** provide reasonable inspection facilities for Buyer or Buyer's representative to verify conformance to requirements.
5. After Buyer's 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.
6. For any nonscheduled entry, rework, or test, Seller **shall** request Buyer to repeat source inspection.
7. Seller **shall** notify Buyer at a minimum of 48 hours prior to the time in-process inspection coverage is required.

C. BUYER PRECAP INSPECTION

Items in the Procurement Document **shall** require pre-cap inspection by Buyer's Quality Field Engineering subsequent to the 100 percent pre-cap visual inspection performed by Seller.

D. BUYER SCANNING ELECTRON MICROSCOPE ANALYSIS

1. Buyer's approval of Scanning Electron Microscope (SEM) analysis **shall** be required for wafer lots to be incorporated in parts supplied to Buyer's Quality Field Engineering.
2. SEM analysis **shall** be performed by Seller and **shall** be approved by Buyer prior to the incorporation of wafers in parts.

E. BUYER SOURCE SURVEILLANCE

1. Buyer's Quality Field Engineering **shall** perform surveillance at Seller's facilities during the contract period.
2. Surveillance **shall** be scheduled by Buyer, and coordinated with Seller prior to implementation.
3. Surveillance activities **shall** include all functional areas necessary for Buyer or Buyer's representative to verify the quality of the procured product.

F. BUYER SOFTWARE AUDITS

Buyer or Buyer's representative **shall** perform audits, reviews, and/or verifications at Seller's facilities during the development and test of software to be furnished for this procurement.

G. Electronic Source Inspection

1. Seller **shall** provide electronic source inspection.
2. Electronic source inspection **shall** consist of photos sent to Buyer via electronic media. Test data **shall** also be sent electronically when SQ07 is required on the Procurement Document.
3. Buyer **shall** review and provide authorization to ship predicated on the results of the photos and test data when test data is required with SQ07 on the Procurement Document.

H. VERIFICATION OF PURCHASED PRODUCT

1. Verification activities performed by the Buyer or Buyer's customer at any level in the Seller's supply chain **shall** not be used by the Seller as evidence of effective control of quality and does not absolve the organization of its responsibility to provide acceptable product and comply with all requirements.

NOTE: Verification activities can include:

- a. Obtaining objective evidence of the conformity of the product from the Seller (e.g., accompanying documentation, **CoC**, test records, statistical records, process control records)
 - b. Inspection of the required documentation
 - c. Inspection of products upon receipt
 - d. Delegation of verification to the supplier or supplier certification
2. Where purchased product is released for production use pending completion of all required verification activities, it **shall** be identified and recorded by the Seller to allow recall and replacement if it is subsequently found that the product does not meet requirements.
 3. If the Buyer delegates verification activities to the Supplier, the requirements for delegation **shall** be **defined** by the Buyer, and a register of delegated **shall** be maintained by the Seller.

SQ03 Reserved

SQ04 U.S. Government Source Inspection (DoD)

Guidance: A, B, C, D, and E all apply when SQ04 is required.

- A. U.S. Government source inspection **shall** be required prior to shipment from Seller's facility.
- B. Upon receipt of this Procurement Document, Seller **shall** immediately notify and provide a copy of the Procurement Document to the U.S. Government representative, who normally services Seller's facility, so appropriate planning for U.S. Government source inspection can be accomplished.
- C. If a U.S. Government representative does not normally service Seller's facility, the nearest Army, Navy, Air Force, or Defense Agency inspection Office **shall** be contacted.
- D. In the event a U.S. Government representative cannot be contacted, Buyer **shall** be notified immediately.
- E. Seller, without additional charge to the Procurement Document, **shall** provide all reasonably required facilities and assistance for the convenience and safety of the U.S. Government representatives in the performance of their duties.

SQ05 Raw Material Documentation Requirements

Guidance: Select each section (A, B, and/or C) that is required when SQ06 is required.

- A. Shipment of materials, whether raw, semi-finished, or finished, **shall** be accompanied by a **CoC** from Seller, stating at a minimum:
 - 1. Material identification by specification number and material conditions, where applicable.
 - 2. The raw material manufacturer's or mill's lot or batch number.
 - 3. A statement of raw material conformance to applicable requirements.
 - 4. The name and location of the raw material manufacturer or mill.
- B. All items defined in SQ05-A with the addition of actual chemical/physical test results that substantiate compliance with the applicable raw material and/or specification requirements **shall** be provided.
- C. The Seller **shall** maintain and provide evidence of material authenticity (chain of custody) from the lowest level component to configured end item(s). The Certification **shall** clearly identify the name and location of all of the supply chain intermediaries from the original manufacturer to the final source of the product delivered to Northrop Grumman.

SQ06 Control of Special Processes

Guidance: A, B, and C apply when SQ06 is required.

- A. Buyer **shall** approve special processes performed by Seller, or any of its sub-tier suppliers, including the system/procedures used to control special processes. Processes requiring Buyer approval include:
 - 1. Welding, destructive physical analysis, brazing, dye penetrate inspection, painting, radiographic inspection, plating, heat treating of metals, casting, chemical surface treatments, forging, contamination control, bonding, magnetic particle inspections, conformal coat, composites, soldering, pressure test, and ultrasonic inspection
 - 2. Any other processes defined in the Procurement Document
- B. Buyer approval of special processes **shall** not relieve Seller of responsibility for exercising the control measures necessary to ensure delivered items conform to the requirements of the Procurement Document.
- C. Sub-contract and Contract manufacturers **shall** have the responsibility of approving, auditing, and maintaining their sub-tier suppliers for special processes. Northrop Grumman reserves the right to review any records pertaining to special processes and will be made available for review upon request.

SQ07 Inspection / Test Data

Guidance: A and B apply when SQ07 is required.

- A. When Buyer's specifications or Procurement Document require test data to be recorded during the performance of acceptance testing, a paper or preferably electronic copy of the recorded data, showing evidence of Seller's inspection and verification of performance, **shall** accompany each shipment.
- B. Data **shall** meet the requirements of Buyer's specifications or Procurement Document and, at a minimum, be identified with:
 - 1. Buyer's Procurement Document number and change notice number
 - 2. Part number
 - 3. Lot numbers, serial numbers, or date codes of items tested
 - 4. Drawing/specification and revision used
 - 5. Type of test performed
 - 6. Identification number of test equipment used
 - 7. Total quantity of items tested, quantity of items accepted, and quantity of items rejected
 - 8. Any codes, keys, or other information necessary to interpret Seller data

SQ08 Radiographic / Computer Tomography Inspection

Guidance: A, B, C, D, and E apply when SQ08 is required. Exclusion of B or C is acceptable based on inspection method.

- A. Seller **shall** be approved by Buyer to perform the radiographic/computer tomography inspection applicable to this Procurement Document or **shall** use a facility approved by Buyer.
- B. Unless otherwise specified by the parts specification, each radiograph **shall** comply with **American Society for Testing and Materials (ASTM) E1742 Radiographic Examination**, **MIL-STD-883 Test Method and Procedures for Microelectronics**, and **MIL-STD-750 Test Method for Semiconductor Devices**.
- C. Unless otherwise specified by the parts specification, computer tomography **shall** comply with **ASTM E1441 Standard Guide for Computer Tomography Imaging**.
- D. The radiographic film / image and a copy of the report **shall** accompany the shipment of the items to Buyer.
- E. Serial number location and X-ray position **shall** be recorded as part of, or attached to, the report.

SQ09 Requirements for Distributors

Guidance: A, B, and C apply when SQ09 is required.

- A. The Distributor (a Seller other than the Manufacturer) **shall** certify that the articles delivered under this Procurement Document conform to the applicable requirements of Buyer's or Manufacturer's specifications for the article ordered.
- B. The Distributor **CoC shall** include the following information:
 - 1. The origin of manufacture
 - 2. Part number
 - 3. Applicable traceability information (date lot code, etc.)
 - 4. Results of testing or special inspection, as required
 - 5. Dated signature of authorized Seller Representative
 - 6. Items identified by Buyer number **shall** have complete information as to the original manufacturer and original manufacturer's part number
- C. The Distributor **shall** maintain and provide evidence of material authenticity (chain of custody) back to **an approved source of supply**: the Original Component Manufacturer (OCM)/ **OEM**/ Authorized Aftermarket Manufacturer (**AAM**) / **Franchised [Authorized] Distributor**. The Certification **shall** clearly identify the name and location of all of the supply chain intermediaries from the **approved source of supply** to the final source of the product delivered to Northrop Grumman.

SQ10 Seller Inspection Reporting Requirements

Guidance: A, B, C, and D apply when SQ10 is required.

- A. Seller **shall** submit, with each shipment of items, one copy of an inspection report reflecting 100 percent inspection verification of all drawing characteristics, including notes, for all products.
- B. The report **shall** delineate each drawing characteristic and specify the corresponding actual measurement results.
- C. Inspection record traceability **shall** be maintained by either serializing each item, if allowed, or tag identification. The item identification is then matched with the corresponding inspection report.
- D. The only exception to the above procedure applies to items machined under tape-controlled or automatic conditions. In that case, the 100 percent inspection report **shall** be limited to the first and last item procured from one continuous set-up.
 - 1. The inspection report **shall** state that the items were machined under tape-controlled or automatic conditions.

SQ11 Calibration System Requirements

Guidance: A and B apply when SQ11 is required – Buyer **shall** specify applicable calibration standard in B (1, 2, 3, or 4).

- A. Seller **shall** be responsible for the calibration, accuracy, validation, and maintenance of any equipment, tooling, or gauges utilized by Seller to produce, inspect, or test articles to be delivered under this Procurement Document.
- B. Seller's equipment calibration system **shall** be **IAW** one of the **four** requirements listed below:
 1. MIL-STD-45662A or
 2. ANSI/NCSL Z540-1 or
 3. ISO 10012-1 or
 4. ISO 17025

SQ12 Control of Software

Guidance: Select any combination of A, B, and C that apply. A Software Quality Assurance Program **shall** be selected when using A: **SQ12-A.1.a, SQ12-A.1.b, SQ12-A.1.c, or SQ12-A.1.d.**

A. SOFTWARE QUALITY PROGRAM

1. Seller **shall** establish a Software Quality Assurance Program that conforms to the standards specified below, and is subject to Buyer review and approval:
 - a. AS9006, Deliverable Aerospace Software Supplement for AS9100A, or AS9115, Requirements for Aviation, Space and Defense Organizations – Deliverable Software,
 - b. ISO/IEC 12207, Software Life Cycle Processes,
 - c. Capability Maturity Model Integration (CMMI) - Level 3 or higher, or
 - d. **FAA** DO-178 – Software Considerations in Airborne Systems and Equipment Certification

B. SOFTWARE DELIVERY DOCUMENTATION

1. Seller **shall** deliver software documentation as specified in the Procurement Document.
2. Software documentation **shall** be sufficient to ensure:
 - a. All requirements are achieved or waivers are submitted
 - b. Configuration is correct and deliverables are properly identified and marked
 - c. Planned level of acceptance is achieved and/or approved deviation/waivers are made part of the deliverable documentation package

- d. Operating instructions accompanying the developed software are sufficient to enable loading, initialization, and operation by Seller's personnel

C. CONTROL OF SOFTWARE

1. Seller **shall** provide and maintain a system for the control of software used in the fabrication **and** qualification/acceptance testing of deliverable hardware, software, and firmware to be furnished for this procurement.
2. Seller **shall** maintain procedures and test records for items delivered to Buyer and these records **shall** be available for Buyer review.

SQ13 Electrostatic Discharge Control

Guidance: A, B, C, and D apply when SQ13 is required.

- A. Seller **shall** provide and maintain a program for Electrostatic Discharge (ESD) control for hardware items to be furnished for this procurement **IAW** one or more of the following standards:
 1. MIL-STD-1686 Electrostatic Discharge Control Program for Protection of Electrical and Electronic Parts, Assemblies and Equipment (excluding Electrically Initiated Explosive Devices)
 2. ANSI-S20.20 Parts, Electrical and Electronic, Assemblies and Equipment, Protection of (excluding Electrically Initiated Explosive Devices), for the Development of an Electrostatic Discharge Control Program
 3. **Electronic Industries Alliance (EIA) 625** Requirements for Handling Electrostatic Discharge Sensitive Devices
 4. MSFC-STD-1800 ESD Control for Propellant and Explosive Devices
 5. DoD 4185.26m Contractors Safety Manual for Ammunition and Explosives
 6. JEDEC-STD-033 Standard for Handling, Packing, Shipping, and Use of Moisture/Reflow Sensitive Surface-Mount Devices
- B. Seller's ESD control program **shall** be subject to review and approval by Buyer.
- C. Items **shall** be packaged with ESD protective material.
 1. ESD protective caps **shall** be used on equipment external connectors or contacts that connect to ESD parts and assemblies within the equipment.
 2. All packages **shall** be identified with a suitable precautionary label.
 3. The label **shall** not be utilized as a sealing device.
- D. Any ESD components or assemblies received by Buyer that are not in an ESD protective material **shall** be subject to return to Seller. **NOTE:** ESD requirements are defined as applicable to any active or passive components.

SQ14 Interchangeability/Replaceability

Guidance: Select A or B when SQ14 is required.

- A. **Interchangeability:** As noted in MIL-I-8500, “Interchangeability” applies to “interchangeable items” that are manufactured with the aid of controlled media, and require only the application of attaching means for their installation. Interchangeable items **shall** be capable of being readily installed, removed, or replaced without alteration, misalignment, or damage to items being installed or to adjoining items or structure.
- B. **Replaceability:** As noted in MIL-I-8500, “Replaceability” applies to “replaceable items” that are manufactured with the aid of controlled media, and the installation of which requires alterations of the items in addition to the normal application and methods of attachment. Such alterations may include drilling, reaming, cutting, filing, trimming, bending, shaping, etc.

SQ15 Reserved

SQ16 Reserved

SQ17 Prohibited Material (**Electrical, Electronic, & Electromechanical Parts**)

Guidance: Buyer will specify A and/or B. C always applies when SQ17 is required.

- A. All constructions and finishes containing pure cadmium or pure zinc **shall** be prohibited.
- B. Constructions and finishes containing pure tin **shall** be prohibited unless they contain a minimum of 3 weight percent alloying element(s); i.e., lead, silver, etc.
- C. Seller **shall** submit a certificate with each shipment stating that no prohibited materials are present in their deliverable product.

SQ18 **DFARS 252.225-7016** Restriction on Acquisition of Ball and Roller Bearings

Guidance: A and B apply when SQ18 is required.

- A. Each ball and roller bearing delivered under this contract **shall** be manufactured in the United States, its outlying areas, or Canada; and
- B. For each ball or roller bearing, the cost of the bearing components manufactured in the United States, its outlying areas, or Canada **shall** exceed 50 percent of the total cost of the bearing components of that ball or roller bearing.

SQ19 Quality Management System

Guidance: Select A or B; C or D; or E, F, G, H, I, J, K, L, M or N; O or P; Q or R; S or T

- A. ISO 9001 Compliant
 - 1. Seller **shall** provide and maintain a **QMS** that is compliant to ISO 9001.
 - 2. Seller's capability to perform satisfactorily to these requirements **shall** be demonstrated by having a successful audit performed by Buyer or Buyer's representative.
- B. ISO 9001 Registered
 - 1. Seller **shall** provide and maintain a **QMS** registered to ISO 9001.
 - 2. Seller's capability to perform satisfactorily to these requirements **shall** be demonstrated by having an ISO Certification from an accredited registrar.
 - a. Buyer **shall** reserve the right to conduct an assessment of Seller's **QMS**.
- C. AS9100 Compliant
 - 1. Seller **shall** provide and maintain a **QMS** that is compliant to AS9100.
 - 2. Seller's capability to perform satisfactorily to these requirements **shall** be demonstrated by having a successful audit performed by Buyer or Buyer's representative.
- D. AS9100 Registered
 - 1. Seller **shall** provide and maintain a **QMS** registered to AS9100.
 - 2. Seller's capability to perform satisfactorily to these requirements **shall** be demonstrated by having an **AS9100** Certification from an accredited registrar.
 - a. Buyer **shall** reserve the right to conduct an assessment of Seller's **QMS**.
- E. Capability Maturity Model Integration (CMMI-DEV) - Level 3
 - 1. Seller **shall** provide and maintain a **QMS** that meets the requirements of CMMI Level 3.
 - 2. Seller's capability to perform satisfactorily to these requirements **shall** be demonstrated by having Software Engineering Institute (SEI) CMMI 3 rating from an accredited appraiser.
 - a. Buyer **shall** reserve the right to conduct an assessment of Seller's **QMS**.
- F. Capability Maturity Model Integration (CMMI-DEV) - Level 4
 - 1. Seller **shall** provide and maintain a **QMS** that meets the requirements of CMMI Level 4.

2. Seller's capability to perform satisfactorily to these requirements **shall** be demonstrated by having SEI CMMI 4 rating from an accredited appraiser.
 3. Buyer **shall** reserve the right to conduct an assessment of Seller's **QMS**.
- G. Capability Maturity Model Integration (CMMI-DEV) - Level 5
1. Seller **shall** provide and maintain a **QMS** that meets the requirements of CMMI Level 5.
 2. Seller's capability to perform satisfactorily to these requirements **shall** be demonstrated by having SEI CMMI 5 rating from an accredited appraiser.
 - a. Buyer **shall** reserve the right to conduct an assessment of Seller's **QMS**.
- H. FAA **Federal Aviation Regulation (FAR)** Part 145 Repair Station
1. Seller **shall** provide and maintain a **QMS** that is compliant to FAR Pt. 145 requirements approved by the regional **Flight Standards District Office (FSDO)** or higher level FAA office.
 2. Seller's capability to perform satisfactorily to these requirements **shall** be demonstrated by having a successful audit performed by Buyer or Buyer's representative.
 3. Seller **shall** maintain a type rating on the FAA FAR Pt. 145 certificate applicable to the airframe and/or commodity affected by the Procurement Document.
- I. Quality Management System
1. Seller **shall** have a formalized **QMS**.
 2. Buyer **shall** have the right to conduct surveys, audits, and surveillance of the Seller's capability to perform satisfactorily to these requirements.
- J. Capability Maturity Model Integration (CMMI-SV) for Services - Level 3
1. Seller **shall** provide and maintain a **QMS** that meets the requirements of CMMI for Services Level 3.
 2. Seller's capability to perform satisfactorily to these requirements **shall** be demonstrated by having SEI CMMI for Services 3 rating from an accredited appraiser.
 - a. Buyer **shall** reserve the right to conduct an assessment of Seller's **QMS**.
- K. Capability Maturity Model Integration (CMMI-SV) for Services - Level 4
1. Seller **shall** provide and maintain a **QMS** that meets the requirements of CMMI for Services Level 4.
 2. Seller's capability to perform satisfactorily to these requirements **shall** be demonstrated by having SEI CMMI for Services 4 rating from an accredited appraiser.
 - a. Buyer **shall** reserve the right to conduct an assessment of Seller's **QMS**.

- L. Capability Maturity Model Integration (CMMI-SV) for Services - Level 5
1. Seller **shall** provide and maintain a **QMS** that meets the requirements of CMMI for Services Level 5.
 2. Seller's capability to perform satisfactorily to these requirements **shall** be demonstrated by having SEI CMMI for Services 5 rating from an accredited appraiser.
 - a. Buyer **shall** reserve the right to conduct an assessment of Seller's **QMS**.
- M. AS9110 Compliant
1. Seller **shall** provide and maintain a **QMS** that is compliant to **AS9110**.
 2. Seller's capability to perform satisfactorily to these requirements **shall** be demonstrated by having a successful audit performed by Buyer or Buyer's representative.
- N. AS9110 Registered
1. Seller **shall** provide and maintain a **QMS** registered to **AS9110**.
 2. Seller's capability to perform satisfactorily to these requirements **shall** be demonstrated by having an **AS9110** Certification from an accredited registrar.
 - a. Buyer **shall** reserve the right to conduct an assessment of Seller's **QMS**.
- O. AS9120 Compliant
1. Seller **shall** provide and maintain a **QMS** that is compliant to **AS9120**.
 2. Seller's capability to perform satisfactorily to these requirements **shall** be demonstrated by having a successful audit performed by Buyer or Buyer's representative.
- P. AS9120 Registered
1. Seller **shall** provide and maintain a **QMS** registered to **AS9120**.
 2. Seller's capability to perform satisfactorily to these requirements **shall** be demonstrated by having an **AS9120** Certification from an accredited registrar.
 - a. Buyer **shall** reserve the right to conduct an assessment of Seller's **QMS**.
- Q. ISO 20000 Compliant
1. Seller **shall** provide and maintain an IT Service Management System that is compliant to ISO 20000
 2. Seller's capability to perform satisfactorily to these requirements **shall** be demonstrated by having a successful audit performed by Buyer.
- R. ISO 20000 Registered
1. Seller **shall** provide and maintain an IT Service Management System registered to ISO 20000

2. Seller's capability to perform satisfactorily to these requirements **shall** be demonstrated by having an ISO 20000 Certification from an accredited registrar.
 - a. Buyer **shall** reserve the right to conduct an assessment of Seller's IT Service Management System
- S. Information Technology Infrastructure Library (ITIL) Compliant
1. Seller **shall** provide and maintain an IT Service Management System that is compliant to ITIL.
 2. Seller's capability to perform satisfactorily to these requirements **shall** be demonstrated by having a successful audit performed by Buyer.
- T. ITIL Certified
1. Seller **shall** provide and maintain an IT Service Management System certified to ITIL
 2. Seller's capability to perform satisfactorily to these requirements **shall** be demonstrated by having an ITIL Certification of appropriate personnel from an accredited registrar.
 - a. Buyer **shall** reserve the right to conduct an assessment of Seller's IT Service Management System

SQ20 First Article Inspection (FAI)

Guidance: For a 24-month cycle of FAI, select A, B, C, D, and E. For a 12-month cycle of FAI, select F, B, C, D, and E. G or H is required only when specified.

- A. Inspection and acceptance by Buyer of the first article **shall** be required prior to the start of fabrication of a new product or supplier, if it has been 24 months or more since last product was produced, or a change to form, fit, or function of the product has occurred.
 1. Where product does not meet the intent of "first production run", as defined within AS9102, 100% of all product characteristics **shall** be inspected.
- B. Seller **shall** submit a First Article **Inspection** Report on an AS9102 First Article Form, or equivalent, to Buyer demonstrating compliance with the requirements in the Procurement Document and referenced documents (refer to AS9102 and ASME Y14.41 for guidance).
 1. The report **shall** reflect 100 percent inspection verification of all drawing characteristics.
 2. The report **shall** delineate each drawing characteristic and specify the corresponding actual measurement results.
 3. The report **shall** provide evidence of acceptance by the Seller's authorized Quality Assurance representative.

- C. Seller **shall** notify the Buyer the opportunity to witness the performance of FAI/Testing.
- D. The FAI requirement, once invoked, **shall** continue to apply even after initial compliance. Any or all of the following events requires re-accomplishment of a full, or a delta/partial FAI for affected characteristics:
1. A change in manufacturing source(s), processes, assembly line, inspection method(s), location, tooling, or materials.
 2. A change in numerical control program or translation to another media.
 3. A natural or man-made occurrence which may adversely affect the manufacturing process.
 4. When required as part of corrective action for a part number with repetitive rejection history.
 5. A change in the design affecting form, fit, or function of the part.
- E. If the First Article ships at the same time as other pieces of the same part number, then the piece used for First Article **shall** be identified.
- F. Inspection and acceptance by Buyer of the First Article **shall** be required:
1. Prior to the start of fabrication of a new product or supplier,
 2. If it has been 12 months or more since the last FAI,
 3. If it has been 12 months or more since the product was last produced, or
 4. If there has been a change to form, fit, or function of the product.
 5. Where product does not meet the intent of “first production run”, as defined within AS9102, 100% of all product characteristics **shall** be inspected.
- G. Supplier **shall** reference Q1-4-24-DSF, *Defense Systems Supplier Requirements for First Article Inspections*, for FAI guidance. This document may be found on the OASIS website – <https://www2.northropgrumman.com/suppliers/Pages/QualityDocs.aspx>.
- H. An AS9102 package for FAI **shall** be shipped with the first item, unless instructed to provide the AS9102 package for review and approval by Northrop Grumman prior to shipment of the First Article. If the Supplier builds the complete lot at the same time, they do so at their own risk, given that the FAI part may be found nonconforming by Northrop Grumman, Defense Contract Management Agency (DCMA), or Government Quality Inspection.

SQ21 Reserved

SQ22 Contamination / Foreign Object Debris (FOD) & Tool Control

Guidance: A, B, C, D, and E apply when SQ22 is required.

NOTE: Tool control applies when it is possible for a tool to be left in the final product.

- A. Seller **shall** maintain an FOD prevention program, including tool control.
- B. Seller's FOD prevention program **shall** include the review of design and manufacturing processes to identify and eliminate foreign object entrapment areas and paths through which foreign objects can migrate.
- C. Seller's Tool Control program **shall** include identification, inventory, and location control to reduce the risk of lost tools.
- D. Buyer **shall** have the right to perform inspections, verifications, tool control, and FOD prevention program audits at Seller's facility to ensure program documentation and effectiveness.
- E. Articles ordered under this Procurement Document **shall** be protected by Seller from contamination or damage from foreign objects or tool control during processing, testing, inspection, handling, and packaging prior to delivery to Seller.

SQ23 Unique Identification (UID) (DFARS 252.211-7003)

Guidance: A and B apply when SQ23 is required. C and D are required only when they are specified.

- A. DFARS clause 252.211-7003, Item Identification and Valuation, **shall** be applied to this Procurement Document.
- B. UID **shall** be in compliance with MIL-STD-130 (current version at time of Procurement Document receipt).
- C. Certification of individual Matrix verification **shall** be supplied by the UID processor to attest that electro-optical scanning and legibility of the UID is consistent with recording standards of UID marking and identification systems.
- D. Certification of Registration for individual and/or itemized UID nameplates and identification plates **shall** accompany shipment, which affirms accountability and traceability into the U.S. Government web database found at this website – <https://iuid.logisticsinformationservice.dla.mil/>.

SQ24 Solder Workmanship Standard

- A. Soldering and processing of electronic assemblies **shall** be in accordance or equivalent with IPC-A-610 *Acceptability of Electronic Assemblies* or J-STD-001 *Requirements for Soldered Electrical and Electronic Assemblies*. Class of workmanship **shall** be stated on the specification or drawing.

SQ25 Solderability

Guidance: A, B, and C apply when SQ25 is required.

- A. Material submitted with each shipment **shall** have had solderability testing performed **IAW** one or more of the following specifications:
1. MIL-STD-750, Method 2026
 2. MIL-STD-883, Method 2003
 3. MIL-STD-202, Method 208
 4. MIL-P-55110
 5. MIL-P-50884
 6. J-STD-001
 7. J-STD-002
 8. J-STD-003
- B. Seller **shall** supply a copy of the certification by an accredited agency to one or more of the specifications listed in article “A” with each order.
- C. If, during the life of that Procurement Document, the certification is revoked or the certification expires, all efforts against this Procurement Document **shall** be stopped.
1. Buyer **shall** be notified in writing within **24** hours.

SQ26 Material Outgoing to Seller (Customer Furnished Property)

Guidance: A, B, C, and D apply when SQ26 is required.

- A. Materials furnished to Seller, by Buyer, **shall** require accountability by Seller.
- B. Materials **shall** be stored and handled in such a manner to ensure the integrity of the material is maintained.
- C. Seller **shall** obtain direction from Buyer concerning the disposition of rejected and/or unused quantities, or usable trimming remaining at the end of the procurement activity.
- D. Seller **shall** be responsible for maintaining records of identity and the assurance of continued suitability of the tooling, test equipment, etc., while such materials are in their possession.
1. Return of the equipment **shall** be arranged through Buyer.

SQ27 Cable Workmanship Standard

- A. Workmanship **shall** be **IAW** IPC/WHMA-A-620 *Requirements and Acceptance for Cable and Wire Harness Assemblies*.

SQ28 Printed Wiring Board

Guidance: A and B apply when SQ28 is required.

- A. Printed Wiring Boards fabricated under this Procurement Document **shall** comply with the requirements of IPC-A-600 *Acceptability of Printed Boards*, IPC-6011 *Generic Performance of Printed Boards*, and IPC-6012 *Qualification and Performance Specification for Rigid Printed Boards*.
- B. Coupons **shall** be included if defined on the drawing with each shipment.

SQ29 Test Coupon

- A. Test coupons **shall** be provided per the specification for each shipment.

SQ30 Printed Wiring Board Testing

Guidance: A and B apply when SQ30 is required.

- A. Unless otherwise specified in Engineering Requirements Documentation, Seller **shall** perform bare board testing with these values: Test voltage -10-250V, continuity -10 ohm maximum, insulation resistance -10K ohm minimum.
1. Acceptable boards **shall** be acceptance stamped.
 2. Rejected boards **shall** be identified with the from/to path of failure and annotated either “short” or “open”.
 3. Seller **shall** not repair.
- B. Automated electro-optical inspection **shall** be required with this order if the boards have **four** or more layers.
1. Layer defects **shall** be reported to Buyer for authorization to repair.

SQ31 Supplier Information Request (SIR)

Guidance: If SQ31 is required, then SQ01-T is not applicable.

NOTE: CSMR Division must use SQ31 instead of SQ01-T.

A. Seller **shall** utilize the Supplier Information Request (Q1-4-25-DSF) for the following reasons:

- Questions or problems with the Procurement Document or Drawing Package
- Authorization to ship nonconforming material
- Request clarification or change of a drawing / specification requirement
- Other significant questions or issues

NOTE: The Supplier Information Form (Q1-4-24-DSF) is available on OASIS at <https://www2.northropgrumman.com/suppliers/Pages/Forms.aspx>.

SQ32 Reserved

SQ33 Drop Ship

Guidance: A and B apply when SQ33 is required.

- A. Seller **shall** deliver parts/material to address identified on the Procurement Document.
- B. A copy of all required documentation **shall** be sent to Buyer for receipt and review.

SQ34 End Item Data Package

Guidance: A, B, and C apply when SQ34 is required.

- A. An End Item Data Package (EIDP) **shall** be developed, maintained, and provided **and/or delivered at or before final acceptance of product by the Buyer**, which incorporates the following information:
1. Seller **CoC** (refer to section N of SQ01)
 2. Specification/drawing number and revision
 3. As-built configuration (Indented Parts List – may not be required for software)
 4. Proof of traceability requirements compliance (serial numbers, lot numbers, batch number, software version, etc.)
 5. Documented nonconformances
 6. Documented open action items
 7. Incorporated Change Orders (Engineering Change Proposals (ECPs))

8. **CoCs** from sub-tier suppliers with objective evidence to validate the certificates
 9. Type of inspection performed and recorded results
 10. Type of test performed and recorded results
 11. Total quantity of items tested, quantity of items accepted, and quantity of items rejected
 12. Applicable GIDEP alerts, waivers, deviations, and incident reports
 13. Verification of compliance with useful life requirements; e.g., total operating time, thermal cycles, vibration time.
- B. Buyer **shall** refuse to accept item if Seller fails to submit certifications, documentation, test data, or reports specified in the Procurement Document. Documentation **shall** include Buyer's source inspection if such source inspection is performed.
- C. Written approval **shall** be obtained from Buyer for any deviations to the EIDP.

SQ35 Manufacturing Plan Submittals for Critical and Designated Parts

Guidance: A and B apply when SQ35 is required.

- A. When manufacturing plans are required by engineering or a **Procurement Document**, they will be submitted to Northrop Grumman at least 30 days prior to start of production. The submittal **shall** be on the **RC/I or SIR form**. The manufacturing plan **shall** contain sequential fabrication, processing, processor name, and inspection steps in the order required by the applicable process specification(s) and/or engineering drawing(s).
- B. Upon approval of Supplier's manufacturing plan, the Supplier **shall** control all manufacturing, processing, testing, and inspections as stated in the approved plan. No deviations, including the selection of supplier's sub-tier suppliers/processors, **are** permitted without Northrop Grumman prior knowledge and written authorization.

NOTE: Manufacturing plans can be approved without **non-destructive testing (NDT)** technique approval, and manufacturing of parts is allowed up to a point for NDT.

SQ36 Tooling Requirements

Guidance: A and B apply when SQ36 is required.

- A. The Northrop Grumman Supplier Tooling Manual delineates requirements for suppliers who have **Procurement Documents** that require manufacture, rework, or use of Special Tooling (ST) and Special Test Equipment (STE). These requirements are applicable to all Northrop Grumman/Government ST and STE fabricated and/or used

in the manufacture of deliverable end items, unless specifically stated otherwise on the **Procurement Document**. Suppliers **shall** flow down requirements identified in this manual to their sub-tier suppliers that fabricate or design tooling on their behalf.

NOTE: The Northrop Grumman Supplier Tooling Manual can be accessed on [OASIS](#) under the **Contracting Data and Technical Data** tab. Copies can also be obtained by contacting the Buyer.

- B. At a minimum, Special Tooling (supplier manufactured or Northrop Grumman furnished) used as a media of inspection **shall** be delineated in the supplier's manufacturing plan at the applicable operation/sequence where the inspection occurs.
 - 1. Inspection media tooling **shall** be controlled as part of the supplier's "Periodic or Calibration" system prior to use in production. Periodic tool inspection detailed requirements are covered in the Northrop Grumman Supplier Tooling Manual.

SQ37 Qualified Die for Castings and Forgings

- A. **IAW** applicable material specifications as called out on the engineering drawing or **Procurement Document** and prior to initial production, Northrop Grumman-designed castings or forgings **shall** require a First Piece Inspection.
 - 1. The die or pattern **shall** be qualified per the requirements established.
 - 2. All actual die dimensions **shall** be recorded on an AS9102 First Article Form, or equivalent, as required.
 - 3. The form **shall** then be submitted to **the appropriate** Northrop Grumman Engineer for validation and approval.
 - 4. Shipment **shall** be withheld pending die or pattern dimensional approval from Program.

SQ38 Reserved

SQ39 Calibration Services Requirements for Supplier Providing Calibration

Guidance: A, B, and C apply when SQ39 is required

- A. Seller **shall** be responsible for the calibration and applicable maintenance of any equipment, tooling, or gauges provided from the Buyer to the Seller under this **Procurement Document**.
- B. Seller's equipment calibration system **shall** be **IAW** one of the four requirements listed below:
 - 1. MIL-STD-45662A
 - 2. ANSI/NCSL Z540

3. ISO 10012-1
 4. ISO 17025
- C. Seller **shall** provide a data package for each service that meets the requirements of the above standards including as found and final results, acceptance criteria, and traceability to applicable national standards.

SQ40 Counterfeit Prevention for Non-EEE Part Suppliers and Distributors

Guidance: Apply this clause when procuring material that is NOT electrical, electronic, or electromechanical (EEE).

- A. **Purpose:** Define and implement the requirements for Material Authenticity for Northrop Grumman suppliers and distributors of non-EEE material.
- B. **Applicable Documents:** The version of the applicable documents is the revision in effect as of the date of the Procurement Document:
 1. Society of Automotive Engineers (SAE) AS6174, Counterfeit Materiel; Assuring Acquisition of Authentic and Conforming Materiel
 2. SAE AIR6273, Terms, Definitions, and Acronyms Counterfeit Materiel or Electrical, Electronic, and Electromechanical Parts
- C. **Definitions:** The definitions of AS6174 and AIR6273 apply to this clause.
- D. **Supplier Quality Management System / Approved Supplier Requirements:**
 1. All material delivered under the Buyer's Authorized Procurement Document **shall** be authentic and traceable to the original manufacturer or mill/plant for raw materials. If documented acquisition traceability is not available, Supplier **shall** not accept the Buyer's Procurement Document unless Supplier requests and receives Buyer authorization to validate the authenticity of material according to Buyer-specified requirements:
 - a. If Buyer authorizes the supplier to provide material without traceability, Supplier **shall** comply with the Material Authenticity Validation Requirements.
 - b. Supplier **shall** have and implement effective counterfeit parts/material prevention processes that align with the requirements set forth herein:
 - i. Supplier QMS and Counterfeit Prevention Plan/Processes **shall** be aligned with AS6174 and DFARS 252.246-7008, and are subject to on-site assessment by Buyer.
 - ii. The Supplier **shall** have and implement an effective Counterfeit Prevention Plan that documents: (a) its processes used for assuring that only authentic and conforming parts/material are procured and (b) its processes to be used for risk mitigation, disposition, and reporting in the event any counterfeit parts/material are encountered in its supply chain.

The Counterfeit Prevention Plan is subject to Buyer approval, and may be disapproved at any time during the life of this Procurement Document if Supplier does not provide for an appropriate level of assurance for procuring authentic and conforming material to Buyer's satisfaction.

- iii. The Supplier **shall** impose appropriate requirements on all tiers of its supply chain to ensure the substance of these requirements and the Buyer's Authorized Procurement Document are met.
- iv. Supplier **shall** ensure all occurrences where it has acquired and/or provided suspect counterfeit parts/material are reported as appropriate to customers and GIDEP

E. Buyer Audit and Surveillance Program Requirements:

- 1. Buyer reserves the right to conduct periodic audits of Supplier's Counterfeit Material Protection Plan/processes and associated records. Supplier **shall** make available to Buyer pertinent records as necessary for Buyer to conduct audit(s). Record retention will be the responsibility of the Supplier.
- 2. The Supplier **shall** ensure that Buyer and Buyer's Customers have access to the Supplier facilities and the facilities of its supply chain at all tiers, in order to verify compliance to Buyer requirements.

F. Material Authenticity Validation Requirements:

- 1. After acceptance of the Procurement Document, if the Supplier discovers they are unable to comply with the supply chain traceability requirements set forth herein, Supplier must contact the Buyer for further direction.
- 2. If Buyer authorizes the Supplier to provide material without traceability, the Supplier **shall** demonstrate to the Buyer their capability to perform all necessary material authenticity validation tests and inspections. In proposing their approach to the Buyer, the Supplier should consider using industry standard practices (SAE AS6174 as a guide) or utilize the services of an industry-recognized third party Material Authenticity Verification Test Facility. The Buyer must approve all Material Authenticity Validation tests in advance.

SQ41 Service Requirements

Guidance: A and B apply when SQ41 is required.

- A. The Seller **shall** establish and implement a service plan that includes:
 - 1. Provisions for ensuring personnel performing the service have the education, experience, knowledge, and/or combination **thereof** to successfully deliver the service.
 - 2. Key measures, including action thresholds, to be used to gauge the consistency, efficiency, effectiveness, **and performance** of the provided **service**.

3. Specific actions to take when performance measurements indicate that the service is not meeting expectations.
 4. A means to obtain and incorporate customer feedback on service performance.
 5. A method to continually improve the level of service.
- B. The Seller **shall** institutionalize the service plan as part of their standard management system.

SQ42 Staff Augmentation

Guidance: A, B, and C apply when SQ42 is required.

- A. The Seller **shall** establish and implement a staffing plan that includes:
1. Provisions for ensuring personnel have the education, experience, knowledge, and/or combination **thereof** to successfully perform job responsibilities.
 2. A system to measure and communicate individual and team performance.
 3. Specific actions to take when performance measurements indicate that resources are not meeting expectations.
 4. A means to communicate staffing changes to the Buyer. The Buyer reserves the right to approve staffing changes for those positions deemed critical.
 5. A method to reward and incentivize employees.
- B. The Seller **shall** institutionalize the staffing plan as part of their standard management system.
- C. For Aircraft-related subcontractors and service providers:
1. Service to be accomplished **IAW Code of Federal Regulations (CFR)** Parts 21, 25, 91, and 145 as appropriate.
 2. All data used for design, installation, and/or maintenance **shall** be FAA approved.
 3. FAA Form 337, ***Major Repair and Alteration (Airframe, Powerplant, Propeller, or Appliance)***, must be provided to Northrop Grumman and/or be entered into the aircraft's records upon completion.
 4. Northrop Grumman **shall** receive aircraft in a Standard Airworthiness configuration after modification.
 5. All subcontractors must complete "Northrop Grumman Subcontractor Surveys" and submit all required documents as requested.
 6. Propellers and engines must have a logbook provided to Northrop Grumman upon receipt.

SQ43 Counterfeit Prevention

Guidance: A, B, C, and D apply when SQ43 is required.

- A. The Supplier **shall** have documented processes, appropriate to the organization and the product, for the prevention of counterfeit or suspect counterfeit part use and their inclusion in product(s) delivered to Northrop Grumman.

Counterfeit part prevention processes **shall** include:

- Training of appropriate persons in the awareness and prevention of counterfeit parts
- Application of a parts obsolescence monitoring program
- Controls for procuring product from original or authorized manufacturers, authorized distributors, or other approved sources
- Requirements for assuring traceability of parts and components to their original or authorized manufacturers
- Verification and test methodologies to detect counterfeit parts
- Monitoring of counterfeit parts reporting from external sources
- Quarantine and reporting of suspect or detected counterfeit parts

- B. The following requirements apply for all EEE Parts, Components, Assemblies, and Systems procurements.

1. The Seller **shall** ensure all **EEE** and electro-optical component parts delivered and/or used in the manufacture of deliverable products are from the OEM / OCM / AAM or Authorized Franchised distributor **or** Northrop Grumman approved Electrical/Electronic Distributors.
 - a. If supply chain traceability is not available, the Seller **shall** not accept the Buyer's **Procurement Document** without Northrop Grumman authorization IAW the RC/I process outlined in SQ01-T **or the SIR process in SQ31, whichever is applicable.**
2. Any Manufacturer or Distributor that provides Electronic Components, Assemblies, Subsystems, or Systems **shall** have a third-party certified **QMS IAW** one of the following industry standards: AS9100; AS9120; ISO9001; as defined in the contractual requirements.
3. The Seller **shall** maintain a documented Material Authenticity / Counterfeit Part Prevention (MA/ CPP) process for the avoidance, detection, mitigation, disposition, and reporting of Counterfeit Parts that is compliant with AS5553 and DFARS 252.246-7007 requirements (revision at the time of **Procurement Document** release) that documents:
 - a. The processes used for assuring that only authentic and conforming materiel is procured, and

- b. The processes used for risk mitigation, disposition, and reporting in the event any counterfeit material is encountered in its supply chain.

NOTE: The counterfeit protection plan is subject to Northrop Grumman approval, and may be disapproved at any time during the effective time period of the authorized **Procurement Document** if the plan does not provide for an appropriate level of assurance for procuring material in compliance with the **Procurement Document** to Northrop Grumman's satisfaction.

4. The Seller **shall** impose appropriate contractual requirements on all tiers of its supply chain to ensure the substance of SQ43, AS5553, DFARS 252.246-7007, and the Buyer's authorized **Procurement Document** are met.
5. Northrop Grumman reserves the right to audit the Seller's MA/CPP process, and associated records, at the Seller's facility.
 - a. The Seller **shall** maintain record retention **IAW Procurement Document** requirements and make pertinent records available to Northrop Grumman.
 - b. The Seller **shall** ensure that Northrop Grumman and Northrop Grumman's customers have access to the Seller facilities and the facilities of its supply chain at all tiers, to verify compliance with Buyer requirements.
6. The Seller's MA/CPP process **shall** ensure it does not receive counterfeit parts into inventory, use them in manufacturing, or inadvertently sell them to other parties.
7. The Seller **shall** ensure parts are **neither** used **nor** reclaimed and misrepresented as new.
8. The Seller **shall** ensure **the following**:
 - a. Acquired suspect counterfeit parts are reported to GIDEP.
 - b. Provided suspect counterfeit parts related to its Northrop Grumman contract are immediately reported to Northrop Grumman.
 - c. Appropriate corrective actions **are taken** on all suspect counterfeit parts.
9. Seller **shall** be a member of GIDEP, if eligible, and review and take appropriate corrective actions on all GIDEP alerts applicable to material offered for re-sale. This includes alerts for suspect/counterfeit conditions as well as routine technical issues.
 - a. If ineligible for GIDEP participation, the Seller **shall** screen other credible sources of counterfeiting information to avoid such purchase and use.

- C. For Parts/Components/Assemblies/Systems procured from a Seller that is an **OEM**, OCM, Franchised Distributor, or Authorized Aftermarket Seller for that specific Part/Component.
1. The Seller **shall** provide material traceability documentation with each **delivered** component. Minimum traceability requirements for electronic component parts **shall** include:
 - a. Clear identification of the name and location of supply chain intermediaries from the manufacturer to the direct source (OCM/ OEM/ AAM/Franchised-Authorized/One-Tier Removed) of the product for the Seller. Manufacturer name and address; manufacturer and/or Buyer's part number and dash number; batch identification for the item(s) such as date codes, lot codes, heat lot, serializations, or other identifications; Signature or stamp with title of Seller's authorized personnel signing the certificate.

NOTE: In addition to the above, **distributors shall** include their company's certification for each part number shipped.
 2. The Seller **shall** provide certification for assemblies stating that all components are traceable to the OEM/OCM or Franchised Distributor.
- D. For Parts/Components procured from a Seller that is not an OCM, Franchised Distributor, Authorized Aftermarket Seller; or if Supply Chain Traceability is unavailable, or suspected of being false, after acceptance of the **Procurement Document**; or if Chain of Custody to Northrop Grumman exceeds "One-Tier Removed" for that specific Part/Component.

NOTE: If after acceptance of the **Procurement Document** the Seller discovers that it is unable to comply with the supply chain traceability requirements of its **Procurement Document** (including electronic parts contained in procured electronic assemblies), The Seller **shall** contact the Buyer for further direction **IAW** the RC/I process outlined in **SQ01-T or the SIR process in SQ31, whichever is applicable.**

1. The Seller **shall** demonstrate the capability to have all authenticity validation tests and inspections (e.g., AS6081, IDEA-STD-1010) performed and managed per the direction of Northrop Grumman. Northrop Grumman reserves the right to disapprove the use of any facility for authenticity testing.
2. The Seller **shall** meet minimum Northrop Grumman authenticity validation requirements for procured EEE parts without traceability to the manufacturer **as** set forth below. The following standards may be replaced by equivalent specifications. The version of the applicable documents is the revision in effect as of the date of the **Procurement Document**:
 - a. AS6081, *Fraudulent/Counterfeit Electronic Parts: Avoidance, Detection, Mitigation, and Disposition – Distributors*
 - b. MIL-STD-883, *Test Method Standard- Microcircuits*

- b. Not ship parts to Northrop Grumman **that** fail these tests/inspections **and not** utilize such parts in circuit card assemblies or other products delivered to Northrop Grumman.
- c. Maintain a separate copy of validation results and disposition. Copies **shall** be provided to Northrop Grumman **IAW Procurement Document** requirements or upon request.

SQ44 DFARS 252.225-7009 Specialty Metals

Guidance: A and B apply when SQ44 is required.

- A. Sellers providing products containing specialty metals **shall** ensure the product is compliant with DFARS 252.225-7009, *Restriction on Acquisition of Certain Articles Containing Specialty Metals*.
- B. Sellers **shall** take the proper course of action to meet the requirements of this clause in the products delivered to NGDS. All government supply **Procurement Document** suppliers are subject to DFARS 252.225-7009, which is incorporated in NGDS **Ts&Cs T-1**, and included as an additional clause to T-2 for government commercial items per the DoD Specialty Metals requirement.

NOTE: Failure to comply with the specialty metals clause may adversely impact delivery of NGDS products in support of the War Fighter, resulting in delays in schedule and potentially expensive retrofitting throughout the supply chain. **Products** must comply with the Specialty Metals clause prior to delivery to NGDS.

SQ45 Maintenance Services Requirements

Guidance: A, B, C, D, and E, **shall** apply when SQ45 is required

- A. Seller **shall** be responsible for the maintenance of any equipment provided to Seller under this Procurement Document and as defined in the manufacturer's manuals, warranty agreement, and/or Return Material Authorization (RMA) agreement.
- B. Seller's repair will use equipment that is calibrated and **shall** be IAW SQ11.
- C. Seller **shall**, at a minimum, maintain any equipment provided by the Seller under the same terms, conditions, and quality clauses as the original purchase, including the use of qualified processes and personnel as designated in the manufacturer's manual unless otherwise specified by the maintenance Procurement Document.
- D. Seller, during the maintenance/repair, **shall** be IAW SQ01-A.
- E. Upon completion of the maintenance/repair, the Seller **shall** prepare a data package providing evidence that the maintenance was performed as required, including the nature of the actions performed and acceptance results. Handling and storage should be as specified in SQ01-L.

4.0 Acronyms

The following acronyms are used in this plan.

Acronym	Definition
AAM	Authorized Aftermarket Manufacturer
ANSI	American National Standards Institute
AQRPS	Automated Quality Requirements Planning System
AS	Aerospace Standard
ASQ	American Society for Quality
ASTM	American Society for Testing and Materials
CFR	Code of Federal Regulations
CMMI	Capability Maturity Model Integration
CoC	Certificate of Conformance
COTS	Commercial Off The Shelf
CPP	Counterfeit Part Prevention
CSI	Critical Safety Items
CSMR	Combat Systems and Mission Readiness
DFARS	Defense Federal Acquisition Regulation Supplement
DoD	Department of Defense
DODISS	Department of Defense Index of Specification and Standards
DSA	Defense Supply Agency
ECP	Engineering Change Proposal
EEE	Electrical, Electronic, and Electromechanical
EIA	Electronic Industries Alliance
EIDP	End Item Data Package
ESD	Electrostatic Discharge
FAA	Federal Aviation Administration
FAI	First Article Inspection
FAR	Federal Aviation Regulation
FOD	Foreign Object Debris
FSDO	Flight Standards District Office
GIDEP	Government Industry Data Exchange Program
GSC	Global Supply Chain
IAW	In Accordance With
IDEA	Independent Distributors of Electronics Association
HIS	Information Handling Services
IPC	Institute of Printed Circuits
ISO	International Organization for Standardization
IT	Information Technology
ITIL	Information Technology Infrastructure Library
JEDEC	Joint Electron Device Engineering Council
MA	Material Authenticity

Acronym	Definition
MIL	Military
MRB	Material Review Board
MSDS	Material Safety Data Sheet
MSFC	Marshall Space Flight Center
NDT	Non-Destructive Testing
NGDS	Northrop Grumman Defense Systems
OCM	Original Component Manufacturer
OEM	Original Equipment Manufacturer
PIND	Particle Impact Noise Detection
Q-Clauses	Quality Requirements
QML	Qualified Manufacturers line
QMS	Quality Management System
QPL	Qualified Parts List
RC/I	Request for Change/ Information
RMA	Return Material Authorization
RMS	Return Material Authorization
SAE	Society of Automotive Engineers
SEI	Software Engineering Institute
SEM	Scanning Electron Microscope
SIR	Supplier Information Request
SQAR	Supplier quality Assurance Requirements
ST	Special Tooling
STE	Special Test Equipment
Ts&Cs	Terms and Conditions
U.S	United States
U.S.C	United States Code
UID	Unique Identification
WHMA	Wiring Harness Manufacturer's Association