

# TL 9000 and TS16949 Comparison

# Purpose

- This summary is intended to give those familiar with TS16949 requirements a general sense of the additional requirements contained in TL 9000

# Overview

- TL 9000 and TS16949 are based on ISO9000-2000
  - TL 9000 adds telecommunications specific requirements
  - TS16949 adds automotive specific requirements
- TL 9000 adders focus on:
  - Continual improvement
  - Customer-organization relationships,
  - Effective performance-based measurements.
- Requirements have been identified for hardware, software, and service

# Overview

- TL 9000 includes specific measurements that must be regularly reported to the QuEST Forum for benchmarking purposes.
- TL 9000 targets all suppliers of telecommunications products: hardware, software, and services.
- Unlike TS16949, there is no requirement to perform value added manufacturing to obtain certification.

# TL 9000 Standard

- This section includes TL 9000 requirements that are not present in TS16949
- Requirements that are similar to TS16949 requirements are not listed here
- Refer to the actual standards for full details of all requirements

# TL 9000 Standard

- 4.2.3 Control of documents
  - Documented procedure for the control of customer supplied documents and data
- 5.2 Customer focus
  - Top management involvement in the customer communication process
  - Establish customer communication methods to:
    - Share expectations
    - Solicit input
    - Improve product quality
- 5.4.2 Quality Management System planning
  - Long and short term quality planning
  - Customer and supplier input to quality planning

# TL 9000 Standard

- 5.5.3 Internal communications

To include:

- quality performance
- level of customer satisfaction achieved

- 6.6.2 Competence, awareness, and training

Requirements for training that include:

- Internal course development process
- Quality improvement concepts
- Defined training requirements
- ESD training
- Advanced quality training
- Personnel qualification
- Hazard training (where applicable)

# TL 9000 Standard

- 7.1 Planning Product Realization

Provisions for:

- Life cycle modeling
- New product introduction
- Documented procedure for disaster recovery
- Documented procedure for end of life planning
- Configuration management
- Service delivery plan (where applicable)



# TL 9000 Standard

- 7.2.2 Review of requirements related to product
  - Actions from product requirements reviews tracked to closure
  - Consideration for product acceptance and handling of problems detected after product acceptance
- 7.2.3 Customer communication
  - Provisions for:
    - Customer notification of problems
    - Assignment of problem severity levels
    - Customer feedback on their problem reports
    - Reporting design and development measurements, when requested by the customer
  - Documented procedures for:
    - Problem escalation
    - Product recall process

# TL 9000 Standard

- 7.3 Design & Development–

TL 9000 sets forth a detailed project planning process based on the life cycle model, including:

- Numerous project plan specific requirements
- Requirements traceability
- Documented test plans and results
- Documented migration plan (where applicable)
- Documented software integration plan
- Estimation project factors, computer resources
- Regression test planning
- Customer and supplier input to product requirements
- Numerous design and development requirements
- Software component requirements
- Documented allocation of the product requirements to the product architecture
- Numerous design and development output requirements
- Methods to control the release and delivery of software products
- Numerous design change requirements
- Documented procedure for customer notification of design changes
- Interface between problem resolution and configuration management
- Documented procedure for material or component changes

# TL 9000 Standard

- 7.4.1 Purchasing
  - Documented procedure that details product requirements and supplier performance feedback
- 7.5.1 Control of Product and Service
  - Requires the customer is provided:
    - Service resources
    - Emergency service
    - Installation planning
    - A patching process for software products
    - Data on tool changes required for performing service
  - Documented procedures for:
    - Patching
    - Tool changes
    - Replication processes
    - Control of software used in service delivery

# TL 9000 Standard

- 7.5.3 Identification and traceability
  - Process to identify each product and it's level of required control
  - Field Replaceable Units (FRU) shall be traceable throughout the product life cycle
  - Methods to provide traceability of design changes to manufacturing dates, lots, or serial numbers
- 7.5.5 Preservation of product
  - Anti static protection must be supplied where applicable
  - Packaging and label verification must be performed on product ready to ship
  - Software virus protection must maintained
- 8.2.1 Customer satisfaction
  - Process to collect data directly from customers concerning their satisfaction with the provided products

# TL 9000 Standard

- 8.2.4 Monitoring and measurement of product
  - Detailed test and inspection documentation, including retesting procedures to assure that production product meets the engineering specifications
  - Content and frequency of testing and periodic retesting defined in a documented procedure.
  - Software tests performed per documented process and test plan.
- 8.4 Analysis of data
  - Trend analysis of discrepancies found in nonconforming product performed on a regular basis with results utilized as inputs to corrective actions
  - Field performance data including no trouble found (NTF), and service performance data analyzed with results utilized for continual improvement

