
**Telecommunications Industry Association (TIA)
Business Performance Community (BPC)**

**TL 9000
Quality Management System
Requirements Handbook**

Point Release R6.2

*The ICT Quality Management System
Performance Excellence through Global ICT Quality*

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visit <https://www.tiaonline.org/what-we-do/business-performance/>

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Throughout this document the term 'TL 9000' refers to *TL 9000 Quality Management System Requirements Handbook Point Release R6.2*), namely this volume, unless specifically stated otherwise. Also, the term 'ISO 9001' refers to ISO 9001:2015 [\[2\]](#), unless specifically stated otherwise.

Requirements Handbook Point Release R6.1 included changes to Sections 8.3 and 8.6 intended to clarify how these requirements apply regardless of the design and development methodology used by the organization.

Requirements Handbook Point Release R6.2 modifies two requirements (8.3.2.C.1 Project Planning and 8.3.3.C.2 Design and Development Requirements), rewords three others, and updates the terminology in one. It also rewords three notes, adds one new note, and renumbers a note.

All TL 9000 Certified organizations are required to transition to meet Requirements Handbook Point Release R6.2 even if not impacted by the changes in this release.

Approved and Adopted
by
TIA's BPC
Effective

April 1, 2020

4. Context of the organization

4.1 Understanding the organization and its context

There are no additional requirements for this section of ISO 9001

4.2 Understanding the needs and expectations of interested parties

There are no additional requirements for this section of ISO 9001

4.3 Determining the scope of the quality management system

Additional requirements for TL 9000 are shown below

4.3.C.1 Declaration of Requirement and Measurement Applicability – The organization shall declare in its registration profile any requirements determined as not applicable, as well as any measurement exemptions claimed.

4.3.C.1-NOTE 1 It is not necessary for an organization to declare a TL 9000 requirement as not applicable if the requirement is outside the scope of the TL 9000 registration specialty option(s) the organization has selected. Also, it is not necessary for an organization to declare as not applicable any TL 9000 requirement where the requirement itself or an associated note states the requirement is not applicable to the organization's product or service category type.

4.3.C.1-NOTE 2 See Measurements Handbook [\[5\]](#) for definition of measurement exemptions.

4.3.C.2 TL 9000 Profile and Scope – An organization seeking certification shall determine, in coordination with its Certification Body (CB), the

- TL 9000 scope statement,
- ISO 9001 scope statement,
- requirements determined as not applicable,
- measurement exemptions,
- registration specialty options,
- NACE codes,
- product categories,
- locations or sites,
- ISO 9001 version,
- TL 9000 Requirements and Measurements release levels, and
- use of Advanced Surveillance and Reassessment Procedure (ASRP).

All the registration information shall be recorded and maintained on TL 9000's Registration Management System (RMS) in a registration profile. The TL 9000 Administrator shall provide relevant information to the IAF database of accredited certifications. The certificate issued by the CB shall reference the registration profile on the RMS by the TL ID number assigned to the registration by the TL 9000 Administrator when the profile is created.

The scope statement shall include

an identification of the organization being registered, which may encompass the entire organization, an organizational unit, or a combination of units, and

6.2 Quality objectives and planning to achieve them

6.2.1

Additional requirements for TL 9000 are shown below

6.2.1.C.1 TL 9000 Measurements Targets – Quality objectives shall include targets for the TL 9000 measurements defined in the Measurements Handbook [5].

6.2.2

Additional requirements for TL 9000 are shown below

6.2.2.C.1 Customer Input – The organization shall implement methods for collaboration with customers on quality planning activities. The organization should establish joint quality improvement programs with selected customers.

6.2.2.C.2 External Provider Input – The organization shall implement methods for collaboration with external providers on quality planning activities.

6.2.2.C.3 Long- and Short-Term Quality Planning – The organization’s quality planning activities shall include plans to achieve long- and short-term quality objectives. Performance to these quality objectives shall be monitored and reported to top management. Top management shall demonstrate their active involvement in long- and short-term quality planning.

6.2.2.C.3-NOTE Factors that may be considered for planning are

- a) cycle time,
- b) customer service,
- c) training,
- d) cost,
- e) delivery commitments,
- f) product reliability,
- g) security and privacy, and
- h) sustainability.

7. Support

7.1 Resources

7.1.1 General

Additional requirements for TL 9000 are shown below

7.1.1.C.1 Business Continuity Planning – The organization shall establish and maintain documented plans for continuity of operations, disaster recovery, infrastructure, and security restoration to ensure the organization's ability to continue to support its products and services. Business continuity plans shall include, at a minimum, crisis management, disaster recovery, and information technology. Business continuity plans shall be periodically evaluated for effectiveness and reviewed with appropriate levels of management.

7.1.1.C.1-NOTE 1 Types of recovery capabilities should include a series of statements related to infrastructure, personnel, and data. Examples include who is notified, under what circumstances are they notified, who has the authority to act, and who will coordinate the steps outlined in the plan.

7.1.1.C.1-NOTE 2 Business continuity planning may consider recovery from security incidents such as cybersecurity, malware, and ransomware attacks.

7.1.2 People

There are no additional requirements for this section of ISO 9001

7.1.3 Infrastructure

Additional requirements for TL 9000 are shown below

7.1.3.C.1 Infrastructure Security – The organization shall determine, provide, and maintain security for the infrastructure.

7.2.C.4 Electrostatic Discharge (ESD) Training – All personnel with functions that involve handling, storage, packaging, preservation, or delivery of ESD-sensitive products shall receive training in ESD protection prior to performing their jobs. The type and frequency of ESD refresher training shall be defined by the organization.

7.2.C.5 Advanced Quality Training – The organization shall offer appropriate levels of advanced quality training.

7.2.C.5-NOTE Examples of advanced quality training include statistical techniques, process capability, statistical sampling, data collection and analysis, problem identification, problem analysis, root cause analysis and enabling tools.

7.2.C.6 Hazardous Conditions Training Content – Where the potential for hazardous conditions exists, training content shall include

- a) methods for task execution,
- b) personal safety requirements and appropriate protective equipment,
- c) awareness of hazardous environment, and
- d) protection of the equipment.

7.2.HV.1 Operator Qualification and Requalification - The organization shall identify activities for which operator qualification and requalification are necessary. Qualification and requalification requirements shall be established for identified activities. At a minimum, these requirements shall address education, experience, training, and demonstrated skills. The organization shall communicate this information to all those affected.

7.2.HV.1-NOTE Examples of activities that require qualification and requalification include wire wrapping, fiber-optic fusion splicing, soldering, welding, forklift operation, and tower climbing.

7.3 Awareness

There are no additional requirements for this section of ISO 9001

7.4 Communication

There are no additional requirements for this section of ISO 9001

8.3.2 Design and development planning

Additional requirements for TL 9000 are shown below

8.3.2.C.1 Project Planning - The organization's project planning activities shall be based on the defined product and service life cycle model (see 8.1.C.1). Throughout the project life cycle, the planning activities should include

- a) project organizational structure,
- b) roles, responsibilities, and accountabilities of the project team,
- c) roles, responsibilities, and accountabilities of related teams or individuals, within and outside the organization, and interfaces between them and the project team,
- d) methods for scheduling, issue resolution, and management reporting,
- e) estimation of project factors,
- f) assumptions in the plan,
- g) budgets, staffing, and schedules associated with project activities,
- h) the various method(s), standards, documented information, and tools to be used,
- i) other related project dependencies (e.g., risk management, development, testing, configuration management, and quality),
- j) project-specific development or service delivery environment and physical resource considerations (e.g., resources to address development, user documentation, testing, operation, required development tools, secure computing environment, lab space, workstations, etc.),
- k) customer, user, and external provider involvement during the product and service life cycle (e.g., joint reviews, informal meetings, and approvals),
- l) management of project quality, including appropriate quality measures,
- m) design for X (DFx) as appropriate to the product and service life cycle,
- n) lessons learned from previous post-project analyses and retrospectives, including root cause analysis and corrective actions to be taken to preclude repetition in future projects,
- o) project-specific training requirements,
- p) required certifications (e.g., product and/or service certifications or employee technical certifications), and
- q) proprietary, usage, ownership, warranty, and licensing rights.

8.3.2.C.1-NOTE 1 Work instructions defining tasks and responsibilities common to all development projects need not be replicated per individual project.

8.3.2.C.1-NOTE 2 Estimation may consider project factors such as size, complexity, requirements changes, effort, staffing, schedules, cost, quality, reliability, velocity, and productivity. Data from the estimation process should be analyzed to compare original estimates to actuals.

8.3.2.C.1-NOTE 3 DFx examples include Manufacturability, Reliability, Regulatory, Serviceability, Safety, Sustainability, Security, Privacy, and Testability. See 'Design for X (DFx) Guidance Document' at tl9000.org/handbooks/rh_guidance.html for a list of examples and other information on DFx.

8.3.2.HS.1 Configuration Management Planning - The organization shall establish and maintain a method(s) to perform configuration management, which should include

- a) identification and scope of the configuration management activities,
- b) schedule for performing these activities,
- c) configuration management tools,
- d) configuration management methods and documented information,
- e) organizations and responsibilities assigned to them,
- f) level of required control for each configuration item, and
- g) point at which items are brought under configuration management.

8.3.3 Design and development Inputs

Additional requirements for TL 9000 are shown below

8.3.3.C.1 Customer and External Supplier Input – The organization shall establish and maintain methods for collaboration with customers and external providers during the development of new or revised product/service requirements.

8.3.3.C.2 Design and Development Requirements – Design and development requirements shall be defined and documented, and should include

- h) quality and reliability requirements,
- i) functions and capabilities of the products and services,
- j) business, organizational, and user requirements,
- k) safety, environmental, sustainability, security, and privacy requirements,
- l) manufacturability, installability, usability, interoperability, and maintainability requirements,
- m) design constraints,
- n) testing requirements,
- o) product computing resources,
- p) lessons learned from previous projects and retrospectives, and
- q) hardware packaging requirements.

8.3.3.C.3 Requirements Allocation - The organization shall document the allocation of product and service requirements to their architecture.

8.3.3.C.3-NOTE Examples of requirements which should be allocated are response time for software, heat dissipation for hardware, and service response time for services.

8.4 Control of externally provided processes, products and services

8.4.1 General

Additional requirements for TL 9000 are shown below

8.4.1.C.1 Procurement Process – The organization shall maintain documented information on the procurement process to ensure

- a) product and service requirements are clearly defined,
- b) risks are understood and managed,
- c) qualification criteria are established,
- d) acceptance criteria are established,
- e) contracts are defined,
- f) proprietary, usage, ownership, warranty, and licensing rights are satisfied,
- g) future support for products and services is planned,
- h) ongoing supply-base management and monitoring is in place, and
- i) external provider selection criteria are defined.

8.4.1.C.2 External Provider Performance Management – The organization shall plan and perform external provider performance management and development activities so that

- a) external provider quality performance is tracked, and feedback is provided to external providers to drive continual improvement, and
- b) for identified key external providers, alignment toward conformity to TL 9000 requirements and measurements or other appropriate quality management systems for the external provider's products and services occurs, with a preference toward TL 9000.

8.4.1.C.2-NOTE 1 External provider performance management planning and activities should be in conjunction with the organization improvement processes of Section **Error! Reference source not found.**

8.4.1.C.2-NOTE 2 It is recognized that it is not possible for an organization to provide the same level of interaction with all external providers. The level provided may depend on the amount of business with an external provider, the criticality of products or services, history of problems, organization expectations, significance of an external provider within the supply chain or other factors.

8.4.1.C.2-NOTE 3 Examples of alignment toward conformity to appropriate quality management systems may include

- a) surveys,
- b) external provider questionnaires,
- c) external provider education and training regarding conformance to standards,
- d) the use of TL 9000 requirements and measurements, in full or in part,
- e) second-party audits evaluating TL 9000 conformance or conformance to an appropriate quality management system, and
- f) Certification to TL 9000 or other quality standards accredited by a signatory of the IAF MLA (where this is available) or by the appropriate sector accreditation body. Examples include ISO 9001 [\[2\]](#), AS9100 [\[6\]](#), CMMI [\[7\]](#), IATF 16949 [\[8\]](#), etc.

8.4.2 Type and extent of control

There are no additional requirements for this section of ISO 9001

8.4.3 Information for external providers

8.5.4.S.1 Software Malware Protection – The organization shall establish and maintain methods for software malware prevention, detection, and removal from the deliverable product.

Post-delivery activities

Additional requirements for TL 9000 are shown below

8.5.5.H.1 Testing of Repair and Return Products - Repair and return products shall be subjected to the appropriate evaluation(s) and/or test(s) to ensure functionality to product specification(s).

8.5.5.HS.1 Emergency Service Provisioning - The organization shall ensure that services and resources are available to support recovery from emergency failures of product in the field throughout its expected life. The organization shall identify potential situations that may have an impact on its ability to provide the emergency service and shall have response plans to address these situations. These plans shall be based on risk and periodically assessed.

8.5.5.S.1 Software Patching Information - The organization shall maintain documented information for software patching that

- a) guides the decision to solve problems by patching,
- b) addresses patch development information, propagation (forward and backward), and resolution,
- c) is consistent with customer needs or contractual requirements for maintenance support,
- d) ensures that the organization provides the customer with a statement of impact on the customer's operation for each patch, and
- e) ensures that all documentation required to describe, test, install, and apply a patch has been verified and delivered with the patch.

Control of changes

There are no additional requirements for this section of ISO 9001