SUPPLIER QUALITY REQUIREMENTS MANUAL

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1 Purpose

The purpose of this manual is to inform AeroVironment (AV) external providers (hereafter must be referred to as “Suppliers” unless otherwise specified) of the requirements AV has regarding external provider’s processes required for the purpose of doing business with AV through the execution of a contract.

2 Scope

The information in this manual applies to all current AV Suppliers (including their respective external providers) and Suppliers that have interest in doing business with AV.

3 Definitions

TERM	DEFINITION	Reference Standard
“May”	Used to express a possibility or permitted requirement.	BMF-001
“Must”	Used whenever a requirement is intended to indicate a binding, or mandatory, action. “Must” should be used to indicate that a person “has a duty to” or “is obligated to” perform a task or action.”	BMF-001
“Should”	Used to express a non-mandatory provision that is encouraged.	BMF-001
“Will”	Used to express a declaration of purpose or promise of future action. “Will” does not create obligations to perform actions or tasks.	BMF-001
Bill of Material (BOM)	A hierarchical view of the relationship of products and components. Examples: indentured drawing list, product structure, top-down breakdown product tree.	CMI-001
Concession	Permission to use or release a product or service that does not conform to specified requirements	ISO 9000
Configuration	Interrelated functional and physical characteristics of a product or service defined in product configuration information	ISO 9000
Configuration Management	coordinated activities to direct and control configuration	ISO 9000
Contract	Binding agreement EXAMPLE: Purchase Order, Long Term Agreement (LTA), Statement of Work (SOW)	ISO 9000
Defect	Nonconformity related to an intended or specified use	ISO 9000
Design Authority	Design authorities are responsible to determine affect form, fit and function	N/A

Deviation	Temporarily change (deviate) the product or related manufacturing processes from one (or more) requirements of an item's approved configuration documentation. Deviations apply to a specific number of units, or a period of time, when conformance to existing requirements cannot be achieved. Also applies to product developed internally or at supplier. A deviation is a temporary accommodation, typically until corrective action can be implemented to ensure the deviated product or process meets documented requirements. A deviation shall not change an item's identification or revision information.	CMI-001 (AV use only)
Deviation permit	Permission to depart from the originally specified requirements of a product of service prior to its realization	ISO 9000
Document	Information and the medium on which it is contained	ISO 9000
Documented Information	Information required to be controlled and maintained by an organization and the medium on which it is contained EXAMPLE: work instructions, travelers, routers, test reports, shipping documents	ISO 9000
Engineering Change Order (ECO)	Release and change revision-controlled product definitions, configurations, and manufacturing/test information (e.g., parts, design drawings, tooling/test equipment, manufacturing and test procedures, software/firmware, etc.). An ECO provides implementation and disposition information for changed items, sets effectivity dates, and transfers data into the ERP system (for certain ECO categories) to enable manufacturing operations.	CMI-001 (AV use only)
Engineering Change Request (ECR)	Change used to formally capture and request approval for proposed product changes in an effort to gate decisions on whether work should begin and on the scope of work to be done (example: changes to product configuration information, manufacturing or testing that change the product configuration, customer problem requests, requirements, etc.). The ECR process allows for visibility, communication, budgeting, planning, and decision-making regarding proposed changes.	CMI-001 (AV use only)
Engineering Development Lifecycle	The Engineering Development lifecycle designation applies to product definition data that is the result of the integrated product design process. It is used to capture the Initial Release and Engineering Development Release of the product design, to build prototype parts and systems for EVT, and to capture design changes during the course of design and development activities. It is also used to create product mockups for evaluation, or to support risk reduction build and test activities for new product technologies.	ENP-0016 (AV use only)
External Provider or Supplier	Provider that is not part of the organization EXAMPLE: Producer, distributor, retailer or vendor of a product or a service	ISO 9000
Fit	The ability of an item to physically mate or interconnect with or become an integral part of another item.	CMI-001 (AV use only)
Form	The shape, size, dimensions, mass, weight, material, and visual (or non-visual) parameters which uniquely characterize an item. For software, form denotes the language and media.	CMI-001 (AV use only)

Function	The action(s) an item is designed to perform.	CMI-001 (AV use only)
Functional Owner	Accountable department responsible for establishing, documenting, maintaining, implementing and improving the processes under its control.	BMF-001 (AV use only)
Functional Participant(s)	Departments that are stakeholders in the BMSD responsible for following and using the BMSD effectively and suggesting ways to continually improve the process.	BMF-001
Low Rate Initial Production (LRIP) Lifecycle	The LRIP lifecycle designation represents the highest level of design maturity and applies to product definition data that is ready for low-rate initial production activities, first customer shipments, and changes to the design during this phase.	ENP-0016 (AV use only)
Management System	Set of interrelated or interacting elements of an organization to establish policies and objectives and processes to achieve those objectives; management system can address a single principle or serveral disciplines	ISO 9000
Manufacturing Change Order (MCO)	Release or change non revision-controlled items (e.g., COTS) and transfers data to the ERP system to enable manufacturing operations. MCOs can also be used to make changes to revision-controlled items that do not affect an item's form, fit, or function (e.g., changing the lifecycle), and where distinguishing changes by revision is not important.	CMI-001 (AV use only)
Manufacturing Development Lifecycle	The Manufacturing Development lifecycle designation represents a high level of design maturity and applies to product definition data that is ready for manufacturing development activities, product costing activities, manufacturing tooling & fixtures development, and production material procurement activities, and changes to the design during the course of these activities. Manufacturing build and test procedures shall be developed in this lifecycle.	ENP-0016 (AV use only)
Measurement	Process to determine a value	ISO 9000
Measuring equipment	Measuring instrument, software, measurement standard, reference material or auxiliary apparatus or combination thereof necessary to realize a measurement process	ISO 9000
Nonconformity	Non-fulfillment of a requirement; may be referred to as defect	ISO 9000
Notification of Escape	Notification that product or service provided did not conform to requirements	N/A
Output	Result of a process	ISO 9000
Procedure	Specified way to carry out an activity or a process	ISO 9000
Process	Set of interrelated or interacting activities that use inputs to deliver an intended result	ISO 9000
Product	Output of an organization that can be produced without any transaction taking place between the organization and the customer	ISO 9000

Product Definition Information (PDI)	Information that defines the product's requirements, documents the product attributes, and is the authoritative source for configuration management of the product (e.g. configuration, design documentation, bill of materials, software, requirements specification, model-based definition, etc.)	CMI-001 (AV use only)
Production Lifecycle	The Production lifecycle designation represents the highest level of design and manufacturing maturity and applies to product definition data that is ready for full-rate production activities, and changes to the design after Production Release	ENP-0016 (AV use only)
Provider or Supplier	Organization that provides a product or a service	ISO 9000
Quality Management System (QMS)	Part of a management system with regard to quality	ISO 9000
Repair	Action on a nonconforming product or service to make it acceptable for intended use	ISO 9000
Requirement	Need or expectation that is stated, generally implied or obligatory	ISO 9000
Rework	Action on a nonconforming product or service to make it conform to the requirements	ISO 9000
Scrap	Action on a nonconforming product or service to preclude its originally intended use	ISO 9000
Service	Output of an organization with at least one activity necessarily performed between the organization and the customer	ISO 9000
Specification	Document stating requirements EXAMPLE: Quality manual, quality plan, technical drawing, procedure document, work instruction.	ISO 9000
Supply Chain Representative	Buyer responsible for the placement of the contract with the supplier	N/A
Use-as-is	Disposition of material with one or more nonconformances determined to be usable for its intended purpose in its existing condition without compromise to product integrity or performance.	N/A
Verification	Confirmation, through the provision of objective evidence, that specified requirements have been fulfilled	ISO 9000

4 References

ID	DESCRIPTION
ANSI S20.20	PROTECTION OF ELECTRICAL AND ELECTRONIC PARTS, ASSEMBLIES AND EQUIPMENT (EXCLUDING ELECTRICALLY INITIATED EXPLOSIVE DEVICES)
ANSI Z1.4	SAMPLING PROCEDURES AND TABLES FOR INSPECTION BY ATTRIBUTES
ANSI Z1.9	SAMPLING PROCEDURES AND TABLES FOR INSPECTION BY VARIABLES FOR PERCENT NONCONFORMING
AS13000	PROBLEM SOLVING REQUIREMENTS FOR SUPPLIERS
AS5553	COUNTERFEIT ELECTRICAL, ELECTRONIC, AND ELECTROMECHANICAL (EEE) PARTS; AVOIDANCE, DETECTION, MITIGATION, AND DISPOSITION
AS6081	FRAUDULENT/COUNTERFEIT ELECTRONIC PARTS: AVOIDANCE, DETECTION, MITIGATION, AND DISPOSITION - DISTRIBUTORS
AS9100	QUALITY MANAGEMENT SYSTEMS - REQUIREMENTS FOR AVIATION, SPACE, AND DEFENSE ORGANIZATIONS
AS9102	AEROSPACE FIRST ARTICLE INSPECTION REQUIREMENT
AS9131	AEROSPACE SERIES - QUALITY MANAGEMENT SYSTEMS - NONCONFORMITY DATA DEFINITION AND DOCUMENTATION
AS9138	AEROSPACE SERIES - QUALITY MANAGEMENT SYSTEMS STATISTICAL PRODUCT ACCEPTANCE REQUIREMENTS
AS9145	AEROSPACE SERIES – REQUIREMENTS FOR ADVANCED PRODUCT QUALITY PLANNING AND PRODUCTION PART APPROVAL PROCESS
AS9146	FOREIGN OBJECT DAMAGE (FOD) PREVENTION PROGRAM - REQUIREMENTS FOR AVIATION, SPACE, AND DEFENSE ORGANIZATIONS
CMI-001	CONFIGURATION MANAGEMENT MASTER DEFINITION LIST
ENP-0016	LIFECYCLE PROCESS & DEFINITIONS FOR DESIGN & DEVELOPMENT
Executive Order 13556	CONTROLLED UNCLASSIFIED INFORMATION
ISO 14001	ENVIRONMENTAL MANAGEMENT SYSTEMS
ISO 17025	GENERAL REQUIREMENTS FOR THE COMPETENCE OF TESTING AND CALIBRATION LABORATORIES
ISO 9000	QUALITY MANAGEMENT SYSTEMS - FUNDAMENTALS AND VOCABULARY
ISO 9001	QUALITY MANAGEMENT SYSTEMS - REQUIREMENTS
MGF-009	COMPOSITES MOLD MAINTENANCE & INSPECTION LOGBOOK
MGI-004	MOLD MAINTENANCE PROGRAM FOR COMPOSITES
MGI-005	TRANSFER OF AV-OWNED TOOLING AND FIXTURE EQUIPMENT INTERNALLY AND TO/FROM SUPPLIERS
NAS 412	FOREIGN OBJECT DAMAGE (FOD) PREVENTION GUIDANCE DOCUMENT
QSF-012	SUPPLIER INITIAL SURVEY
QSF-019	FIRST ARTICLE INSPECTION REPORT
QSF-149	SUPPLIER SOURCE INSPECTION CHECKLIST
QSF-166	AV PRODUCTION PART APPROVAL PROCESS (PPAP) FORM
QSF-224	SUPPLIER PROCESS CHANGE & DEVIATION REQUEST
QSF-225	MATURITY PATH PREMIER SUPPLIERS-SELF ASSESSMENT
QSF-253	SUPPLIER BASIC QMS ASSESSMENT CHECKLIST
QSF-255	8D REPORT FOR PROBLEM SOLVING
QSP-8.2.4-1	PART IDENTIFICATION AND SERIALIZATION
QSF-257	COMPLIANCE MATRIX FOR SQM-001

5 Applicability Matrix

Applicable Sections of SQM-001		Engineering Lifecycle Phases			Services
		Engineering Development	Manufacturing Development	LRIP and Production	Calibration
6	Supplier General Requirements and Onboarding	X	X	X	
6.1	Supplier Initial Evaluation	X	X	X	
6.1.1	Supplier Quality Management System (QMS)	X	X	X	
6.2	Business Continuity	X	X	X	
6.3	Policy Expectations	X	X	X	
6.3.1	Environment	X	X	X	
6.3.2	Control Unclassified Information (CUI)	X	X	X	
6.4	Right of Entry	X	X	X	
7	Support	X	X	X	
7.1	Measurement Traceability		X	X	
7.2	Control of Documented Information	X	X	X	
8	Operations	X	X	X	
8.1	Contract Review	X	X	X	
8.2	Control of Externally Provided Processes, Products, and Services	X	X	X	
8.2.1	AV Designated Suppliers	X	X	X	
8.3	Product and Service Provision	X	X	X	
8.3.1	Configuration Management	X	X	X	
8.3.2	Traceability		X	X	
8.3.3	Part Marking	X	X	X	
8.4	Property Belonging to AV	X	X	X	
8.5	Preservation	X	X	X	
8.5.1	Shelf Life	X	X	X	
8.5.2	Workmanship	X	X	X	
8.5.3	FOD	X	X	X	
8.5.4	Counterfeit Product	X	X	X	

8.5.5	Electrostatic Sensitive Devices (ESD)	X	X	X	
8.5.6	Packaging	X	X	X	
8.6	Production Process Validation		X	X	
8.6.1	In-Process and Final Inspection	X	X	X	
8.6.2	First Article Inspection (FAI)		X	X	
8.6.3	Special Processes		X	X	
8.6.4	Part Certification		X	X	
8.6.5	Production Part Approval Process (PPAP)		X	X	
8.6.6	Source Inspection		X	X	
8.7	Control of Nonconforming Product		X	X	
8.7.1	Design Authority	X	X	X	
8.7.2	Request for Specification Changes		X	X	
8.7.3	Request for Deviation Permit or Concession		X	X	
8.7.4	Deviations Granted by AV		X	X	
8.7.5	Notification of Escape		X	X	
8.7.6	Stop Process		X	X	
8.7.7	Return to Supplier		X	X	
9	Corrective Action			X	
10	Calibration Services				X
11	Metrics		X	X	

6 Supplier General Requirements and Onboarding

Suppliers must comply with the latest revisions of SQM-001 and other documents referenced herein in order to maintain “Approved” status within AV’s Approved Suppliers List (ASL).

Suppliers must establish compliance to this document and maintain evidence of compliance using form QSF-257. If Supplier identifies gaps in compliance, they shall escalate them to AV Supply Chain representative and AV Supplier Quality; Supplier must initiate corrective action to address any gaps identified.

If conflict between this document and any other requirements flow down exist, order of precedence is as follows:

- Purchase Order
- Drawings
- Specifications
- Terms and Conditions
- SQM-001

All communication between Suppliers and AV must include an AV Supply Chain Representative. Any quality questions can be directed to SupplierQuality@avinc.com with Supplier’s respective AV Supply Chain Representative on copy.

6.1 Supplier Initial Evaluation

The supplier must complete form QSF-012 and QSF-225 for initial evaluation and submit to AV purchasing; submission of this form does not guarantee approval.

6.1.1 Supplier Quality Management System (QMS)

Supplier must, as a minimum, have a QMS that is certified to latest revision of ISO 9001 or AS9100; loss of QMS certification may result in removal from AV’s ASL. Supplier must provide a copy of its QMS certificate and/or applicable regulatory certificates upon request by AV.

Form QSF-253 may be used by AV to audit supplier in cases where QMS is not certified.

AV may request a self-assessment to form QSF-253 in lieu of an audit at any time despite supplier’s QMS certification status.

Supplier must furnish AV with a controlled copy of the Supplier’s Quality Manual and supporting procedures in English upon request. The supplier’s quality management system documentation must include supplier’s quality policy and quality objectives.

Supplier must notify AV of any substantive changes to the Supplier's QMS, top-level management, and/or quality management by resubmitting form QSF-012 for AV review and approval.

Any gaps identified during audit findings may result in a SCAR requiring corrective action per section 9. If findings result in Opportunities for improvement, the supplier may choose whether they want to address the opportunity. AV must review what actions were taken for any previous audit findings in future audits to ensure effectiveness or may review what actions, if any, were taken by the Supplier to address opportunities for improvement provided from audit results.

6.2 Business Continuity

Suppliers must 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 could be done through the storage of records at a separate offsite location. This plan should also contain contingency plans to satisfy AV requirements in the event of significant utility interruptions, labor shortages, and equipment failure and field returns.

6.3 Policy Expectations

6.3.1 Environment

All AV suppliers must have an environmental policy compliant to ISO 14001 requirements. AV seeks to do business with suppliers who observe the principles of sustainable development in the design, production, use and end-of life disposal of their supplied products and services. AV will reduce or discontinue business with suppliers who do not endeavor to support AV Environmental Policy and ISO 14001.

Suppliers must achieve awareness and compliance with all relevant laws and local codes.

6.3.1.1 Environmental Notification

At AeroVironment Inc., we have established, implemented and will be maintaining procedures related to the significant environmental aspects of the goods and services used by the organization in accordance with ISO14001. As such, we are communicating our Environmental Policy and potentially applicable procedures to you. They are as follows:

AeroVironment, Inc. is committed to conducting our business in an environmentally responsible and proactive manner, consistent with our commitment to corporate citizenship, social responsibility and sustainability. Our experience has demonstrated that sustainable business practices can be cost-effective, build employee and customer loyalty and even drive new business for the company.

We aim to conserve natural resources and minimize waste through source reduction and recycling; handle and dispose of waste through safe, environmentally responsible

methods; encourage energy efficiency and the use of renewable energy sources; and encourage our business partners and suppliers to strive for the same high levels of environmental performance.

Our commitment to environmental awareness and preservation is reflected throughout our business.

AV is committed to conducting business in a manner that manages environmental issues responsibly. We fulfill this commitment by:

- Complying with environmental regulations
- Conducting operations in an environmentally sound manner to prevent pollution
- Applying the principles of reduce, reuse and recycle in all processes
- Promoting environmental responsibility among our employees
- Striving to ensure that suppliers agree to comply with environmental regulations
- Pursuing continuous improvement in our environmental performance
- Clearly communicating AV environmental policy, practices, and impact to interested parties
- Train, educate and inform our employees about environmental issues that may affect their work
- Avoid unnecessary use of hazardous materials and products, seek substitutions when feasible, and take all reasonable steps to protect human health and the environment when such materials must be used, stored and disposed of
- Purchase and use environmentally responsible products accordingly.

Within these communications, AeroVironment may request information regarding environmental programs at your facility, and utilize this information in determining our overall environment impact as a business. With this in mind, process or material changes made by our suppliers that significantly affect individual environment concerns must be communicated to AeroVironment. Environmental communication are considered just as essential as change notifications related to material production. Change notifications may be submitted to Supply Chain or Supplier Quality Representatives from AeroVironment.

6.3.2 Control Unclassified Information (CUI)

Suppliers must ensure that all data/information including CUI is to be managed and controlled to ensure compliance within Executive Order 13556.

6.4 Right of Entry

Suppliers that manufacture or provide services to AV defined requirements shall be subject to audit by AV, its customers and regulatory agencies. Access must be granted to all facilities, processes, inspections and investigate records, work instructions and related record upon request. Supplier must be notified in advance of AV's intent to audit and provide reasonable accommodation to support date(s) requested.

7 Support

Suppliers must determine the resources needed for the establishment, implementation, maintenance and continual improvement of the quality management system.

Suppliers shall ensure that their employees adhere to both their internal procedures as well as AV requirements. Suppliers shall ensure that persons are aware of:

- Their contribution to product or service conformity
- Their contribution to product safety
- The importance of ethical behavior

7.1 Measurement Traceability

Suppliers must have a process to maintain measurement traceability used on AV products.

Supplier's process as minimum must ensure that measurement equipment is:

- Identified to determine status
- Calibrated and/or verified against measurement standards traceable to international or national measurement standards; when no such standards exist, the basis used for calibration or verification must be retained as documented information.
- Safeguarded from adjustments, damage, or deterioration that would invalidate the calibration status and subsequent measurement results
- Recalled when it requires calibration or verification
- Calibrated or verified under suitable environmental conditions

Supplier must conduct a documented investigation, if the measurement equipment is found to be at or beyond 200% of the precision band at the time of verification. Supplier must submit a Notification of Escape to AV if investigation reveals a quality impact on delivered products to AV.

7.2 Control of Documented Information

Changes to documented information must be recorded, dated, and traceable to a qualified person making the change (e.g., name, signature, stamp, electronic signature) with a permanent marking method and the original information being legible and retrievable after the change.

Retention period for documented information needed to provide evidence of conformance must be 10 years.

Prior to discarding, transferring to another organization, or destruction of such records, Suppliers must notify AV in writing and give AV the opportunity to gain possession of the records. These requirements are applicable to records generated by supplier's sub-tier sources.

8 Operations

8.1 Contract Review

Suppliers must ensure that it has the ability to meet the requirements for products and services required by AV and flown down by the PDI; this includes but is not limited to the requirements of the contract and Terms and Conditions. The organization must conduct a review before committing to supply products and services to AV; review may include ensuring they are provided the necessary AV owned tooling to produce the product, ensuring they have the documentation for the configuration required per the contract, checking for obsolesce, checking for the latest configuration, etc.

Suppliers must reach out to their respective AV Supply Chain Representative if there are any requirements that cannot be met prior to contract acknowledgement.

Supplier must ensure that when fulfilling contracts that were part of an RTV, that a teardown report accompanies the product being returned to AV; if the parts were replaced, the tear down report must note that.

8.2 Control of Externally Provided Processes, Products, and Services

Suppliers must maintain a register of its external providers that includes approval status and the scope of the approval.

Suppliers must have a process in place to ensure their sub-tier suppliers comply with all AV applicable specifications.

Suppliers must be responsible for the quality of materials and components provided by their sub-tiers, suppliers and subcontractors; this does not include AV provided material.

Suppliers must periodically review external provider performance including process, product and service conformity, and on-time delivery performance.

8.2.1 AV Designated Suppliers

Where specified by requirements, Suppliers must purchase products, materials or services from AV designated suppliers.

AV involvement does not eliminate the suppliers' responsibility that the sub-tiers or subcontractors utilized meet the criteria to be on the supplier's ASL and maintain acceptable performance to remain on their ASL.

8.3 Product and Service Provision

8.3.1 Configuration Management

Suppliers must ensure that they are building to configuration defined by the contract.

Suppliers may request that their AV Supply Chain Representative confirm that there have been no changes to the technical package.

Suppliers must have a Configuration Management process to ensure that any changes are controlled.

AV allows for the use of redlined documents for the manufacturing and inspection of product as long as the contract reflects the redlined revision.

MCOs may not cause the part number to roll up in revision.

Suppliers may obtain information about the lifecycle of the part through the BOM.

8.3.2 Traceability

Suppliers must have the ability to:

- Trace all products manufactured from the same batch of raw material, or from the same manufacturing batch, to the destination.
- Trace its components to the assembly and then to the next higher assembly; for assemblies.
- Maintain a sequential record of its production (manufacture, assembly, inspection/verification) to be retrievable; for product.

8.3.2.1 Grey Market Components

For grey market components, when the supplier intends to ship directly to AV or use in any assembly that is shipped to AV, the supplier must fill out QSF-224 to request the use and shipment of the component. The supplier must also provide any evidence that supports that the component is adequate for use such as testing per requirements of AS6081. The supplier must make every effort to utilize AV's preferred independent distributor A2 Global (AKA America II)

8.3.3 Part Marking

The supplier must mark the part as dictated per the specifications flown down which may include reference to QSP-8.2.4-1.

8.4 Property Belonging to AV

Supplier must exercise care with the property belonging to AV while it is under the supplier's control or being used by the supplier's organization.

Supplier must identify, verify, protect and safeguard AV's property provided for use or incorporation into the products and services.

Suppliers must notify AV within 7 days of any AV owned property that is lost, damaged, or otherwise found to be unsuitable for use; the notification must include documentation on what occurred.

Suppliers must use the guidelines of MGI-005 for the transfer of AV owned tooling and fixtures to and from their facilities to AV.

Suppliers in possession of AV owned tooling through the duration of their contract must comply with MGI-004 for the maintenance of composite mold tooling.

Composite Suppliers must use MGF-009 to record the preventive maintenance being done on the tooling and it must be submitted to AV Tooling Department in 3 month interval for all tools currently in use at Supplier's facility. Supplier may use equivalent form with the approval from AV tooling department before use.

8.5 Preservation

The supplier must ensure that they have a method of ensuring the safety of the product throughout the manufacturing process and in transit to AV.

8.5.1 Shelf Life

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

- Cure or manufacture date,
- Expiration date or shelf life,
- Lot or batch number
- When applicable, any special handling or storage requirements.

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

8.5.2 Workmanship

When workmanship standards are not referenced on AV specifications, the Supplier must follow industry-accepted standards for the products being provided or their internal workmanship standards.

8.5.3 FOD

Suppliers must plan, implement, and control processes, appropriate to their organization and the product, for the prevention of inclusion of FOD in product delivered to AV.

Suppliers may use AS9146 and or NAS 412 for guidance on setting up a FOD prevention program as applicable to their industry or products being delivered to AV.

8.5.4 Counterfeit Product

Suppliers must plan, implement, and control processes, appropriate to their organization and the product, for the prevention of counterfeit or suspect counterfeit part use and their inclusion in product delivered to AV.

Suppliers may use AS5553 and/or AS6081 for guidance as applicable to their industry or products being delivered to AV.

8.5.5 Electrostatic Sensitive Devices (ESD)

Suppliers must plan, implement, and control processes, appropriate to their organization and the product, for handling of ESD product delivered to AV.

Suppliers may use ANSI S20.20 for guidance as applicable to their industry or products being delivered to AV.

8.5.6 Packaging

Suppliers must plan for packaging designed to prevent product contamination, deterioration or loss and to eliminate shipping damage.

8.6 Production Process Validation

For material and other specified requirements for which the Supplier does not have the equipment to test, the Supplier must obtain material certifications (or test reports) from their sub-Supplier or other test agency.

The material certification reports must include the following information:

- Specification/Drawing number.
- Specified material/dimensional/physical requirements.
- Inspection/test results.
- Signature of the organization that performed the testing.

The reports must be traceable to the Supplier's material through lot/heat/coil/ batch numbers or the like. A simple statement that the material meets the requirements is not acceptable.

8.6.1 In-Process and Final Inspection

Suppliers must develop an inspection plan with a balloon drawing to be used for the inspection of products delivered to AV; inspection plan shall cover all levels of the build. Using the inspection plan, Suppliers must collect data to maintain records to establish compliance to all levels of the build.

The balloon drawing and inspection results collected by the Supplier for the buy level shall be submitted to AV with all shipments if the product is in the "Engineering Development Lifecycle" (e.g. AV purchases PN 12345 per the contract, the dimensional report submitted will show compliance to drawing 12345-85).

All features may use sampling for acceptance with the sampling plan of the Supplier's choice unless otherwise specified by the requirements.

Suppliers may use AS9138, ANSI Z1.4 or ANSI Z1.9 as guidance applicable to their industry or products being delivered to AV. Supplier may use Form QSF-166 to document their inspection plan and results of inspection.

8.6.2 First Article Inspection (FAI)

Supplier must perform FAIR per AS9102 to validate the first part(s) produced.

Supplier must submit a full FAIR package that includes AS9102 Form 1, Form 2, Form 3, balloon drawing, and supporting certifications for the buy level. Supplier must include a photo of the first article piece in the FAIR. Supplier must ensure that they obtain FAIR approval prior to shipment of the balance due on the contract.

Supplier must retain all FAIRs per AS9102 and certification records for sub-component items but are not required to be submitted for AV approval; records shall be submitted to AV upon request.

Any parts produced via mold must have 1 FAIR per mold.

Any nonconformances identified shall be submitted to AV per the guidelines of section 8.7. If a deviation number is granted to accept the product, it must be noted in the FAIR report along with the supplier's nonconformance number.

Suppliers may use Form QSF-019 for FAIR submission.

8.6.3 Special Processes

For processes where the resulting output cannot be verified by subsequent monitoring or measurement.

Suppliers must ensure that they have inspection gates within their process that will allow them to verify conformity to special processes.

8.6.4 Part Certification

A Certificate of Conformance is required with each shipment of all items manufactured per AV specifications. If product being shipped to AV is from an RTV, the AV NC number used for the RTV must be referenced on the CoC.

All documents submitted at time of shipment, i.e. packing slip, invoice, certificate of conformance, etc., must reference AV's contract number and internal part number and when applicable, part revision.

If part serialization is required, this must be noted in the shipping documentation.

8.6.5 Production Part Approval Process (PPAP)

When PPAP is required by the contract, the Suppliers may use AS9145 for guidance of the requirements to be submitted for AV approval.

8.6.6 Source Inspection and Delegated Inspection

When source inspection is required per the contract, the third party source inspector must use form QSF-149 in conjunction with the respective inspection plan.

8.7 Control of Nonconforming Product

Suppliers may rework product and will not require AV approval unless otherwise stated.

Nonconforming material must not be sent to any AV facility or customer without a written concession or deviation permit.

All requests for concession, deviation permit, or specification change must be submitted using form QSF-224. All requests must be submitted to supplierchangerequests@avinc.com with AV Supply Chain Representative on copy.

8.7.1 Design Authority

AV must have the design authority for all AV designed products where the suppliers is building per the specifications provided by AV. As the design authority, AV requires that any dispositions of “use-as-is” and “repair” at any level of the build go through the approvals listed in the following sections; submission for approval may be in the form of deviation permit, concession or notification of escape.

For Supplier designed items, Suppliers may disposition “use-as-is” or “repair” as long as the nonconformance does not affect the specifications required by AV. Dispositions of “use-as-is” and “repair” for any AV specifications go through the approvals listed in the following sections; submission for approval may be in the form of deviation permit, concession or notification of escape.

8.7.2 Request for Specification Changes

Requests for specification changes include but are not limited to obsolesce, incorrect tolerances on the print, typos, material changes, etc.

When requesting a BOM change due to obsolesce, the supplier may provide a recommended alternate part if one is identified.

Submission for specification changes does not relieve the supplier of the responsibility to comply with requirements, if the changes cannot be made before the parts need to ship, the supplier must ensure to request a deviation permit or concession until the changes are implemented.

Supplier's request for change, may result in an ECR to initiate the change process at AV.

8.7.3 Request for Deviation Permit or Concession

Suppliers must request a deviation permit prior to creation of a nonconformance.

Suppliers must request a concession after the creation of a nonconformance.

If directed by the AV, the Supplier must send samples of non-conforming product to AV for evaluation. The cost of any testing required in determining the acceptability of the product may be charged to the Supplier.

Supplier must follow the process in section 9 of this document to ensure that appropriate actions are taken to eliminate the cause of nonconformity.

8.7.4 Deviations Granted by AV

If a concession or deviation permit are granted, the permission from AV to use the product may be granted via deviation (DEV-XXXXX).

Deviation number must appear on the Supplier's shipping documents with quantities associated with each deviation

Suppliers that manufacture deviated items must identify their product as stated in the instructions within the deviation.

A deviation is expired once the "effective date" on the deviation is reached. Upon expiration, no new work may be done under the deviation. Suppliers may request an extension of the deviation using QSF-224.

8.7.5 Notification of Escape

Supplier must have a process to notify AV of any products or services provided to AV that are found to be nonconforming after delivery.

Suppliers may use AS9131 for guidance of the requirements to be submitted with the notification.

8.7.6 Stop Process

AV may issue a Stop Process order (STP-XXXXX) at any time regardless if the reason for the stop order is due to AV or Supplier fault. Upon issuing of the Stop Process order the supplier, they must halt production to the step noted in the order and hold all shipments. Shipments and production can resume once the Stop Process order has been lifted.

8.7.7 Return to Supplier

When parts are returned to Suppliers for scrap, the Supplier must provide the AV Supply Chain Representative with a certification of destruction to show evidence of scrap.

9 Corrective Action

Supplier must acknowledge the receipt of notification of nonconformance from AV within 24 hours.

Supplier must perform containment within 48 hours of notification of nonconformance from AV.

Suppliers must have a root cause and corrective action process consistent with the 8D methodology in AS13000 for all escapes to AV; Suppliers may use form QSF-255 or equivalent AS13000 8D template.

For all supplier non-conformances that are escalated to AV SCAR, Suppliers must submit form QSF-255 or equivalent AS13000 8D template with D1-D5 completed within 15 days of notification of nonconformance from AV. Supplier's response is subject to AV approval, if the supplier's response is rejected, the supplier must resubmit response within 7 days of rejection.

10 Calibration Services

Suppliers providing calibration services must ensure that it must be done in accordance with ISO 17025 as a minimum. Calibration or verification must be performed against measurement standards traceable to international or national measurement standards; when no such standards exist, the basis used for calibration or verification must be retained as documented information.

11 Metrics

Supplier performance will be evaluated based on DPPM and OTD for a rolling 12-month period.

DPPM = (number of rejections due to supplier responsibility) *1,000,000/ (number of parts received)

OTD = (number of receipts on time) / (number of total receipts)

Supplier's performance will be assigned a risk score using the risk matrix below:

		OTD		
		0-79.9%	80.0-94.9%	95.0-100.0%
DPPM	20,000+			
	10,000-19,999			
	0-9,999			

- Low Risk (Green)
- Medium Risk (Yellow)
- High Risk (Red)

Suppliers in the high risk category may be exited due to poor performance if the Supplier does not actively work to correct actions that lead to escapes.

12 Authority and Responsibility

Functional Owner: Supplier Quality

Functional Participant(s): Environmental Health & Safety, Product Quality, Purchasing, Quality Control, Tooling, Configuration Management and Product Engineering