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U. S. DEPARTMENT OF TRANSPORTATION

FEDERAL AVIATION ADMINISTRATION

STANDARD

# QUALITY CONTROL PROGRAM REQUIREMENTS

## 1. SCOPE

1.1 Scope. This standard establishes the minimum requirements for a quality control program (6.1.5) to be established and maintained by a contractor under Federal Aviation Administration (FAA) contract, for the furnishing of supplies and services.

1.2 Applicability and Precedence. The quality control program requirements set forth in this standard shall be applicable to all supplies and services, including computer software, and Nondevelopmental Items (NDI) and are in addition to all other requirements contained in statements of work, specifications, or elsewhere in the contract. If the contract requires a delivered and approved Quality Control Program Plan (QCPP), the plan shall provide traceability and adherence to the requirements of this standard for all quality program activities. If there is a conflict between the QCPP and this standard, the latter shall take precedence.

1.3 Designated Quality and Reliability Officer. The FAA Contracting Officer (CO) may designate an FAA Quality and Reliability Officer (QRO) to assist the Government in various assigned functions, some of which are identified throughout this standard. In the event a QRO is not designated, the CO will determine the appropriate Government representation.

## 2. APPLICABLE DOCUMENTS

2.1 Government Documents. The following documents (issues in effect on the date of invitation for bids or request for proposals) form a part of this standard to the extent specified herein.

STANDARDS:

Military:

MIL-STD-45662, Calibration Systems Requirements

(Copies of standards and other publications required by suppliers in connection with specified procurement functions should be obtained from the procuring activity or as directed by the C.O.)

## 3. REQUIREMENTS

3.1 Quality Control Program. The contractor shall establish and maintain a documented quality control program that assures all supplies and services submitted to the Government for acceptance conform to contract requirements, prior to FAA acceptance and deployment, whether manufactured or processed by the contractor, or procured from subcontractors or other suppliers. This program shall include a scheduled and controlled plan of events integrating all necessary procedures, controls, inspections, and tests required to substantiate product quality, including any related documentation and computer software (including firmware). This quality control program shall be implemented during design, development, purchasing, subcontracting, manufacture, fabrication, processes, assembly, testing, acceptance, packaging, and shipping; and, when required by the contract, site installation. The contractor shall perform or have performed all inspections and tests required to substantiate product configuration and conformance to drawings, specifications, and other contract requirements.

3.1.1 Government Review. The contractor shall make the documented quality control program (including all plans and procedures implementing the requirements of this standard) available for review by the Government throughout the life of the contract. The Government shall furnish written notice to the contractor if the quality control program is found to be inadequate. The contractor shall correct those aspects of the quality control program deemed inadequate upon notification by the Government. The contractor shall notify the QRO and the CO in writing of any subsequent change to the quality control program. This program shall be subject to disapproval if changes thereto could result in any nonconforming product.

3.1.2 Use of Nondevelopmental Items (NDI). The contractor shall maintain a system that meets all requirements of this standard for controlling hardware and software NDI/modified NDI. This shall include but not be limited to verifying NDI at receiving inspection, controlling non-conforming NDI, and maintaining configuration control/revision control.

3.2 Documentation, Records, and Corrective Action.

3.2.1 Inspection and Testing Documentation. Inspection and testing shall be prescribed by clear, complete, and current instructions. Criteria for approval and rejection of the product shall be included. The instructions shall address inspection and test of materials, work in process, and completed product.

3.2.2 Records. The contractor shall establish and maintain records of all inspections and tests. The records shall indicate, as appropriate, the nature and number of observations made, the number and type of deficiencies found, the quantities approved and rejected, and the nature of corrective or preventive action taken. The records shall also identify contractor personnel performing the inspections and tests.

3.2.3 Corrective Action. The contractor shall take prompt action to correct conditions which have resulted or could result in the submission to the Government of supplies or services which do not conform to contract and specification requirements. The contractor shall perform inspections and tests required to verify corrective action and substantiate product conformance.

3.2.4 Drawings , Changes and Version Control. The contractor's quality control program shall provide for written procedures which assure the latest applicable drawings, specifications, computer software/firmware version and instructions required by the contract, as well as authorized changes, are used in all phases and activities of contract performance.

3.3 Measuring and Test Equipment. The contractor shall establish a calibration system and maintain all measuring and test equipment in accordance with MIL-STD-45662. When requested, the contractor's measuring and test equipment shall be made available for use by the QRO. In addition, if conditions warrant, contractor's personnel shall be made available for operation of such devices.

3.4 Government-Furnished Property. When property is furnished by the Government, the contractor shal establish and maintain a program for the use, maintenance, repair, and protection of Government property. The contractor's procedures shall include as a minimum the following:

a. Visual examination upon receipt to detect damage in transit;

b. Inspection upon receipt for completeness and proper type;

c. Verification upon receipt of correct quantity;

d. Functional testing prior to installation or use to determine satisfactory operation;

e. Periodic inspection and precautions to assure that adequate storage is provided and to guard against damage from handling or deterioration during storage; and,

f. Identification and protection from improper use or disposition.

The contractor's procedures shall include requirements for reporting to the CO, the QRO, and the designated Government property administrator, when Government-furnished property is received.

3.4.1 Damaged Government-Furnished Property. The contractor shall also report to the contracting office the QRO, and the designated Government property administrator when any Government-furnished property is found to be damaged, malfunctioning, or otherwise unsuitable for use. In the event of damage c malfunction, the contractor shall determine and record the probable cause and necessity for withholdin material from use.

3.5 Nonconforming Material and Supplies. The contractor shall establish and maintain an effective and positive system for controlling nonconforming material and supplies, including computer software. This system shall include procedures for their identification, segregation, presentation, and disposition. Repair o nonconforming material and supplies shall be in accordance with documented procedures approved by the QRO. The acceptance of nonconforming supplies is the prerogative of, and shall be as prescribed by, the Government. All nonconforming material and supplies shall be positively identified to prevent use, shipment, or intermingling with conforming material and supplies. Holding areas for nonconforming material and supplies, approved by the QRO, shall be provided by the contractor.

3.6 Qualified Products. The inclusion of a product on the Qualified Products List does not relieve the contractor of the responsibility for furnishing supplies meeting all contractual requirements or for performing all specified inspections and tests.

3.7 Inspection

3.7.1 Indication of Inspection Status. The contractor shall maintain a positive system for identifying the inspection status of supplies and services, including computer software and NDI. Identification may be accomplished by means of stamps, tags, routing cards, move tickets, labels, tote box cards or other contr devices. Such controls shall be of a design distinctly different from Government inspection identificati

3.7.2 Sampling Inspection. Sampling inspection procedures used by the contractor to determine quality conformance of supplies shall be as stated in the contract or shall be subject to approval by the Governmen

3.7.3 Government Source Inspection at Subcontractor or Other Supplier Facilities. The Government reserves the right to inspect, at source, supplies procured by the prime contractor from subcontractors or suppliers. Government inspection shall not constitute acceptance, replace contractor inspection, or otherwise relieve the prime contractor of any responsibilities under the contract. When inspection at a subcontractor's or other supplier's facility is performed by the Government, such inspection shall not be used by the contractor as evidence of effective inspection by such subcontractor or other supplier.

3.7.3.1 Government Source Inspection Requirements. When Government source inspection is required, the contractor shall add to its purchasing document the following statement:

> "Government inspection is required prior to shipment from your facility. Upon receipt of this order, promptly notify the prime contractor so appropriate planning for Government inspection can be accomplished."

3.7.3.2 Purchasing Documents. When Government source inspection is required, the prime contractor shall promptly furnish copies of purchasing documents to the QRO, so that appropriate planning for such inspection can be accomplished.

3.7.3.3 Referenced Data. All documents and referenced data for purchases applying to a Government contract shall be available for review by the QRO during all phases of contract activity.

3.7.4 Receiving Inspection. Subcontracted or purchased supplies and services including computer software shall be inspected upon receipt as needed to assure conformance to contract requirements. Software shall be verified to assure correct version. Modified NDI software shall be tested in order to verify that the specified performance is not adversely affected by the modification. The contractor shall report to the QRO any nonconformance found on source-inspected supplies and shall coordinate with the supplier on corrective action. The contractor shall notify the QRO of the corrective action taken by the supplier.

3.7.5 Notification of Readiness For Inspection. Unless otherwise specified in the contract, the contractor shall notify the designated resident QRO in writing within 2 workdays (7 workdays if there is not a resident QRO) of the time: (1) when contractor's inspection or tests will be performed in accordance with the conditions of the contract and (2) when the supplies, or services performed, will be ready for Government inspection.

3.8 Government Evaluation. The contractor's quality control program shall be subject to evaluation, and supplies shall be subject to verification inspection by the QRO. Government evaluation will determine the effectiveness and adequacy of the quality control program in supporting the quality requirements established in the contract, specifications, drawings, and as prescribed herein.

3.9 Test Documents. The following requirements apply unless other requirements for test procedures and test data forms are specified in the contract.

3.9.1 Copies of Test Documentation. For all tests required by the contract and applicable specifications, four copies of the proposed test procedures and blank test data forms shall be furnished to the Government as follows:

a. Three copies to the CO or to the designated technical representative.

b. One copy to the resident FAA QRO, if designated, otherwise forward to the CO, or the designated technical representative.

Copies shall be furnished at least 45 days in advance of the contractor's scheduled date for testing to allow the Government time for review and evaluation. The Government will notify the contractor that the proposed procedures and forms are approved for use, or will identify their deficiencies. In the event of the latter, the contractor shall resubmit revised procedures and forms. Only approved procedures and forms shall be used for recording of test data during contractually required testing.

3.9.1.1 Test Procedures. Required test procedures shall be complete and in sufficient detail to permit Government evaluation without physical examination of the test facility. Test procedures shall include block diagrams of the test set-up identifying all connection points, controls, and test equipment to be utilized. Supplementary descriptive information shall be furnished on any special test equipment or fixtures utilized in the test.

3.9.1.2 Test Data Forms. The contractor shall prepare test data forms for each product subjected to test. Separate forms shall be prepared for each test classification. The title page for each set of test data forms shall include:

a. Product name,

b. Type designation and serial number,

c. Specification number and date, and

d. Contract number and date.

Test data forms shall reference the hardware and software configuration of the unit under test. The individual test data form shall indicate specification paragraph numbers and the stated performance limits. It shall also provide for the recording of all observed data and all intermediate steps or mathematical calculations which may be involved in determination of the final measurement. All data shall be quantitative, and each final entry shall be in units directly comparable to the specification limits.

3.9.1.3 Completed Test Data Forms. The completed test data forms shall be signed by the contractor's designated quality representative as evidence of its validity, and shall be submitted to the QRO for verification. The completed and verified test data forms (or if authorized in advance by the FAA CO, certified test data forms) shall be distributed as follows:

a. One copy to the QRO or his/her designee. (Two copies to the QRO or his/her designee for the first deliverable system).

b. One copy with each equipment to its destination.

3.10 Facilities for FAA Quality Reliability Officer (QRO). When contractually required the contractor shall provide appropriate office space for the QRO to perform his/her government reviews and evaluations in accordance with contract requirements.

## 4. QUALITY ASSURANCE PROVISIONS

This section is not applicable to this standard.

## 5. PREPARATION FOR DELIVERY

This section is not applicable to this standard.

## 6. NOTES

6.1 Definitions.

6.1.1 Computer Software. Computer software in this document includes newly developed or existing software/firmware. It includes both deliverable and non-deliverable software used for development, test, diagnostic and maintenance.

6.1.2 Commercial Product. Commercial product means a product, such as an item, material, component, subsystem, or system, sold or traded to the general public in the course of normal business operations at prices based on established catalog or market prices.

6.1.3 Modified NDI. NDI equipment that has been modified to meet functional requirements. Also, a commercial product (a) Modified to meet some Government peculiar requirement or addition or (b) Otherwise identified differently from its normal counterparts. Within this document, modified commercial product, including off the shelf items are a subset of NDI.

6.1.4 Nondevelopmental Items (NDI). Nondevelopmental items are any:

6.1.4.1 Previously developed items in use by a Federal, State, or Local Government agency of the U.S. or a foreign government.

6.1.4.2 Items available as commercial product.

6.1.5 Quality Control Program. Quality Control Program as used in this standard is the collective requirements of this standard.

6.2 Changes from Previous Issue. Words in bold print identify changes with respect to the previous issue.