The Engineering Society
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Land Sea Air and Space
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400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE STANDARD

AS7107

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Submitted for recognition as an American National Standard

NATIONAL AEROSPACE AND DEFENSE CONTRACTORS ACCREDITATION PROGRAM INSPECTION SYSTEM REQUIREMENTS

1. **SCOPE:**

This Aerospace Standard establishes the minimum requirements necessary for NADCAP accreditation of an Inspection System that meets, at a minimum, MIL-I-45208. These requirements may be supplemented by additional requirements at the discretion of the NADCAP General Quality Systems Task Group.

It is the intent of this standard to provide a harmonized quality standard that meets MIL-I-45208, MIL-STD- 45662, and the relevant portions of MIL-STD-1520. In addition to meeting these requirements as a minimum, an attempt has been made to harmonize the requirements of MIL-Q and the ISO9000 series of standards. Where similar requirements existed between these two standards, the more stringent requirement was imposed.

2. **REFERENCES:**

2.1 **Applicable Documents:**

The following publications form a part of this specification to the extent specified herein.

2.1.1 **SAE Publications:**

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15086-0001.

AS7001	National Aerospace and Defense Contractors Accreditation Program (NADCAP) - Program Description
AS7002	National Aerospace and Defense Contractors Accreditation Program (NADCAP) - Rules for Implementation
AS7003	National Aerospace and Defense Contractors Accreditation Program (NADCAP) - Program Operation
AS7106/1	NADCAP - Deliverable Software Quality Assurance
AS7106/2	NADCAP - 1520
AS7106/3	NADCAP - Supplier Quality Assurance Program Requirements
AS7106/4	NADCAP - Supplemental Requirements for ISO9000 Equivalence
AS7106/5	NADCAP - Total Quality Management Requirements

2.1.2 **PRI Publications:**

Available from the Performance Review Institute, 402 Commonwealth Drive, Warrendale, PA 15086-7511.

AC7106	NADCAP - Quality Program Requirements
AC7106/1	NADCAP - Deliverable Software Quality Assurance
AC7106/2	NADCAP - Corrective Action and Disposition System for Nonconforming Material
AC7106/3	NADCAP - Supplier Quality Assurance Program Requirements
AC7106/4	NADCAP - Supplemental Requirements for ISO9000 Equivalence
AC7106/5	NADCAP - Total Quality Management Requirements

2.1.3 **U.S. Government Publications:**

Available from DODSSP Subscription Services Desk, Building 4D, 700 Robins Avenue, Philadelphia, PA 19111-5094.

MIL-I-45208	Inspection System Requirements
MIL-STD-1520	Corrective Action and Disposition System for Nonconforming Material
MIL-STD-45662	Calibration Systems Requirements

2.1.4 **ISO Publications:**

Available from the American National Standards Institute, 11 West 42nd Street, New York, NY 10036.

ISO 9001 "Quality systems - Model for Quality Assurance in Design, Development, Production, Installation and Servicing

3. **QUALITY PROGRAM MANAGEMENT:**

3.1 **Organization:**

3.1.1 Executive management shall define their policy and objectives for and their commitment to quality through the issuance of a formalized and documented quality policy or quality statement.

3.1.2 There shall be an appointed management representative who, irrespective of other responsibilities, has defined authority and responsibility for ensuring that quality system requirements are implemented, maintained, and in compliance with appropriate quality standards.

3.1.3 There shall be provisions for periodic review and revision of the quality policy.

3.1.4 Implementation of the quality policy shall be documented as part of a formal quality plan or Quality Manual that is signed and authorized by a senior management representative.

3.1.5 The supplier plan/manual shall provide for a description of all subsystems, including exhibits of various forms, tags, and other control documents.

3.1.6 The Quality Manual shall contain all of the requirements applicable to the organization including:

a. The supplier's name, address, quality policy, and objectives for quality
b. Responsibility, authority, and interrelationship of all personnel affecting quality
c. Organization chart(s)
d. Quality Management Review System
e. Detail of organization, facility, and products covered by the Manual

3.1.7 The Quality Manual shall cover all of the following System Procedures applicable to the organization including:

a. Contract review
b. Document control
c. Purchasing
d. Purchaser supplied material
e. Product identification and traceability
f. Process control
g. Inspection and testing
h. Inspection, measuring and testing equipment
i. Inspection and test status
j. Control of nonconforming products
k. Corrective action
l. Handling, storage, packaging and delivery
m. Quality records
n. Internal quality audits
o. Training

3.1.8 A documented quality system shall be established as a means of ensuring that the product, process, or service conforms to the specified requirements.

3.1.9 A formal organizational chart shall exist that defines the responsibility, authority, and interrelation of all personnel and it shall have key positions identified.

3.1.10 The organization responsible for quality shall be well defined, established, and functioning.

3.1.11 Personnel performing verification activities shall have the organizational freedom and authority to:

a. Initiate action to prevent the occurrence of product nonconformity
b. Identify and record any product quality problems
c. Initiate, recommend or provide solutions through designated channels
d. Verify the implementation of solutions
e. Control further processing, delivery or installation of nonconforming product until the deficiency or unsatisfactory condition has been corrected

There shall be a formal procedure documenting this authority.

3.1.12 The quality organization shall have the necessary procedures to implement the inspection system responsibilities assigned by the company managerial policies.

3.1.13 These procedures shall be reviewed periodically by management for adequacy.

3.1.14 Personnel assigned key positions affecting quality shall be qualified on the basis of appropriate education, training, and/or experience as required.

3.1.15 Position descriptions for all positions impacting quality shall be available listing individual duties and responsibilities.

3.1.16 There shall be a documented comprehensive system of planned and documented internal quality audits performed on a regular basis.

3.2 **Contract Review:**

3.2.1 Procedures shall exist for contract review and for the coordination of these activities.

3.2.2 Procedures shall exist to assure contractual requirements flow down.

3.2.3 The quality system shall provide for the following:

a. Identification and acquisition of all controls, processes, inspection equipment, fixtures, total production resources, and skills necessary to achieve the required quality.
b. Periodic review and updating of quality control, inspection and testing techniques.
c. Identification of measurement requirements that exceed capabilities in sufficient time for needed capability to be developed.
d. Clarification of standards of acceptability for all features and requirements, including those which contain subjective elements.
e. Compatibility of the design, production process, installation, inspection, and test procedures, as well as all applicable documentation.

3.2.4 The measurements to be made and the accuracy required shall be identified and the appropriate inspection, measuring and test equipment selected.

3.3 **Work Instructions:**

3.3.1 All departments that have an effect on product quality shall have written work instructions.

3.3.2 The work instructions shall be approved, distributed, and accessible throughout the operation with appropriate parts located in areas where the work is performed.

3.3.3 Supplier documentation shall require verification that work instructions are maintained to reflect the appropriate contractual requirements such as: drawings, specifications, etc.

3.3.4 Work instructions shall be reviewed and updated on a systematic basis for accuracy, completeness, and worker compliance.

3.3.5 The work instructions shall provide documented sequencing of manufacturing and process operations and they shall identify specific methods, tooling, and equipment to be used.

3.4 **Records:**

3.4.1 Procedures shall be established and maintained for identification, collection, indexing, filing, storage, maintenance and disposition of quality records to include subcontractor quality records as appropriate.

3.4.2 Quality records shall be legible and identifiable and traceable to the product involved.

3.4.3 There shall be effective means of assuring the currency, completeness, and accuracy of records.

3.4.4 Quality records shall be stored and maintained in facilities that provide a suitable environment to minimize deterioration or damage and to prevent loss.

3.4.5 Retention times of quality records shall be established and recorded.

3.4.6 The supplier's record system and procedures shall provide for record retention identification and retrieval for articles including the following:

a. Quality System implementation records

1. Quality Manual and Systems Procedures
2. Management Review records
3. Internal Audit records
4. Sub-tier selection, audit, evaluation and verification records
5. Qualified/certified/approved processes, equipment, and personnel employed for Special Processes
6. Inspection, measuring, and test equipment calibration records
7. Corrective Action records

3.4.7 Continued

b. Verification of Product quality records

1. Document numbers, revision levels or part numbers
2. Quality Plans, identification and traceability, inspection and test and positive recall records
3. Nonconformance records for internal, sub-tier, and customer reported deficiencies

3.4.7 Record retention and retrieval shall be consistent with contract requirements.

3.4.8 Documentation shall provide for records and data maintained in an electronic form.

3.4.9 Records that give evidence that the product has passed inspection and/or test with defined acceptance criteria shall be established and maintained.

3.4.10 Inspection Records shall show lot size, sample size, lot identification, and results of inspection.

3.4.11 Records shall be documented in a manner or medium (i.e, permanent ink, electronic) that will obviously reflect alterations or changes if made to the original documentation.

3.4.12 Inspection and test data documents shall indicate the type and number of observations made, conformance or nonconformance, the number and description of nonconformances found, and corrective actions taken when needed.

3.4.13 Traceability shall be maintained to the detailed parts and their product acceptance records for serialized or lot numbered sub-assemblies containing serialized or lot numbered parts.

3.5 **Corrective Action:**

3.5.1 Procedures shall be established, documented and maintained for investigating the root cause of nonconforming product and the corrective action needed to prevent recurrence.

3.5.2 The corrective action system shall define the circumstances or conditions which prompt the issuance of a corrective action request.

3.5.3 The cause of nonconforming product shall be investigated and the root cause corrective action needed to prevent recurrence shall be identified and implemented.

3.5.4 There shall be provisions for recording the description of the cause(s), action taken (or planned) to correct the cause(s), and the date when corrective action will be completed or is estimated to be completed.

3.5.5 The supplier shall maintain a follow-up system of control on corrective action taken, ensuring that the supplier corrective action system provides for timely and effective root cause action.

3.5.6 Inspection data shall be collected and analyzed to establish quality levels for repetitive discrepancies.

3.5.7 Corrective action requests shall be issued to a sub-tier supplier or internal departments when necessary to correct a quality problem that exists.

3.5.8 Nonconforming materials, conditions, and systems, exposed during audits, shall be used to initiate the corrective action process.

4. FACILITIES AND STANDARDS:

4.1 Drawings, Documentation, and Changes:

4.1.1 Procedures shall be established and maintained to control all documents and data related to product quality.

4.1.2 The supplier shall have a procedure for a formal approval and release system on the following documents whether maintained manually or electronically:

a. Quality Manual and the Systems Procedures
b. Purchasing documents
c. Process Control Documents

4.1.3 Documents shall be reviewed and approved for adequacy by authorized personnel and appropriately marked and identified prior to issue.

4.1.4 Procedures shall ensure that the pertinent issues of appropriate documents are available at all locations where operations essential to the effective functioning of the quality system are performed.

4.1.5 Procedures shall ensure that obsolete or illegible documents are promptly removed and/or appropriately marked at all points of issue and use.

4.1.6 Changes shall be identified in the document or in appropriate attachments and historically maintained.

4.1.9 A master list or equivalent document control procedure shall be established to identify the current revision of documents in order to preclude the use of nonapplicable documents.

4.1.7 The procedures shall assure compliance with contract requirements for proposing, approving, and implementing engineering changes.

4.1.8 The procedures shall clearly delineate the supplier's responsibility for controlling and recording design and other changes with originating sub-tier suppliers?

4.2 **Measuring and Testing Equipment:**

4.2.1 Calibration procedures shall be established, documented, and maintained to describe the following:

a. Details of equipment type
b. Identification number
c. Location
d. Frequency of checks
e. Check method
f. Acceptance criteria and action to be taken when results are unsatisfactory
g. Assurance that the inspection, measuring and test equipment is capable of the necessary accuracy and precision

4.2.1 Continued

h. Assurance that test hardware or test software that is used to verify product acceptability is subject to controls similar to those provided for inspection, measuring, and test equipment
i. Provisions for the supplier to maintain and provide a written description of the calibration system, covering measuring and test equipment, calibration intervals, sources of calibration, environmental calibration conditions and measurement standards (including a list of measurement standard sources of calibration) that are traceable to the National Institute of Standards and Technology (NIST) or other nationally recognized laboratory
j. Control and identification of inspection, measuring, and test equipment not in current calibration, damaged, or inaccurate
k. Provisions to establish that the collective uncertainty of the measurement standards does not exceed 25% of the acceptable tolerance for each characteristic being calibrated
l. Recall system for the mandatory recall of measurement standards and inspection, measuring, and test equipment within established calibration interval frequencies

4.2.2 Calibration and inspection records shall reflect traceability to the device being calibrated, personnel performing calibrations, reference standards, and procedures used.

4.2.3 Environmental controls shall be used to the extent necessary including temperature, humidity, vibration, cleanliness, and compensating corrections shall be used to the extent necessary.

4.2.4 Periodic interval calibrations shall be based upon stability, purpose, and degree of usage. The results of previous calibrations shall be used to adjust calibration schedules.

4.2.5 Written procedures shall be adequate, and they shall require comparison with higher accuracy level standards including accuracy, stability, range sensitivity, and resolution.

4.2.6 Calibration standards shall be traceable to NIST or other nationally recognized laboratory, and the report or data sheet shall attest to the date, accuracy, and conditions of calibration including environmental conditions.

4.2.7 The calibration system shall provide for a gage identification method indicating as a minimum the date of last calibration, by whom and the date of next calibration. There shall be recall procedures and records assuring adherence to the calibration schedule.

4.2.8 There shall be a procedure for the documented analysis of the impact of out-of-tolerance measuring and test equipment on product quality.

4.2.9 The procedures and supporting records shall show an individual record of calibration for each item, including date of certification and results of last calibration (variable data), and out of tolerance conditions.

4.2.10 The documentation shall define a “significant out-of-tolerance condition” and there shall be a system in place to notify users and customers when this is exceeded.

4.2.11 Measuring and test equipment shall be handled, stored, and transported in a manner that does not adversely affect the calibration or condition of the equipment.

4.2.12 The supplier shall maintain a system to assure that outside calibration sources are capable of performing the required services.

4.2.13 The supplier shall have provisions to assure that subcontractors maintain a calibration system that conforms to MIL-STD-45662.

4.2.14 The procedures shall make provision for the calibration and control of inspection, measuring and test equipment that is on loan, provided by the customer, or employee owned.

4.2.15 Requirements for tamper resistant seals shall be identified and used as prescribed.

4.2.16 Items that are not calibrated to their capability or which have other limitations of use shall be identified as such to precluce their use for acceptance of articles.

4.3 **Production Tooling Used as a Media of Inspection:**

4.3.1 Test hardware (jigs, fixtures, templates, patterns, etc.) or test software which is used for inspection, shall be checked to prove it is capable of verifying the acceptability of product, prior to release for use.

4.3.2 The test hardware and test software shall be rechecked at prescribed intervals.

4.3.3 The extent and frequency of such checks shall be established, and records maintained.

4.3.4 Measurement design data shall be made available, when required by the purchaser or their representative, for verification that it is functionally adequate.

4.3.5 Supplier procedures shall assure that any support software used during certification is verified, documented, and under revision control.

4.3.6 Data shall be maintained on tools to determine tool wear and predict the need for repair and/or recertification.

4.3.7 Tooling shall be adequately identified to assure recall (S/N, label, or other method.)

4.3.8 Current tool drawings or other criteria used to establish accuracy shall be available to the calibration area.

4.3.9 The supplier shall provide a procedure for the analysis of the impact of the significant out-of tolerance conditions on product quality and subsequent actions to be taken to notify users and customers.

4.4 **Use of Contractor's Inspection Equipment:**

4.4.1 Supplier tools and measuring devices shall be available for use by Customer/Government when required to determine contract conformance. Supplier personnel shall be available to operate the equipment if necessary.

4.5 **Advanced Metrology Requirements:**

4.5.1 The supplier shall review the request for proposal or the contract to determine whether there are any unusual precision measurement requirements and shall notify the customer of this inability to perform any required precision measurements.

5. **CONTROL OF PURCHASES:**

5.1 Procedures shall ensure that purchased product conforms to specified requirements.

5.2 Procedures shall provide for the selection of sub-tier suppliers on the basis of their ability to meet quality and contract requirements.

5.3 Records of acceptable sub-tier suppliers shall be established and maintained.

5.4 Documentation shall provide that inspection and test requirements for purchased material are consistent with drawing and specification requirements, including acceptance/rejection criteria.

5.5 Documentation shall assure appropriate drawings, specifications, and instructions are available at time and place of inspection.

5.6 Actual values and/or readings consistent with the measurement method shall be recorded during first article inspection.

5.7 Documentation shall provide a method for evaluation of product quality.

5.8 Records shall indicate acceptance or rejection of incoming material.

5.9 Receiving inspection records shall record lot size, sample size, lot identification, results of inspections, and the reasons for rejection of material.

5.10 Raw material, when accepted on test report and/or certificates, shall be subject to verification testing.

5.11 Material certifications and test reports shall be examined for conformance to requirements and on file.

5.12 Procedures shall provide for control (i.e., segregation, integration) of incoming product until it has been inspected or otherwise verified as conforming to specified requirements.

5.13 Where incoming product is released prior to acceptance, procedures shall provide criteria for release and recording of positive identification to permit immediate recall.

5.14 Procedures shall afford the supplier's customer/government or a representative access to verify at source conformance of purchased products to satisfy requirements where contractually specified.

5.15 Purchasing documents shall contain data clearly describing the product ordered.

5.16 Certified test reports, certificates of compliance, or evidence of conformity shall be required by procurement documents and shall be traceable to the procurement document and the associated article.

6. **MANUFACTURING CONTROL:**

6.1 **Materials and Materials Control:**

6.1.1 Procedures shall provide for identifying the product from applicable drawings, specifications or other documents, during all stages of manufacture, production, test, delivery, and/or installation.

6.1.2 Individual products or batches shall have a unique identification for traceability that is recorded by the supplier. The supplier shall have an adequate system for controlling split lots to assure that traceability is maintained.

6.1.3 The supplier shall assure that raw materials conform to the applicable physical, chemical, and other technical requirements using laboratory analyses as necessary.

6.1.4 Documentation shall validate that the product meets all physical, metallurgical, chemical, visual and dimensional testing requirements.

6.2 **Production Processing and Fabrication:**

6.2.1 Documented work instructions shall define the manner of production, use of suitable production equipment, appropriate working environment, and compliance with the referenced standards/codes and quality plans.

6.2.2 Documented work instructions, including required drawings and specifications, shall be available in the areas where they are utilized. Applicable drawings, specifications, and instructions shall be available at time and place of inspection.

6.2.3 Procedures shall be established for approval of processes and equipment, as appropriate.

6.2.4 Control(s) shall be established where critical product characteristics are identified.

6.2.5 When direct inspection of material is not practical, the quality program shall provide for indirect control of processing methods, monitoring equipment, and personnel.

6.2.6 If electrostatic discharge (ESD) is applicable to the supplier's product, process, or service, Appendix A of this standard shall apply.

6.2.7 There shall be instructions for actions to be taken by the operator when a discrepancy is detected.

6.2.8 The supplier documentation shall provide that in-process inspection and test requirements are consistent with drawing and specification requirements, including acceptance/rejection criteria.

6.2.9 Shop travelers or other article control media shall reflect:

a. Article configuration
b. Verification of correct material prior to production
c. Performance of manufacturing, assembly, and inspection operations in sequence
d. Complete and legible information
e. Changes, additions, and deletions by authorized persons
f. Inspection status identification

6.2.9 Continued

g. Test results documented
h. Identification of person(s) doing the work

6.2.10 In-process items shall be protected and handled in such a manner as to preclude damage, loss, or induction of foreign objects.

6.2.11 Changes to production tooling, equipment, materials, or processes shall be clearly documented.

6.2.12 Implementation of process change control shall be documented by defined procedures.

6.2.13 Those responsible for authorization of process changes shall be clearly designated, and where required, customer approval shall be obtained.

6.2.14 Products shall be evaluated after any process change to verify that the change instituted had the desired effect on product quality.

6.2.15 The supplier documentation shall provide for specific inspection instructions for in-house special processes.

6.2.16 Supplier documentation shall provide for monitoring all special processes including environmental and nondestructive testing.

6.2.17 Special process sources shall be approved prior to use by performing actual source surveys, using a customer approved source list, or as required by contract.

6.2.18 Supplier documentation shall provide for specific inspection instructions for sub-contracted special processes.

6.2.19 Special processes shall be qualified to ensure compliance with specified requirements.

6.2.20 Records of qualification for special processes, equipment, and personnel shall be maintained.

6.3 **Completed Item Inspection and Testing:**

6.3.1 Final testing shall adequately simulate actual performance.

6.3.2 Inspection and test problems or deficiencies shall be promptly documented and reported to designers, management, and other appropriate personnel.

6.3.3 Documentation shall support that the product meets all physical, metallurgical, chemical, visual and dimensional testing requirements prior to shipment.

6.3.4 Records of the inspection results and test data shall be available for review and in accordance with contractual requirements.

6.3.5 Product conformance to specified requirements shall be established by use of process monitoring and control methods.

6.3.6 Supplier documentation shall provide that completed item inspection and test requirements are consistent with drawing and specification requirements, including acceptance/rejection criteria.

6.3.7 Acceptance and test procedures shall reflect the approved test equipment required to perform acceptance test.

6.3.8 Supplier documentation shall provide for inspection records to show effectivity of change incorporation.

6.3.9 Supplier documentation shall provide for the appropriate drawings, specifications, and instructions to be available at time and place of inspection.

6.3.10 Inspection and test results shall be documented and validated on a traveler, work order, or other identifying document.

6.3.11 Supplier documentation shall provide for a system to ensure adequate review of deliverable data.

6.3.12 If software is used for completed item inspection and testing, it shall be controlled.

6.3.13 There shall be a documented quality first article inspection (FAI) to verify compliance to all acceptance criteria (including revision after initial FAI).

6.3.14 Values and/or readings consistent with the measurement method shall be recorded during first article inspection recorded.

6.4 **Handling, Storage and Delivery:**

6.4.1 Procedures shall provide for handling, storage, packaging and delivery of product.

6.4.2 Where applicable, packaging, handling, and protection procedures shall be based on customer requirements.

6.4.3 There shall be evidence that the supplier has provided methods and means of handling from receiving through shipping to prevent the following:

a. Damage
b. Corrosion
c. Deterioration
d. The induction of foreign objects
e. Contamination
f. Loss of identification

6.4.4 Storage areas or stock rooms shall be provided to prevent damage, deterioration of product, or unauthorized release, pending use or delivery.

6.4.5 The supplier shall control packing, preservation, foreign objects (FOD), and marking processes (including materials used) to the extent necessary to ensure conformance to specified requirements.

6.4.6 The supplier documentation shall provide for necessary inspection and test of preservation, packaging, and handling methods.

6.4.7 The shipping documentation shall conform to contractual requirements.

6.4.8 Age and ESD sensitive materials shall be properly identified and periodically reevaluated in accordance with the applicable specification.

6.4.9 Raw sheet and bar stock shall be adequately identified and traceable to their contents or chemical/physical characteristics to preclude error during the manufacturing process.

6.4.10 Castings and forgings shall be identified and traceable to heat or melt numbers and material specification to preclude error during the manufacturing process.

6.4.11 The supplier shall have a system to provide the level of identification and traceability required.

6.4.12 Procedures shall provide for reinspection and reidentification when material is returned to stock.

6.5 **Nonconforming Material:**

6.5.1 Procedures shall be established to control the identification, documentation, evaluation, segregation and disposition or recall, as applicable, of each instance of nonconforming product including the notification of the internal or external customers concerned.

6.5.2 Records of all preliminary review (PR) actions shall be traceable to the nonconforming item.

6.5.3 Procedures shall ensure that product that does not conform to specified requirements is prevented from inadvertent use.

6.5.4 Supplier documentation shall provide for assignment of responsibility and authority to the preliminary review and corrective action personnel.

6.5.5 Procedures shall indicate the scope or the extent of the authority of personnel with PR or Corrective Action Board (CAB) assignments.

6.5.6 Nonconforming product shall be reviewed in accordance with documented procedures for disposition and corrective action.

6.5.7 Supplier documentation shall provide for an adequate method of accomplishing repair or rework, and product shall be reinspected in accordance with documented procedures.

6.5.8 The supplier shall have a documented system for nonconformance resolution. This system shall provide for obtaining the customer's disposition when required.

6.5.9 Prior to scrapping rejected finished parts, the supplier shall after them in a manner to prevent future use in accordance with a documented procedure.

6.5.10 If the supplier has Material Review Board Authority, the requirements of AC7106/2 shall apply.

6.6 **Sampling Inspection/Statistical Process Control/Methods of Inspection:**

If statistical process control (SPC) methods are employed, Appendix B of this document shall apply.

6.6.1 The supplier quality system shall provide for the effective use of a sampling inspection plan.

6.6.2 There shall be written and approved procedures for sampling (material, product, service, and in-process) consistent with customer requirements.

6.6.3 Supplier's procedures shall be adequate to assure that risks inherent with sampling plans are analyzed to determine the protection afforded by the plans.

6.6.4 Samples shall be taken as scheduled, documented, and traceable to their source (i.e., lot, date, time, location).

6.6.5 Personnel shall be trained in procedures and techniques for using sampling devices.

6.6.6 If used, supplier-developed sampling plans shall be available for review and approved by the customer when required by contract.

6.7 **Indication of Inspection Status:**

6.7.1 The inspection and test status of product shall be identified by using markings, authorized stamps, tags, labels, routing cards, inspection records, test software, physical location or other suitable means to indicate the conformance or nonconformance of product with regard to inspection and tests performed.

6.7.2 Identification of inspection and test status shall be maintained throughout production to ensure that only product that has passed the required inspections and tests is released for shipment.

6.7.3 Records shall identity the individual responsible for release of conforming product.

6.7.4 There shall be a procedure established for stamp control.

6.7.5 Inspection stamps associated with specific inspection functions or responsibilities such as calibration, special processing, material review, special testing, etc., shall be dissimilar in design from general inspection stamps or the specific authority or responsibility indicated in the stamp control records.

6.7.6 There shall be a record maintained showing stamps issued, date of issue, and the individual to whom the stamp was assigned.

6.7.7 Records of signatures and initials shall be maintained for verification of approval/rejection sign-off authorization.

6.7.8 The stamp or signature control system shall include provisions to deal with lost stamps, reassigned stamps, and removal of names of previously authorized but reassigned people.

6.7.9 Stamp designs shall be different from government or customer inspection identifications.

6.7.10 Inspection status identification methods and marking materials shall be compatible with the articles and their use and in accordance with customer requirements while not compromising quality.

6.7.11 Supplier documentation shall provide for transfer of inspection status when further processing obliterates inspection stamps.

7. **COORDINATED CUSTOMER/GOVERNMENT SUPPLIER ACTIONS:**

7.1 Customer/Government Inspection at Sub-Tier Supplier Facilities

7.1.1 When required, supplier's purchasing documents shall indicate customer/government source inspection.

7.1.2 When required, the supplier shall use in purchasing documents the following paragraphs as applicable:

a. "Customer/Government inspection is required prior to shipment from your plant. Upon receipt of this order, promptly notify the Customer/Government Representative who normally services your plant so that appropriate planning for Customer/Government inspection can be accomplished."

b. "On receipt of this order, promptly furnish a copy oto the Customer/Government Representative who normally services your plant, or if none, to the nearest Army, Navy, Air Force, or Defense Supply Agency inspection office. In the event the representative or office cannot be located, our purchasing agent should be notified immediately."

7.1.3 All documents and referenced data for supplier purchases shall be available for review by the applicable customer/government.

7.1.4 The supplier shall make available to the customer/government reports of any nonconformance found on customer/government source inspected supplies. The supplier shall be required to coordinate corrective action with the customer/government representative.

7.2 **Customer/Government Supplied Product:**

7.2.1 Procedures shall be established and maintained for verification, storage and maintenance of customer/government supplied product. These procedures shall provide for incorporation of this product into the production process in accordance with applicable customer requirements.

7.2.2 These procedures shall provide for product that is lost, damaged, or otherwise unsuitable for use to be recorded and reported to the customer/government.

7.2.3 Supplier documentation shall provide that customer/government furnished material be functionally tested/inspected as required by specifications, technical order, or contracts.

7.2.4 The supplier shall adequately store and maintain bailed property.

7.2.5 The supplier shall inspect bailed property periodically.

7.2.6 Records of all inspections and maintenance work on bailed property shall be maintained and available for review by the customer/government representative.

8. **Software Quality Assurance (SQA):**

For the purposes of this section, the following definitions shall apply.

Class I: Software (including firmware) which comprises all or part of a product which will be delivered to the customer.

Class II: Software (including firmware) used in the automated design, inspection, test or manufacture of products.

If the supplier has Class I software, the requirements of AS7106/1 shall apply.

8.1 Suppliers utilizing Class II software shall comply with the following requirements.

8.2 If the supplier claims proprietary rights on software, the supplier must notify customer of proprietary right claims, in writing, prior to execution of the Purchase Order.

8.3 The supplier personnel responsible for ensuring compliance with the software quality program requirements shall have the resources, authority, and organizational freedom to permit objective evaluations and to initiate and verify corrective actions.

8.4 The supplier shall have a documented system to address software-related problems and nonconformances.

8.5 The supplier shall conduct on-going evaluations of their software and plans at intervals as specified in the software quality plan.

8.6 Prior to the introduction of new or revised support software that is used for the computation, interpretation, assembly, linkage, or work environment of Class II software, the supplier shall conduct a documented evaluation to determine the impact on Class II software.

8.7 Supplier software records shall be maintained and software backups securely stored in a remote location for disaster recovery in accordance with Customer(s) Data Retention requirements. This shall be properly documented.

8.8 A requirements definition document shall be developed and approved for each program (a system that uses drawing specifications or the equivalent will satisfy this requirement). This shall be properly documented.

8.9 The organization developing the software shall have a system to ensure the software is developed and documented in a consistent, understandable, and maintainable manner. This shall be properly documented.

8.10 **Test Program Validation:**

8.10.1 The software approval procedure shall address the extent of testing required for new programs and the extent of testing required for modified programs depending upon the type of change. This shall be properly documented.

8.10.2 Software shall be tested to assure requirements definition is met and documented (e.g., Quality signature before program is released to production). This shall be properly documented.

8.10.3 Evidence of software approval shall be documented and validation shall be properly documented and maintained.

8.11 **Identification of Software at Operation:**

8.11.1 Software shall be uniquely identified in the appropriate work instruction.

8.12 **Program Change Control:**

8.12.1 Software shall be uniquely identified and properly documented.

8.12.2 Program changes shall be reviewed and properly documented.

8.12.3 Program changes shall be documented and a revision history shall be maintained.

8.12.4 The supplier shall protect the software from unauthorized changes. This shall be properly documented.

8.12.5 The supplier's procedure shall prevent access to obsolete software.

8.13 The supplier's procedures shall provide a means of documenting traceability for the test requirements to the software, and they shall provide for verification that requirements are satisfied.

9. **PRODUCT VERIFICATION:**

Conformance to the requirements contained herein shall be tested by verification of product. Product Verification is intended to provide a measure of product quality of supplier finished characteristics that have been processed through all manufacturing and inspection operations and are considered ready for shipment to their next higher assembly, process, or intended customer(s).