

# Volume I, Section 7

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## Quality Assurance

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### 7.1 Scope

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Quality Assurance provides continuous confirmation that a voting system conforms with the Standards and to the requirements of state and local jurisdictions. Quality Assurance is a vendor function with associated practices that is initiated prior to system development and continues throughout the maintenance life cycle of the voting system. Quality Assurance focuses on building quality into a system and reducing dependence on system tests at the end of the life cycle to detect deficiencies, thus helping ensure the system:

- ◆ Meets stated requirements and objectives;
- ◆ Adheres to established standards and conventions;
- ◆ Functions consistent with related components and meets dependencies for use within the jurisdiction; and
- ◆ Reflects all changes approved during its initial development, internal testing, qualification, and, if applicable, additional certification processes.

### 7.2 General Requirements

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The voting system vendor is responsible for designing and implementing a quality assurance program to ensure that the design, workmanship, and performance requirements of this standard are achieved in all delivered systems and components. At a minimum, this program shall:

- a. Include procedures for specifying, procuring, inspecting, accepting, and controlling parts and raw materials of the requisite quality;
- b. Require the documentation of the hardware and software development process;
- c. Identify and enforce all requirements for:

- 1) In-process inspection and testing that the manufacturer deems necessary to ensure proper fabrication and assembly of hardware, and
  - 2) Installation and operation of software (including firmware).
- d. Include plans and procedures for post-production environmental screening and acceptance test; and
  - e. Include a procedure for maintaining all data and records required to document and verify the quality inspections and tests.

### **7.3 Components from Third Parties**

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A vendors who does not manufacture all the components of its voting system, but instead procures components as standard commercial items for assembly and integration into a voting system, should verify that the supplier vendors follow documented quality assurance procedures that are at least as stringent as those used internally by the voting system vendor.

### **7.4 Responsibility for Tests**

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The manufacturer or vendor shall be responsible for:

- a. Performing all quality assurance tests;
- b. Acquiring and documenting test data; and
- c. Providing test reports for review by the ITA, and to the purchaser upon request.

### **7.5 Parts & Materials Special Tests and Examinations**

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In order to ensure that voting system parts and materials function properly, vendors shall:

- a. Select parts and materials to be used in voting systems and components according to their suitability for the intended application. Suitability may be determined by similarity of this application to existing standard practice, or by means of special tests;

- b. Design special tests, if needed, to evaluate the part or material under conditions accurately simulating the actual operating environment; and
- c. Maintain the resulting test data as part of the quality assurance program documentation.

## **7.6 Quality Conformance Inspections**

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The vendor performs conformance inspections to ensure the overall quality of the voting system and components delivered to the ITA for testing and to the jurisdiction for implementation. To meet the conformance inspection requirements the vendor or manufacturer shall:

- a. Inspect and test each voting system or component to verify that it meets all inspection and test requirements for the system; and
- b. Deliver a record of tests, or a certificate of satisfactory completion, with each system or component.

## **7.7 Documentation**

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Vendors are required to produce documentation to support the development and formal testing of voting systems. To meet documentation requirements, vendors shall provide complete product documentation with each voting systems or components, as described Volume II, Section 2 for the TDP. This documentation shall:

- a. Be sufficient to serve the needs of the ITA, voters, election officials, and maintenance technicians;
- b. Be prepared and published in accordance with standard industrial practice for information technology and electronic and mechanical equipment; and
- c. Consist, at a minimum, of the following:
  - 1) System overview;
  - 2) System functionality description;
  - 3) System hardware specification;
  - 4) Software design and specifications;
  - 5) System security specification;
  - 6) System test and verification specification;
  - 7) System operations procedures;

- 8) System maintenance procedures;
- 9) Personnel deployment and training requirements;
- 10) Configuration management plan;
- 11) Quality assurance program; and
- 12) System Change Notes.