QUALITY REQUIREMENTS for SUPPLIERS

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Revision E

Release Approvals

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Revision Log

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Feb 12, 2018	A	Updated supplier approval levels	Nighat F., Karanjeet S. & Fizra A.
May 14, 2018	B	Amended to include AS9100D clause 8.4.3m (changes shown by margin bars)	Nighat F. & Fizra A.
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1 Introduction

1.1 STAR Suppliers

Star Navigation Systems Group Ltd. (STAR) recognizes the very important role Suppliers have in the value we offer our customers. As an extension of our own operations, we rely on our Suppliers to provide materials, products, and services which meet all of the requirements of STAR contracts, applicable specifications, and the quality management requirements outlined herein.

1.2 Purpose

The purpose of this document is to inform STAR Suppliers of the core expectations we have regarding the Supplier's quality management systems, design requirements and manufacturing process controls required for the objective of doing business with STAR. This document describes what STAR expects from its Suppliers to ensure that all STAR requirements and expectations are met.

1.3 Scope

This manual applies to all Suppliers providing STAR with materials, products, and related services, and when applicable, to Supplier sub-tier sources. The general requirements outlined herein do not supersede conflicting requirements in the STAR contract, or drawing, including applicable engineering specifications and process specifications, or applicable long-term agreement(s). This document is invoked by direct reference on the purchase order.

1.4 Responsibility

Suppliers shall flow down all applicable requirements of this document with all sub-tier suppliers. No deviation from these requirements is permitted unless specifically authorized in writing by STAR.

Suppliers shall login at STAR website to get updated manual "Quality Requirement for Supplier" and comply at each achieved PO.

1.5 Terminology

In this document, the terms "shall" and "must" mean that the described action is mandatory; "should" means that the described action is necessary and expected with some flexibility allowed in the method of compliance; and "may" means that the described action is permissible or discretionary.

2 Quality System Requirements

2.1 General

Suppliers shall maintain a Quality Management System (QMS) suitable to the products and services provided to STAR that is certified by an accredited third-party certification body to the latest version of one or more of the following, as applicable:

- ISO 9001 - Quality Management System Requirements
- AS/EN/SJAC 9100 - Quality Management System Requirements (Aerospace)
- AS/EN 9120 - Quality Management System Requirements (Distributors/Stockists)
- ISO13485 – Medical devices – Requirements for regulatory purposes

Suppliers shall comply with the following requirements:

a) **Distributors/Stockists** - shall establish and maintain a QMS that is in compliance with AS/EN 9120, AS/EN/SJAC 9100, ISO13485 or ISO 9001.

b) **Calibration Laboratories** - shall establish and maintain a QMS and measurement management system that is in compliance with ISO 9001 and ISO/IEC 17025 General requirements for the competence of testing and calibration laboratories.

c) **Commercial-Off-The-Shelf Suppliers (COTS)** - Suppliers that provide commercial products shall establish a QMS in compliance with ISO 9001, or equivalent.

d) **Manufacturers of build-to-print and supplier-controlled designs** - shall establish and maintain QMS that is in compliance with ISO13485 or AS/EN/SJAC 9100.

e) **Software Suppliers (Deliverable Software)** – shall establish and maintain a QMS that is in compliance with RTCA/DO-178, AS/EN/SJAC 9100 and AS 9115.

Suppliers registered in accordance with AS 9104 shall be listed in the SAE OASIS database.

2.2 Quality Manual

Upon request, the Supplier shall furnish STAR with a copy of the Supplier's Quality Management System (QMS) Manual, which is to be current and approved by the Supplier's management, including, or referring to related documents. The QMS manual shall include a quality policy and quality objectives. Top management shall define quality objectives and measurements which should address customer expectations and be achievable within a defined period of time. The Supplier shall promptly notify STAR of any substantive changes to the Supplier's quality management system or personnel.

3 Supplier Approval Process

3.1 Supplier Status Levels

STAR requires all Suppliers to be approved and listed on the STAR Approved Suppliers List (ASL) prior to the issuance of a purchase order (PO). All Suppliers must be approved by STAR, regardless of approvals by customers or other entities.

STAR uses the following Supplier status levels:

a) **Approved**: An approved Supplier is compliant with all STAR expectations and is placed on the STAR ASL. Purchase orders may be placed with the Supplier.
b) **Un-Approved** : Supplier may continue on existing production contracts, but no new contracts or bid solicitations can be placed.

3.2 Supplier Approval

The Supplier Approval Process may include the following:

a) **Supplier Initial Assessment**
STAR may request the Supplier to provide a copy of their quality management system certificate and/or complete supplier survey (i.e., quality, delivery, technology, cost, and continual improvement objectives

b) **Documentation Audit**
In those cases where a Supplier's quality management system has not been certified by an accredited certification body, STAR may request a copy of the Supplier's Quality Manual and supporting procedures (and perhaps internal audit reports) to determine if the Supplier's quality management system meets STAR requirements.

c) **On-Site Assessment**
Generally, when a Supplier is certified to a related standard by an accredited certification body, STAR will not conduct an on-site assessment of the Supplier's quality management system against the same criteria. However, STAR and/or its customers, due to product/process complexity or criticality, may elect to conduct on-site assessments of a Supplier's product or process capabilities. As a result, findings may be issued. These assessments could include:

i. **Quality Management System (QMS)** – if necessary, as a result of (or in conjunction with) product or process capability assessments, to determine whether the Supplier's quality management system meets one or more of the applicable standards and is functioning effectively.
ii. **Business and Manufacturing Operations** – to determine whether the Supplier has the financial resources, production capacity, and other

business resources needed to fulfill STAR volume production needs and continuity of supply.

iii. **Continual Improvement Initiative** – to determine if the Supplier's culture, methods, and skills are present to actively pursue continual improvement.

iv. **Technology Assessment** - to determine whether the Supplier has the needed technical resources, including production and inspection equipment, facilities, engineering resources, etc.

v. **Sub-Tier Supplier Control** –to evaluate the effectiveness of the Suppliers sub-tier management processes and ensure that products or services procured from sub-tier sources and delivered to STAR conform to all applicable STAR requirements. **Suppliers take prior approval from STAR before use of sub-tier services.**

4 General Requirements:

The following set of general quality requirements applies to all Suppliers.

4.1 Compliance to Contractual Arrangements

Upon accepting a STAR contract, the Supplier is responsible for compliance to all contract requirements (e.g., engineering drawing, specification, process instructions and purchase order). All documents, drawings, and specifications, regardless of origin, are applicable to the Supplier when specified in the contract or documents referenced in the contract and are required to be used at all levels of the supply chain. Unless otherwise specified in the contract, the document revision in effect on the date of issue of the contract takes precedence. Neither audit, surveillance, inspection, or tests made by STAR, representatives of STAR or its customer(s), at Supplier's facilities, at any sub-tier facilities, or upon receipt at STAR, relieves the Supplier of the responsibility to furnish acceptable products or services that conform to all contract requirements; nor does it preclude subsequent rejection by STAR or its customers. Where applicable, for medical devices, a Medical Device Quality Agreement will be used to detail additional requirements for suppliers.

4.2 Control of Sub-Tier Suppliers

The Supplier, as the recipient of the contract, is responsible for meeting all requirements, including work performed by the Supplier's sub-tier suppliers (also known as sub-suppliers or subcontract suppliers). When the Supplier uses sub-tier sources to perform work on products and/or services scheduled for delivery to STAR, the Supplier shall include "flow-down" on contracts, to its sub-tier sources, all of the applicable technical and quality requirements contained in the STAR contract, including quality system requirements, regulatory requirements, the requirement to document and control Key Characteristics and Special Requirements, and to furnish certifications and test reports as required.

4.3 Right of Access

The supplier shall provide access for STAR personnel, government and civil aviation authorities, and customers to their facilities, personnel and records when requested as required for quality management systems and /or quality assurance programs reviews, product/process validation evaluations or investigations, subject to proprietary considerations. The supplier shall flow down this requirement to all of their sub-tier suppliers.

4.4 Personnel Awareness Requirements

The Supplier shall ensure that personnel performing activities that affect quality of a product/service and processes are made aware of:

- their contribution to product or service conformity,
- their contribution to product safety
- the importance of ethical behavior.

4.5 Risk Management

The Supplier shall establish a risk management program in accordance with the guidelines established by SAE ARP9134 (or equivalent) to effectively assess those elements from all aspects of the business that could affect the quality of the products and/or services scheduled for delivery to STAR. A copy of the Supplier's risk management program shall be furnished to STAR upon request.

4.6 Material Substitutions

Material substitutions are *not* allowed unless authorized by engineering drawing, material specification, STAR MRB (Material Review Board) disposition, or superseding of a material specification.

a) *Counterfeit parts* - Suppliers shall ensure that counterfeit or unapproved parts are not delivered to STAR and/or STAR customers.

b) *Standard components* - Suppliers of standard hardware shall maintain traceability to actual manufacturer and manufacturing lot. Suppliers shall ensure the standard hardware delivered to STAR conforms to the latest specification or configuration requirements.

c) *Offload/Transfer of Work* - Suppliers shall ensure the capability of all offloads sub-tiers and the quality of all products. No supplier shall subcontract work to another supplier without having first obtained the written consent of STAR. Permitted exceptions include those suppliers issuing their own statement of conformity under a manufacturer certificate or equivalent document issued by a foreign state with which Canada has an airworthiness agreement or similar arrangement, and distributors of standard components.

Suppliers may request a material substitution or other convenient media of equivalent content and submitting to STAR for review of engineering change proposal.

4.7 Revision Control

Suppliers shall have a process to review and incorporate revisions/changes, to maintain revision control of STAR products, whenever any type of revision/change is supplied by STAR.

4.8 Control and Release of STAR Furnished Documents

Documents furnished by STAR to the Supplier are furnished solely for the purpose of doing business with STAR. Proprietary documents may be furnished to the Supplier in hard copy, electronic or other media. The Supplier is responsible for controlling and maintaining such documents to preclude improper use, loss, damage, alteration and/or deterioration. Unless authorized by STAR in writing, the Supplier may not transmit or furnish any STAR furnished documents, or copies of such documents, to anyone outside the Supplier's business organization except to a sub-tier source used by the Supplier for performance of work on the STAR contract.

The Supplier shall return to STAR or purge electronic copies of all proprietary documents with the last delivery of products or services on the contract. STAR may request the Supplier to furnish objective evidence or certification that proprietary documents have been purged. The Supplier shall flow down this requirement to all sub-tier sources when such sources will be in receipt of STAR proprietary documents during performance of work for the Supplier.

4.9 Electronic Documents

The accuracy and authenticity of electronic documents submitted to STAR is of highest importance. The use of electronic forms and signatures must be described in and governed by the Supplier's documented procedures. The following rules apply and may be subject to review by STAR at Suppliers' facilities:

a) The issue of electronic documents and application of electronic signatures must be under the direct control of the individual whose name appears on the electronic document.

b) The electronic signatures may only be applied at the place where the individual is located, and the individual must have direct access and responsibility for the products or services described in the electronic document.

c) The application of the electronic signature certifies that the signature (individual) represents an authorized company official.

4.10 Record Retention

Unless otherwise specified by STAR, the Supplier shall maintain all records that provide objective evidence of compliance to STAR contract requirements for **a minimum of ten (10) years after the last delivery of products and/or services on the contract.** Prior to discarding, transferring to another organization, or destruction of such records, the Supplier shall notify STAR in writing and give STAR the opportunity to gain possession of the

records. These requirements are applicable to records generated by Supplier's sub-tier sources.

In case of termination of operation (takeover, transfer of ownership and joint venture), Suppliers shall define and implement the new responsibilities of record archiving, including the possible transfer to the owner as applicable.

In case of bankruptcy, the Supplier shall ensure that archived records are maintained accessible for its customers and the Regulatory authorities, including their possible transfer to them.

4.11 Transport Canada Regulations

When specified on the contract by STAR, and where the Supplier holds appropriate regulatory approvals, the Supplier shall provide an Authorized Release Certificate: TC Form One, FAA 8130-3, EASA Form 1, or JAA Form One, in accordance with Transport Canada Civil Aviation Regulations Part V – Standard 561, 561.10, and foreign regulatory requirements.

4.12 Business Continuity

The Supplier should have a business continuity plan which would allow for the safeguarding, storage and recovery of engineering drawings, electronic media, and production tooling in the event of damage or loss. This plan should also contain contingency plans to satisfy STAR requirements in the event of significant utility interruptions, labor shortages, equipment failure and field returns.

4.13 Internal Quality Audits

The Supplier's quality function is responsible for monitoring the company's compliance to the quality system and effectiveness through audits. The method and frequency of internal audits shall be defined in documented procedures. Audits shall be performed by trained personnel independent of the function under evaluation. Findings are to be recorded, reported, corrected, and monitored to prevent recurrence. STAR shall be notified in writing of all major non-conformances that have an impact on STAR programs, products, or services.

4.14 Training

The Supplier shall establish a method for training, assessing, and documenting the proficiency of personnel performing activities that affect quality. Recurrent training shall be conducted as needed for regulatory, technical skills and special process personnel qualification. Training requirements shall be continually reviewed to ensure skills are upgraded to follow changes in methods and technology advancements. Records related to training shall be retained.

5 Product Qualification:

5.1 General

This section defines the generic requirements for production part qualification and approval. The purpose is to determine if all STAR design and specification requirements are properly understood by the Supplier and that the manufacturing processes have the capability to consistently meet these requirements.

5.2 Design and Development Review

In all instances where a product is manufactured to a new design, for a new system, or for a new application, the Supplier and STAR shall allocate responsibility for assuring that all performance, reliability, maintenance, and safety requirements are met. The Supplier shall maintain a Design and Development program that includes systematic reviews at suitable stages to evaluate the ability of the results of design and development to meet requirements. There shall be at a minimum, a System Requirements Specification to establish a Functional Baseline, a Preliminary Design Review (PDR) to establish an Allocated Baseline (sub-system level and interfaces), and a Critical Design Review (CDR) to establish a Product Baseline (full engineering release). These reviews shall be conducted with STAR representatives and functions concerned with the design and development stage(s) being reviewed to authorize progression to the next stage. Records of the results of the reviews shall be maintained by the Supplier.

5.3 Production Process Verification (FAI)

This activity is often referred to as First Article Inspection (FAI). The purpose of FAI is to give objective evidence that all engineering, design, and specification requirements are correctly understood, accounted for, verified, and recorded. When a FAI is required, the Supplier shall use a representative item from the first production run of a new part or assembly to verify that the production processes, production documentation and tooling are capable of producing parts and assemblies that meet requirements. This process shall be repeated when changes occur that invalidate the original results. FAI shall be documented in accordance with AS/EN/SJAC AS 9102.

a) A ***new FAI*** is required when there is a:
   i. twenty-four (24) month gap of time since the last production run (excess stock from the last production run cannot be used to satisfy the FAI requirement), or
   ii. new supplier, off-load, work transfer, or new product introduced.

b) A ***delta FAI*** is required when there is a:
   i. new revision of a part number, or
   ii. process change affecting fit, form, or function, or
   iii. manufacturing process or inspection method change, or
   iv. corrective action resulting from a part non-conformance.

5.4 Process Flow Diagram / Failure Mode Effects Analysis / Control Plan

Suppliers with product design responsibility shall develop a Process Flow Diagram, Design FMEA and Process FMEA.

a) ***Process Flow Diagram:*** The Supplier shall have a visual diagram of the proposed or current process. This diagram shall clearly describe the production process steps and sequence.

b) ***Design FMEA:*** The Supplier shall develop a Design FMEA in accordance with SAE J1739 and AS 9100. A single Design FMEA may be applied to a family of similar parts or materials.

c) ***Process FMEA:*** The Supplier shall develop a Process FMEA in accordance with SAE J1739 and AS 9100. A single Process FMEA may be applied to a family of similar parts or materials.

d) ***Control Plan:*** The Supplier shall have a Control Plan that considers the output from the FMEA and defines all methods used for process monitoring and control of special product/process characteristics. A single control plan may apply to a group or family of products that are produced by the same process at the same source.

6 Process Control:

6.1 General

The Supplier shall plan production, installation and processes that affect product quality and ensure they are carried out under controlled conditions. These conditions include suitable production and installation equipment, documented work instructions, as well as suitable working environments. There shall be a clear definition of workmanship criteria and standards. Process equipment and personnel shall be qualified and approved as per the applicable requirements. Cleanliness and organization shall be appropriate to the work being performed.

6.2 Work Instructions

The Supplier shall prepare documented work instructions, as necessary, for all employees having responsibilities for the operation of processes that impact product quality. These instructions shall be maintained current and accessible for use at the workstation.

6.3 Manufacturing Records

The Supplier and sub-tier suppliers shall maintain manufacturing records that provide traceability to all manufacturing and inspection operations. These records shall clearly indicate material status and acceptability and shall include as a minimum:

a) Part number, revision, and material traceability.
b) List of all serial numbers (if serialized) or quantity of parts (if non-serialized).
c) Clear description of operations to be performed in the proper sequences to produce the completed product to include receiving, in-process and final inspections.
d) A record of the number of parts accepted or rejected at each completed operation. If serialization is a requirement, rejected serial numbers shall be noted adjacent to the operation.
e) A record of the date of acceptance or rejection activity at each operation with operator's stamp or initials.
f) Applicable work instructions referenced on the Shop Traveler to denote the method used to complete an operation.
g) When manufacturing lot quantities are reduced or "split", a record of the activities at applicable operations on both the original and on the new Shop Traveler.
h) For operations performed by an outside source, a record of the information traceable to the source used (e.g., purchase order).
i) Evidence of any required rework activities.
j) Evidence of completion of MRB disposition actions.

6.4 Control of Monitoring and Measuring Equipment

The Supplier shall determine the monitoring and measurement to be undertaken and the monitoring and measuring devices needed to provide evidence of conformity of product to determined requirements. As a minimum, where necessary to ensure valid results, measuring equipment shall be:

a) calibrated or verified at specified intervals, or prior to use, against measurement standards traceable to international or national measurement standards; where no such standards exist, the basis used for calibration or verification shall be recorded,
b) identified to enable the calibration status to be determined, and
c) in compliance with the requirements of ISO/IEC 17025

6.5 Special Requirements and Key Characteristics

The Supplier shall demonstrate conformity to those special characteristics designated by STAR through means of documentation and appropriate control methods. In addition to any special characteristics identified by STAR, the Supplier shall also review, identify, document, and control other product and process characteristics that are key to achieving quality. The Suppliers' variation management program shall be in compliance with requirements of AS/EN/SJAC9103. When specified in the Control Plan, the Supplier is required to apply effective statistical controls.

6.6 Error Proofing

The Supplier should use error-proofing devices and techniques as a form of process control; especially for repetitive functions, difficult tasks prone to mistakes, or where the cost of error is high.

6.7 Preventive Maintenance

The Supplier should identify key process equipment and provide resources for machine/equipment maintenance activities and develop an effective planned total preventive maintenance system.

6.8 Shelf-Life Control

With each delivery of materials or products that have a limited or specified shelf life, the Supplier shall furnish data that shows:

a) cure or manufacture date,
b) expiration date or shelf life,
c) lot or batch number, and
d) when applicable, any special handling or storage requirements.

Unless otherwise specified by contract, for all shelf-life limited materials or products delivered to STAR, the remaining shelf life shall be a minimum of 75% of the total shelf life for the material.

6.9 Operator Self-Verification

Suppliers may delegate inspection authority and product/process inspection and acceptance to production operators. In such cases, the Supplier's operator self-verification program shall comply with the requirements of SAE ARP9162. Prior to implementation of the program on products/processes scheduled for delivery to STAR, the Supplier shall request and obtain approval from STAR in writing.

7 Product Identification and Traceability:

7.1 Identification Requirements

The Supplier shall provide clear identification of materials and components at receipt and during all stages of storage, manufacturing, assembly, and delivery. The Supplier shall identify specifically when and to what extent unique identification of individual product or batches is required for traceability. Identification of individual product or batches shall be recorded.

The Supplier's quality system shall provide that:

a) All product identification be clearly legible after final surface coatings unless specifically allowed by engineering specifications,
b) All products received by STAR have supplier's final acceptance stamp on the product or on a tag/package if the product does not have an adequate space for stamping,
c) Non-serialized parts be identified with date of manufacture (e.g., MM/YY), batch or lot number,
d) Country of origin be identified on all products, bags, or tags for imported parts in accordance with Canadian Border Service Agency (CBSA) B13A Export Declaration (e.g., Made in X, Product of X, Assembled in X),
e) Parts requiring serialization be identified with unique serial numbers, which shall not be duplicated,
f) Serial numbers remain unique and consecutive for each engineering drawing part number regardless of revision,
g) Packaging identification requirements are documented, and
h) Kits have an assigned part number and revision level. Each detail item shall be identified per applicable engineering requirements, and quality acceptance of the kit.

7.2 Traceability Requirements

The Supplier's quality system should provide:

a) Identification to be maintained throughout the product life,
b) The ability to trace all products manufactured from the same batch of raw material, or from the same manufacturing batch to the destination (e.g., delivery, scrap),
c) For an assembly, the identity of its components and those of the next higher assembly to be traced, and
d) For a detail part, sub-assembly and assembly, a sequential record of its production (manufacture, assembly, inspection) to be retrieved.

8 Inspection and Testing:

8.1 General

The Supplier shall provide for mandatory verifications that manufactured products meet technical requirements. Acceptance or rejection of parts shall be clearly documented. Verification activities shall be carried out throughout the manufacturing cycle.

8.2 Receiving Inspection and Testing

Purchased product shall be verified using defined procedures. Incoming material shall be isolated and withheld until it has been established that they conform to the contractual requirements and all applicable requirements.

8.3 In-process Inspection and Testing

In-process inspection and testing shall be carried out using documented procedures and the results shall be maintained throughout the manufacturing cycle.

8.4 Final Inspection and Testing

Final inspection and verification of manufactured products shall be conducted prior to delivery. Procedures for final inspection and testing activities shall be documented and include review of in-process verifications. No products may be delivered until all required activities are satisfactorily completed and the products are verified to be compliant to the contractual requirements and all applicable requirements unless a written authorization has been received from STAR.

8.5 Inspection and Test Records

Records shall provide objective evidence that delivered products have passed inspection and/or verification. Test records shall be retained to provide evidence of acceptance. Electronic signatures are acceptable providing that the traceability, data integrity, system security, data backup and retrieval requirements are documented in the quality system.

8.6 Inspection and Test Status

When acceptance authority media are used (e.g., stamps, electronic signatures), the Supplier shall establish appropriate controls for the media. Documented procedures shall identify authorized signatories for verification, certification, and release of products. This procedure must also provide for security controls for electronic signatures (i.e., passwords, etc.).

8.7 Acceptability of Electronic Assemblies

The acceptance criteria for completed electronic assemblies shall be the latest revision of IPC-A-610. All products shall meet the requirements specified on the assembly drawing(s)/documentation and the requirements of IPC-A-610 Class 3. Missing hardware or components is considered to be a defect.

9 Control of Documents and Configuration Management:

9.1 Control of Documents

Supplier documentation and data related to products or services need to be controlled. This includes documentation and data provided to the Supplier's sub-tier, as well as Customer data provided to Suppliers by STAR. Obsolete documents need to be removed from points of issue or otherwise controlled to preclude unintended use.

9.2 Configuration Management and Change Control

The supplier shall maintain a configuration management system. Changes to engineering and quality documentation are required to be in accordance with the Supplier's quality system and processed to ensure implementation at the specified effectivity. Records of changes are to be maintained. The Supplier's quality system is to inform inspection personnel of all changes to the documentation.

9.3 Change Authority

Suppliers shall not make changes to their processes, location, facilities, equipment, material, product design (or any change which may affect product design or function) without written approval from STAR for:

a) correction of a discrepancy on a previously submitted part,

b) product modified by an engineering change to design records, specifications, or materials, or

c) any planned changes by the Supplier to the design process or manufacturing location.

10 Control of Non-conforming Product and service:

10.1 Non-conforming Product and service

Non-conforming product and service are defined as material/service that cannot be reworked into a conforming condition prior to a controlled process. Non-conforming product and service shall be identified and controlled to prevent its unintended use or delivery. This includes non-conforming product returned by STAR or its customers.

10.2 Material Review Board (MRB) Authority

a) ***Build-to-print designs*:** STAR has MRB authority for build-to-print designs. Suppliers shall not perform unauthorized rework on non-conforming product. Non-conforming product that cannot be reworked within the normal drawing tolerance, applicable specification or special process shall be reported to STAR for MRB review and disposition, using the Non-conformance Report . Non-conforming product shall not be shipped until the STAR MRB disposition is complete and the product/service is accepted through the Supplier's quality system. Dispositions of ***use-as-is*** or ***repair*** shall only be used after approval by STAR. Product dispositioned for scrap shall be conspicuously and permanently marked, or positively controlled, until physically rendered unusable.

b) ***Supplier-controlled designs*:** In the absence of engineering requirements, Suppliers shall have MRB authority for products controlled by the Supplier's design. Supplier's MRB dispositions shall be made available to STAR upon request.

10.3 Items returned to the Supplier for Repair, Rework or Modification

Items returned for repair, rework or modification shall be returned to STAR in a condition compliant to the contract and all applicable requirements. *Rework* is defined as additional operations that are not part of the basic production process flow, which will bring product in full compliance with applicable drawings and specifications. Instructions for rework, including re-inspection requirements shall be made accessible to, and utilized by the Supplier. All reworks shall be documented and accepted by Quality. *Repair* is defined as using alternative manufacturing techniques, methods, materials, or processes which may *not* bring product into full compliance with applicable drawings and specifications. Repairs are not allowed without written approval from STAR.

10.4 Disclosures

The Supplier must promptly notify STAR, in writing, when a non-conformance is discovered in the Supplier's processes or components for product and /or service already delivered. The Supplier shall document all non-conforming conditions in accordance with the requirements of AS/EN/SJAC 9131 and submit them to STAR within 24 hours of discovery.

10.5 Supplier Containment

For product quality problems reported by STAR to the Supplier, and until formal corrective action has been taken and approved, the Supplier shall provide documented evidence with subsequent shipments that such product and /or service has been inspected for the identified non-conformance(s) and meets all applicable requirements.

11 Handling, Storage, Preservation and Shipping:

11.1 Electrostatic Discharge (ESD) Control

Suppliers scheduled to provide ESD sensitive devices to STAR shall, prior to processing product, establish, document, and implement an Electrostatic Discharge (ESD) Control Program plan in compliance with the requirements of ANSI/ESD S20.20, MIL-STD-1686, or equivalent. Suppliers delivering ESD sensitive product shall ensure its protection using ESD packaging (e.g., connector caps, static shielding bags, and bubble sheets) per MIL-STD-2073 and MIL-HDBK-263.

11.2 Chemical Substance Control

Suppliers shall use all commercially reasonable endeavors to comply with laws related to environmentally friendly manufacture and REACH requirements. REACH is the European Community Regulation on chemicals and their safe use (EC 1907/2006). It deals with the Registration, Evaluation, Authorization and Restriction of Chemical substances.

11.3 Foreign Object Debris (FOD) Control

Suppliers shall have a written procedure for the prevention, detection, and removal of FOD (reference NAS 412). This will include a training program for proper material handling, part preservation, housekeeping and working in a manner to prevent FOD. This requirement shall be flowed down to sub-tiers.

11.4 Preservation

In order to detect deterioration, the condition of product in stock should be assessed at appropriate planned intervals. The Supplier should use an inventory management system to optimize inventory turnaround time and should assure stock rotation, such as “first-in-first-out” (FIFO).

11.5 Packaging

The Supplier must adequately plan for packaging designed to prevent product contamination, deterioration, or loss and to eliminate shipping damage. Suppliers should provide expendable packaging or returnable containers, where appropriate, that provide for sufficient density and protection from any likely damage that may occur. Expendable materials and packaging must meet local and national standards for safe disposal and/or recycling.

11.6 Delivery

The Supplier should systematically inform STAR of any delay in delivering product and provide a new dispatch date. The Supplier is responsible for additional transport costs due to delays.

The following documents shall be furnished with each shipment to STAR:

- Packing Slip
- Certificate of Conformance (CoC)
- If applicable, country of origin identified in accordance with Canadian Border Service Agency (CBSA) B13A Export Declaration
- If applicable, any STAR dispositioned NCR's (non-conformance reports) with clear evidence of completion

The CoC shall be signed by the Supplier's Head of Quality or company officer (or their authorized delegate) attesting that all products and/or services delivered in compliance with all contract requirements. All CoC's must be in the English language and may be in electronic format with electronic signatures. All signatures or signature blocks must clearly show title of the signatory.

The CoC shall include:

a) Supplier name and address
b) Part number and drawing revision level
c) STAR purchase order number
d) Quantity delivered
e) Lot number (if applicable)
f) Serial number (if applicable)
g) Shelf-life expiry date (if applicable)

For FAI delivered product or/and service, a copy of the AS9102 completed forms, uniquely identified (bubbled) engineering drawing(s), material and process certifications, and applicable test records shall accompany the shipment.

When additional certifications or test reports are required (e.g., FAA certification), the requirements will be specified on the purchase order. Suppliers are required to maintain all applicable inspection records and certifications in such a manner that they may easily be retrieved and provided upon request from STAR.

11.7 Drop Shipments

When authorized by the STAR purchase order, Suppliers can ship directly to STAR customers. The Supplier shall provide a completed packing slip, Certificate of Compliance (CoC) and applicable certification per contract requirements.

12 Improvement:

12.1 Corrective Action and Preventive Action (CAPA)

STAR may request a Corrective Action and Preventive Action (CAPA) to the Supplier when non-conforming material, components, or assemblies are found, or for second party audit findings. When a formal reply is requested (whether hard copy or electronic media), the Supplier should provide CAPA as per their QMS. The preferred STAR root cause methodology is *5-Why*. When documenting the root cause, the Supplier shall include the underlying reasons:

a) why the specific nonconforming condition or incident occurred,

b) why it was not detected by the Supplier's quality controls, and

c) why the related process, from a systemic viewpoint, allowed the non-conformance (and potentially others like it) to occur.

The Supplier should apply the following criteria to determine whether the underlying root cause has been identified:

- It initiates and causes the event you are seeking to explain.
- It is directly controllable.
- The elimination of that root cause will result in the elimination or reduction of the problem.

Statements from the Supplier indicating that the corrective action is to alert or retrain the operator, and/or increase inspection, alone, are ***not*** acceptable corrective actions. These kinds of actions would be considered insufficient and not address the real underlying root cause(s) of why the Supplier's policy, instructions, process, procedure, and/or system allowed the problem to develop and occur and not be detected by quality controls.

12.2 Corrective Action Responsiveness

Unless otherwise requested by STAR when notified, the Supplier shall respond to a request for corrective action as follows:

Required Action	Timeline (from initial Notification by STAR)
The Supplier shall promptly acknowledge receipt of notification and communicate to STAR the immediate containment actions to be taken.	*Within 24 hours*
The Supplier shall provide an update of the containment plan to protect STAR during the interim period. This update must include: a) Confirmation that the Supplier has identified all suspect product in process, in stock, in transit, and potentially at STAR by lot number/serial number, STAR purchase order, and quantity. b) Additional containment actions required by the Supplier and/or STAR	Within 72 hours
The Supplier must submit the CAPA taken, or to be taken, to prevent recurrence of the same nonconformance, to prevent the occurrence of similar nonconformance, and the applicable effectivity dates.	*Within 30 business days or otherwise reason of delay*

12.3 Failure Analysis Report (FAR)

When product is returned by STAR to the Supplier for evaluation, the Supplier shall generate a Failure Analysis Report (FAR) for repaired units within 30 business days of receipt, including the following items:

a) A summary of work performed, including minor adjustment
b) A summary of the repairs
c) A list of replaced parts
d) Alteration done
e) Tests performed
f) Approved documentation used

12.4 Continual Improvement

Suppliers should define a process for continual improvement (e.g., lean, six sigma, theory of constraints, FMEA, etc.). Audits are one form of continual improvement, provided the auditee implements corrective actions based on the audit findings. A copy of the Supplier's continual improvement program shall be furnished to STAR upon request.

13 Applicable Documents:

The following documents are referenced in this manual and may be applicable to the extent specified by STAR in the contract and applicable reference documents. Copies may be obtained from the sources shown. It is the Supplier's responsibility to obtain documents and to ensure that current revisions are maintained, as required.

Document	Document Title	Available From
ISO 9001	Quality Management Systems Requirements (General)	www.ansi.org
SAE AS9100	Quality Management Systems Requirements (Aerospace)	www.sae.org
SAE AS9102	First Article Inspection Requirements (Aerospace)	www.sae.org
SAE AS9103	Variation Management of Key Characteristics (Aerospace)	www.sae.org
SAE AS9115	Quality Management Systems Requirements (Aerospace), Deliverable Software	www.sae.org
SAE AS9120	Aerospace Requirements for Stockist Distributors (Aerospace)	www.sae.org
SAE ARP9131	Quality Systems Non-conformance Documentation	www.sae.org
SAE ARP9134	Supply Chain Risk Management Guidelines	www.sae.org
SAE ARP9162	Aerospace Operator Self-Verification Programs	www.sae.org
IPC-A-610	Acceptability of Electronic Assemblies	www.ipc.org
RTCA/DO-178	Software Considerations in Airborne Systems and Equipment Certification	www.rtca.org
ISO/IEC 17025	General Requirements for the Competence of Testing and Calibration Laboratories	www.iso.org