| Indicates Change

Global Quality Management System

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1. SCOPE

This global quality management system provides the basis for analyzing customer requirements, defining the processes that contribute to the achievement of a product or service that is acceptable to the customer, and provisions for keeping these processes in control. In recognition of the varying organizational structures and needs of the business units, this quality specification may be supplemented by additional detailed procedures. Such additional procedures may not be less stringent than those provided herein unless specifically required in the customer contract; records shall be kept of such contract exceptions.

TE Connectivity – Quality Management System (QMS)

The TE Operating Advantage (TEOA) is the company's enterprise-wide focus on business performance and continual improvement through waste elimination and deployment of best practices. The QMS is a foundation element of TEOA. Deployment of this Quality Management System provides the comprehensive process of satisfying the customer, starting with requirements for a product or service through the delivery, and use of the item that satisfies that request. The TE QMS provides the attention and control that must be given to all features of a product or service to ensure total customer satisfaction. In addition to the obvious characteristics – such as form, fit, function, and reliability – the QMS involves maintainability, storability, appearance, ease of application, end use of a product, process, or service, efforts to accomplish error–free documentation and systems, and countless other aspects contributing to the overall value to the internal operations and the external customer. The TE QMS meets the requirements of the International Standard ISO 9001. TE QMS includes supplemental quality specifications that address the additional specific requirements of the various international industry standards and regulations. Global Quality Management System Specification Industry Based Supplemental QMS Specifications Nuclear Railway Telecommunication Aerospace Automotive Medical

2. NORMATIVE REFERENCES

The following TE Connectivity Policies and Specifications constitute a part of this Global Quality Specification to the extent explicitly set forth herein. Unless otherwise specified, the latest edition of the referenced document applies.

2.1. Policies and Specifications

A. TEC-11-01 TE Connectivity Quality Policy and Supporting Principles
B. TEC-01-02 Global Records Management Policy
C. TEC-01-67 Crisis Management Program
D. TEC-08-02 Design Integrity
E. TEC-1001 Global Documentation System
F. TEC-1002 TE Complaint Handling System
G. TEC-1035 Corrective and Preventive Action Process
H. TEC-1017 Global QMS Cross-Reference for Policies, Specifications, and Standards

2.2. International Standards / Industry Standards

A.	10 CFR 50, Appendix B	Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants
B.	21 CFR 820	Quality System Regulation (Medical Device Quality System Regulation)
C.	ISO/IEC 80079-34	Explosive atmospheres – Part 34: Application of quality systems for ex product manufacture
D.	IECEx OD 024	Rules of Procedure covering testing or witnessing testing at a manufacturer's user or third-party facility
E.	AS 9100	Quality Management Systems – Aerospace – Requirements
F.	ISO 9000	Quality Management Systems – Fundamentals and Vocabulary
G.	ISO 9001	Quality Management Systems – Requirements
H.	ISO 9004	Managing for the sustained success of an organization – A quality management approach
I.	ISO 10012	Measurement Management Systems - Requirements for Measurement Processes and Measuring Equipment

J. ISO 13485 Medical Devices – Quality Management Systems – Requirements for Regulatory Processes

K. ISO 17025 General Requirements for the Competence of Testing and Calibration Laboratories

L. TL 9000 Quality Excellence for Suppliers of Telecommunications Forum, Quality Management System, Requirements Handbook

M. IATF 16949 Quality Management Systems –Requirements for the Automotive Production and Relevant Service Part Organizations

N. ISO / TS 22163 Railway Application – QMS – Business Management Requirements for Rail Organizations

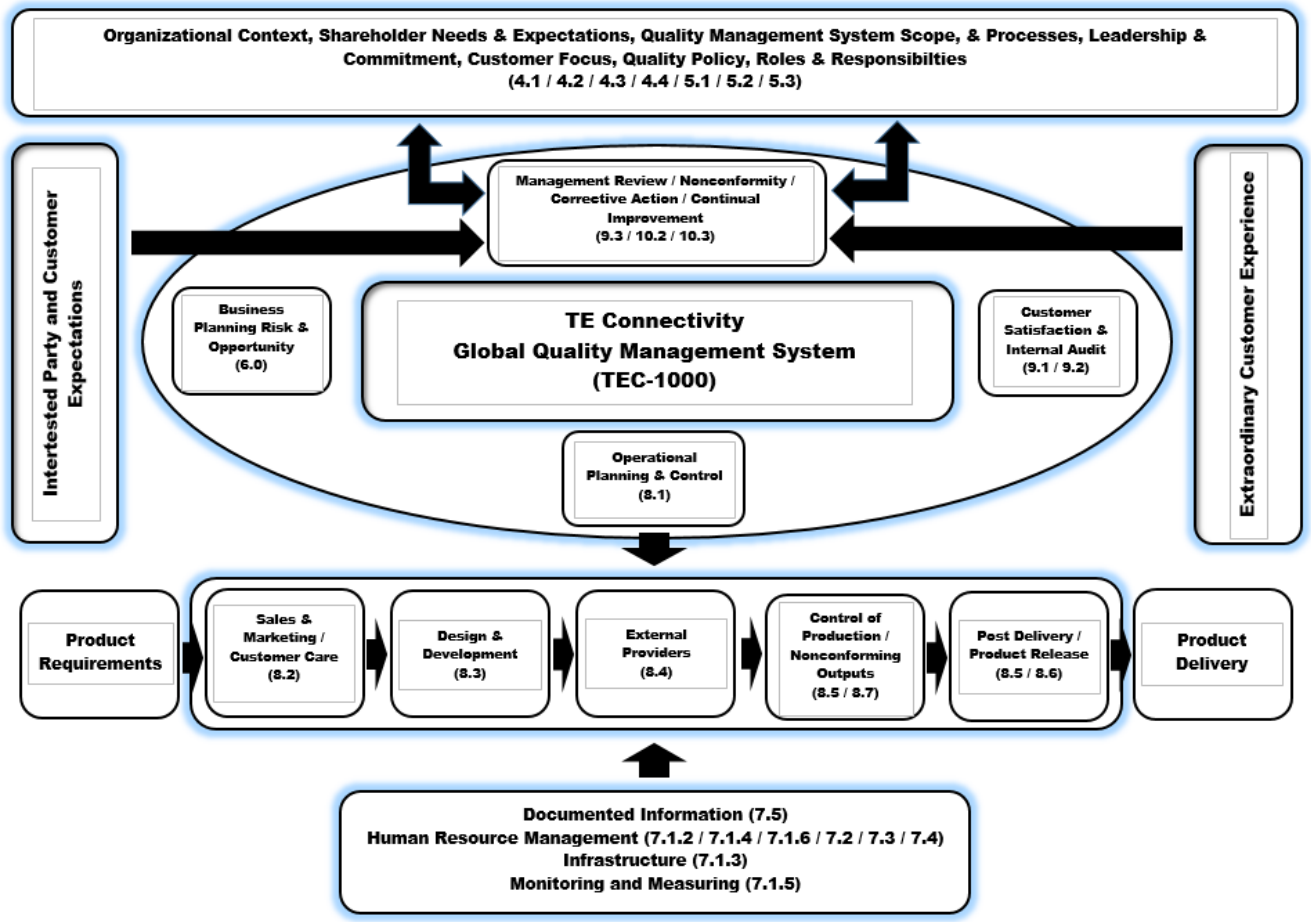
2.3. TE Connectivity Website

A. TE Connectivity Organizational Context
http://www.te.com/usa-en/home.html

B. TE Connectivity Organization Charts
http://www.te.com/usa-en/about-te/our-company/leadership.html

3. PROCESS MAP

Figure 2



4. CONTEXT OF THE ORGANIZATION

4.1. Organizational Context

At TE Connectivity, organizational context is determined at all levels of TE including corporate, Business Segments and Units, manufacturing sites, and functional support activities. Internal and external factors are recognized and defined at all organizational levels. This includes the individual activities and locations listed on the quality management system certificates.

Organizational context involves two elements. Determination and monitoring of external and internal issues relevant to:

- Organization purpose and strategic direction and
- Their effect on intended results.

The overall TE Connectivity organizational context is defined through the TE Connectivity website located at: http://www.te.com/usa-en/home.html

The TE Connectivity website also provides links to Industries & Solutions which are affiliated with the TE Connectivity market and industry aligned Business Segments and Business Units. The TE Business Segments and Business Units also develop strategic and quality plans that may further define organizational context including:

- Key or major industries, product offerings, customers, and competitors;
- Geographic regions, manufacturing locations, and production capability;
- Quality certifications; and
- Quality management system opportunities.

TE Connectivity manufacturing sites and functional support activities develop documented organization context information that may include:

- Site or activity description;
- Number of employees;
- Key processes;
- Key or major products and services;
- Key or major customers and external providers; and
- Quality certifications.

Monitoring of internal and external issues relevant to organizational context, purpose, and strategic direction is conducted at management review.

4.2. Interested Parties

Interested parties, or stakeholders, are most effectively identified at a Business Segment, Business Unit, manufacturing site, and functional support site level. Examples of interested parties include:

- Customers;
- Shareholders;
- Employees;
- Unions;
- External providers;
- Regulatory agencies;
- Certification Bodies; and
- Competitors.

Relevant interested parties are those that present a significant risk to the organizational sustainability if their needs and expectations are not met.

Interested parties are determined and monitored at all organizational levels of TE Connectivity. Both internal and external interested parties may be determined and monitored in the relevant organizational level quality management reviews.

4.3. Quality Management System Scope

At TE Connectivity, the quality management system applicability and boundaries are clearly defined and documented at an organizational or quality management system certificate level. The scope will include consideration of internal and external issues, the interested parties, the products and the services of the organization.

Each documented organizational or certificate level scope shall consider:

- All applicable quality management system processes such as order entry, design and development engineering, purchasing, production, warehousing, calibration, receiving inspection, and shipping,
- Quality management system requirements per the applicable quality management system standard section and relevant quality management system certifications.
- Pertinent internal and external interested parties and issues.
- Location quality contacts.

The requirement for organizational quality management system scope is maintained as documented information with a documented procedure subject to review, approval, revision control, protection, and distribution. This documented procedure maintained in accordance with the requirements of ISO 9001: 2015, Section 7.5.

4.4. Quality Management System Processes

4.4.1. The sequence and interaction of the processes within the QMS is described in Figure 2.

Internal QMS processes and their interactions are further defined using various tools including but not limited to: Turtle Diagrams, Value Stream Maps, Control Plans and FMEA.

Process risks and opportunities are considered in the interaction and management of process activities that may be performed off-site or remote to the manufacturing location as defined through the TE Remote Support Activity Database or equivalent method for RSL identification / tracking.

TE has responsibility for all processes that affect product conformance to requirements, regardless of whether the process is completed internally or by an external supplier.

4.4.2. Documented information to support the operations of these processes shall be maintained and retained.

5. LEADERSHIP

5.1. Leadership and Commitment

5.1.1. General

Top Management at TE Connectivity maintains the leadership responsibility for the quality management system that includes TEOA. This leadership is demonstrated by:

- Ensuring the availability of resources;
- Establishing and reviewing the Quality Policy and quality objectives;
- Integration of the Quality Management System into the business process;
- Reviewing the effectiveness of the Quality Management System;
- Utilization of the process approach and consideration of risk;
- Conducting management reviews;
- Implementing continual improvement of the quality management system;
- Developing breakthrough process improvement initiatives;
- Communicating the importance of meeting customer, safety, and regulatory requirements; and
- Ensuring regulatory compliance.

5.1.2. Customer Focus

TE Connectivity welcomes the opportunity to meet with customers to establish and maintain mutually beneficial relationships in order to share expectations, understand customer perceptions, solicit and consider customer input, and ensure quality improvement with the aim of enhancing overall customer satisfaction. Meetings may include the review of our performance as a supplier as well as compliance to applicable statutory and regulatory requirements. Additionally, the opportunity to host customer representatives in our manufacturing and engineering facilities frequently results in a better mutual understanding of customer requirements and supplier capabilities.

The various organizational structures and entities, such as teams, account management, industry management, and customer care are deployed by Top Management to align our internal capabilities with the needs of our customers.

5.2. Policy

As documented by TEC Policy TEC-11-01 the TE Connectivity Quality Principles provide all our interested parties with an effective top-level Quality Policy, that includes Quality Objectives and Commitments.

TE Connectivity Quality Policy:

OUR COMMITMENT TO DELIVERING QUALITY PRODUCTS AND SERVICES IS CORE TO CREATING A SAFER, SUSTAINABLE, PRODUCTIVE, AND CONNECTED FUTURE

TE Connectivity Quality Objectives:

- ***Provide defect-free products and services.***
- ***Identify, deliver, and exceed customer needs and expectations.***
- ***Comply with all applicable customer, statutory, and regulatory requirements.***

TE Connectivity Quality Commitments:

- ***Strive to anticipate our customers' needs and deliver solutions that exceed their expectations.***
- ***Remove barriers to the success of our customers, suppliers, and partners.***
- ***Leverage innovation, technology, and continuous improvement to provide best in industry levels of quality, delivery, service, and support.***
- ***Operate with a commitment to the highest standards of ethics and integrity.***
- ***Comply with requirements and to maintain the effectiveness of the quality management system.***

5.3. Organizational Roles, Responsibilities, and Authorities

The responsibilities, authorities, and interrelationships of all personnel and functions who influence product design, quality, processes, preventive and corrective action, or the quality system are defined and communicated through, but not limited to, organizational charts, job or position descriptions, skill requirements, individual performance reviews, documented quality specifications, and the functional responsibilities defined in this document.

All personnel have the authority to halt nonconforming processes and initiate, recommend, or provide corrective and preventive solutions through designated channels.

- The TE organizational chart is available on the http://www.te.com/usa-en/about-te/our-company/leadership.html website.

Specific authority shall be given to those responsible for product, process, or system quality to:

- Ensure that the quality management system conforms to requirements and expectations;
- Determine the sequence and interaction of the processes needed to maintain the quality management system.;

- Determine criteria and methods needed to ensure that both the operation and control of the processes are effective;
- Measure, monitor, and analyze the outputs of these processes and implement actions necessary to meet goals and to drive continual improvement;
- Report on the performance of the quality management system.
- Initiate action to prevent nonconformance;
- Initiate action to identify, record, and correct problems;
- Initiate, recommend, or provide solutions;
- Verify implementation of solutions;
- Control further processing, delivery, or installation of nonconformance;
- Use the Define, Measure, Analyze, Improve and Control (DMAIC) process to implement breakthrough improvement; and
- Represent the needs of the customer in internal functions in addressing requirements as applicable of TL 9000, IATF16949, AS 9100, 10 CFR 50, Appendix B, 21 CFR 820, ISO 13485, and ISO/TS 22163, ISO/IEC 80079-34 and IECEx/ATEX Scheme.

6. PLANNING

6.1. Actions to Address Risks and Opportunities

6.1.1. Plans shall be developed to identify and address risks and opportunities in the quality management system processes. Improvement opportunities may be realized through the results from system and process assessments, SWOT analysis, failure mode and effects analysis, risk management and mitigation, and the analysis of data. When risk avoidance and improvement opportunities are identified, the need for actions shall be evaluated, developed and implemented.

6.1.2. Actions taken to address risks and opportunities shall be proportionate to the potential impact on the conformity of products and services. The effectiveness of actions taken to address risks and opportunities shall be included as an input for management review.

6.2. Quality Objectives and Planning

6.2.1. Each business unit is responsible for establishing and maintaining quality and performance objectives that are measurable and aligned with TE Connectivity Quality Policy, objectives, and targets. Relevant functions, levels and processes needed for the quality management system shall establish quality objectives consistent with the quality policy. Documented information for the quality objectives shall be maintained to include measurements, applicable requirements, relevance to conformity of product and services, monitoring, communication, and updating as appropriate.

6.2.2. Plans to achieve quality objectives shall identify actions, resources, responsibilities, and timelines. Results shall be by evaluated in accordance with planned arrangements.

6.3. Change Planning

Changes to the quality management system are planned, communicated and reviewed Consideration shall be given as to the purpose and consequences of changes, the integrity of the QMS, resource availability, and allocation of responsibilities and authorities.

7. SUPPORT

7.1. Resources

7.1.1. General

It is the responsibility of TE Connectivity senior management to ensure that the resources needed to the achieve the organization's quality objectives are identified during the planning processes. Senior management shall review the adequacy of resources and adjustments shall be made based on identified business needs. Considerations will also be given to resource needs that are provided by external suppliers/vendors.

7.1.2. People

Qualified personnel shall be provided to perform the required activities of their business function. Personnel performing work affecting product quality shall be competent based on appropriate education, training, skills, and experience.

7.1.3. Infrastructure

Senior management shall define, provide, and maintain the buildings, workspaces, utilities, process equipment, and supporting services necessary to ensure that product conforms to established requirements.

An effective, preventive maintenance program shall be developed and implemented at a facility level that identifies key process equipment and information systems as well as, monitoring and measuring devices and provides appropriate resources for equipment maintenance. Maintenance activities are deployed to sustain process capability requirements and product quality requirements.

Information technology systems shall be managed and maintained in secure areas that include adequate protections to ensure the integrity of electronic information and data.

7.1.4. Environment

Facilities, including workstations and associated equipment, shall be maintained in a state of order, cleanliness, and repair such that they do not adversely affect product quality or personnel performance. All work areas must comply with established safety, regulatory, and environmental standards and codes.

Considerations shall be given to ensure work environments are socially inclusive and respectful of all associates about physical and emotional needs.

7.1.5. Monitoring and Measuring Resources (Calibration)

7.1.5.1. General

Gages, measuring devices, and testing equipment used to determine the acceptability of components, assemblies, materials, and tooling affecting product quality shall be specified and/or provided by engineering, production, or quality where necessary to ensure valid results. These instruments shall be controlled and calibrated in accordance with a system that ensures traceability to national or international standards.

7.1.5.2. Measurement Traceability

Where system test and verification rely on software-controlled devices, the functionality shall be verified. Requirements for controlling inspection, measurement, and test equipment are as follows:

- Processes shall be developed for calibration and record collection with adequate controls for ensuring product quality.
- All measuring devices used to verify product quality shall be uniquely identified and calibrated at prescribed intervals against certified equipment having a known relationship to a nationally or internationally recognized standard. If no standard exists, the method of calibration shall be identified and recorded.
- Measuring devices that cannot be calibrated (e.g.; steel rules, measuring tapes and XRF foil standards) will be included into the calibration recall system to verify availability of product, legibility (where applicable) and functionality of the device.
- All measuring devices shall have an indication of calibration status. If the calibration status indication is invalid, the measuring device shall not be used.
- Any inspection, measuring, and test equipment that does not require calibration shall be appropriately identified.
- A process shall be established that assesses the validity of previous inspection and test results when measuring devices are found to be out of calibration. Records of this assessment shall be maintained. All product produced with suspect measuring equipment shall be segregated and audited. Customer notification and product recall shall be considered if suspect product was shipped.
- Conditions shall be established that provide suitable environments for calibration (as applicable at sites) and use of measuring devices These devices shall be stored and handled in a way that maintains accuracy and fitness for use.
- Methods shall be developed to safeguard measuring devices, including test hardware and software, from adjustments which would invalidate the calibration settings.

- Appropriate statistical studies of the variation present in measurement and test systems shall be completed as part of process capability analysis and as specified in customer approved control plans. As applicable, such studies shall conform to generally recognized measurement system analysis methodologies.
- Nonstandard measuring equipment such as pin detectors, vision systems, etc. shall be verified by the local manufacturing location by using product having known defects or other suitable means. The verification schedule and results shall be recorded.
- Should nonstandard measuring equipment be determined nonfunctional, it shall be removed from service until it is repaired and declared operational.
- Devices that are either inactive or unsuitable for use shall be visibly identified and shall not be used.

7.1.6. Organizational Knowledge

Where process training is based upon experiential knowledge rather than detailed documented information, considerations shall be given to how such operational and process knowledge will be managed to assure continuity. On-the-Job training, succession planning, and mentorship programs may be utilized as techniques that allow for knowledge

7.2. Competence

Tasks affecting product, process, or system quality shall be performed by personnel who are qualified to perform their assigned tasks in accordance with established standards. Qualification shall be based on education, experience, and/or training.

7.3. Awareness

Top Management shall promote awareness of the quality policy, relevant quality objectives and how associates contribute to the effectiveness of the QMS.

7.4. Communication

Top Management will inform employees of the status and changes in the QMS. Communication methods may include activities such as meetings of key personnel, TE Intranet sites, videotapes, voice message announcements, newsletters, TEOA tier meetings, training programs, status reports, daily interactions, group meetings, bulletin boards and customer contact.

7.5. Documented Information and Control

7.5.1. General

The QMS includes procedures required by pertinent international and industry standards and regulations. QMS procedures provide the means to ensure the effective planning, operation, and control of its processes.

7.5.2. Creating and Updating

The process for the control of documented information shall provide for the review, distribution, and maintenance of documentation for policies, processes, procedures, or techniques. The process shall provide for document approval, the use of a unique identifier for each controlled document, a distribution list or an equivalent method for identifying recipients, and change control. This control applies to documents regardless of format or media.

Changes shall not be permitted in data records that verify product, process, or system acceptance without adequate control and approval.

Documented Information of external origin that can influence the design, verification, validation, inspection, testing or servicing of the product shall be controlled in accordance with local business unit procedures. When non-TE documents have been verified as applicable to TE, the revision status shall be monitored and distribution shall be controlled within the company by the chartered function.

When changes are made to products or processes or when new processes are initiated that affect the customer drawing or product specification, identified internal and external customers shall be notified in accordance with applicable procedures.

7.5.3. Control of Documented Information (Records)

Quality records shall be collected as evidence of QMS effectiveness and to be used as a tool to improve processes, eliminate root causes, and assist in formulating corrective action strategies. Controls shall be implemented to assure that documented information is adequately protected and suitable for use when needed.

Retained documented information shall be kept in accordance with the corporate records retention schedule (Ref: TEC-01-02 Global Records Management Policy). Records shall be stored in a manner to prevent loss or damage and shall be readily retrievable. Where documented information is retained as evidence of conformity, such records shall be protected from unintended alterations.

If quality records are maintained by computer, it will be the responsibility of the business unit to ensure that computer records are backed up to a network resource to prevent loss or damage to records and maintain record traceability in case of disaster or computer failure.

8. OPERATION

8.1. Operational Planning and Control

It is the responsibility of the business unit to identify, plan, implement and control the processes necessary for product realization. The business unit shall be responsible for determining product and service requirements, establishing criteria, acceptance of product and services, and resource determination necessary to achieve conformity to requirements. These processes should be carried out in accordance with documented procedures. Planned changes shall be controlled and include elements of risk management that include actions used to mitigate adverse effects. Documented evidence shall be maintained and retained to demonstrate processes have been carried out as planned and demonstrate conformity of products and services to requirements.

8.2. Requirements for Products and Services

8.2.1. Customer Communication

http://www.te.com, and the Solution Center provide information relating to products and services. Customer Care is the primary function for providing responses to customer inquiries about purchase orders and delivery dates. Quality is the primary function for resolving complaints, including problem escalation, feedback, and product recall. TE shall effectively communicate with customers during product nonconformity issues and complaint resolution

8.2.2. Determining the requirements for products and services

TE has established primary interfaces (e.g., sales, marketing, program management, etc.) to determine requirements for the products and services, including applicable statutory and regulatory organizations deemed necessary.

8.2.3. Review of the requirements for products and services

8.2.3.1. A business unit designated function (e.g., customercare) shall be responsible for ensuring adequate definition of customer requirements by providing appropriate functions customer specifications, requests for quotes, contracts, or purchase orders in which the customer is ordering product with nonstandard requirements.

8.2.3.2. Results of reviews including identification of new requirements shall be retained as applicable.

8.2.4. Changes to requirements for products and services

The business unit is responsible for documenting changes to information and communicating changed requirements to appropriate functions with responsibility to meet changes.

8.3. Design and development of products and services

8.3.1. General

TEC-407-520 Product Portfolio Lifecycle Management establishes the processes needed to design and develop provisions for products and services.

8.3.2. Design and Development Planning

Projects are defined as Advanced Development, New Product Development, or Sustaining to provide structure for determining the nature, duration, and complexity of design and development activities. Process stages with required reviews, verification and validation activities identify responsibilities and authorities, including resource needs. Organizational and technical interfaces between different groups (internal and external) shall be identified with the necessary information documented, transmitted, and reviewed.

8.3.3. Design and Development Inputs

Project templates (Frameworks) needed to create activity-based project plans (Filtered frameworks) are documented to ensure essential requirements, including statutory and regulatory, are documented with lessons learned from previous similar design and development activities along with potential causes of failure.

8.3.4. Design and Development Controls

TEC-407-521 Project Execution - Advanced Development, TEC-407-522 Project Execution - New Product Development, TEC-407-523 Project Execution – Sustaining Engineering, and TEC-407-524 Project Execution - Software define the controls through each phase necessary to achieve planned results. Documented evidence is maintained and retained to demonstrate results of reviews, verification and validation activities, and problem resolution.

8.3.5. Design and Development Outputs

Documented outputs include evidence all input requirements have been met, are adequate for subsequent processes, include monitoring and measurement requirements, and identify the characteristics of products and services essential for the intended purpose. Documents shall be maintained and retained.

8.3.6. Design and Development Changes

All design changes (e.g., product, process, system, software, packaging style, packaging type, and material or component substitution) shall be identified, documented, reviewed, and approved by authorized personnel before implementation. Information shall include actions taken to prevent adverse impacts. Records of changes during the development process shall be maintained.

8.4. Control of Externally Provided Processes, Products and Services (Purchasing)

8.4.1. General

The Purchasing function, in consultation with other activities as prescribed by business units, is responsible for supplier selection. Purchasing is also responsible for on-going support, risk analysis, supply base management, technical leadership, contract definition, and ensuring that proprietary usage and licensing agreements are completed. Order releases may be done by purchasing, materials, or contract administration. To ensure that the supplier has the necessary documentation to provide what is requested, purchasing is responsible for coordinating with the appropriate function on such items as drawings, referenced specifications, packaging and labeling requirements, and quality requirements for all initial purchase orders. This documentation shall be updated by the appropriate function to include any changes on an as-needed basis and shall be communicated to the supplier by purchasing. Records of acceptable suppliers shall be maintained. Purchased product shall comply with all governmental, safety, and environmental requirements for the country of manufacture and sale.

8.4.2. Type and extent of control

Suppliers of production materials, components and assemblies, as well as service suppliers that could impact product quality or delivery, shall be evaluated based on their ability to supply product in accordance with TE requirements prior to classification as an approved supplier. Records of the results of evaluations and any resulting actions shall be maintained.

8.4.3. Information for external providers (Purchase Order Information)

Purchase orders placed with suppliers shall consider and define the product or service, the revision level, material specification and any additional quality requirements as applicable.

TEC-1005 Total Quality Management Requirements for Suppliers communicates to suppliers the requirements for processes, products and services provided. Expectations relating to approvals, resource qualifications, interactions, necessary controls and monitoring, with requirements for verification and validation activities are defined.

8.5. Production and Service Provision (Manufacturing)

8.5.1. Control of Production and Services

Identification and planning of production and service processes that directly affect quality shall ensure that these processes are carried out under controlled conditions in accordance with documented procedures. Production functions shall ensure that:

- Product characteristics are adequately defined;
- Needed work instructions are available;
- Suitable production equipment is used;
- Calibrated and controlled monitoring and measuring equipment is available (as applicable), and used; and
- Use of suitable work environment for the operation;
- Competent personnel;
- Release, delivery, and post-delivery activities are implemented.

TE shall comply with reference standards and codes, engineering/production drawings and specifications, quality plans and other documented procedures to monitor and control suitable process parameters and product characteristics. Documented Information shall be maintained for qualified processes, equipment and personnel, as appropriate.

Production and service processes where the resulting product cannot be verified by subsequent monitoring or measurement shall be identified and validated to demonstrate that such subject processes can produce product that meets specified requirements. Any production or service process validation shall be documented and records shall be maintained. Validation shall include, as applicable:

- Defined process approval criteria;
- Equipment approval and personnel qualifications; and
- Specific process procedures and methods.
- The criteria or interval for re-validation

Process setups shall be verified for applicable manufacturing processes whenever a setup is performed (e.g., initial run of a job, material changeover, job change, significant time periods lapsed between runs, etc.). Verification shall include a critical inspection of the initial product produced after the setup is completed. Job instructions shall be available for setup personnel.

First-article examination requirements shall indicate the amount of inspection and documentation required. This objective evidence shall verify that new or modified molds, dies, assembly machines, and other manufacturing tools and processes are capable of producing parts that conform to the engineering drawings and specifications.

8.5.2. Identification and Traceability

All production materials in process and in inventory shall be identifiable as to part number, traceable to revision levels, and inspection status. A comparable identification methodology shall apply to sample / prototype / preproduction parts which must meet customer requirements. Configuration control shall be maintained for product and process change control.

All product in final inventory shall be traceable to the date of manufacture. When date code identification is required, the date code shall identify the week of the manufacturing operation or inspection of the item.

Specific traceability from raw material to final item is not required, with the following exception:

Where lot traceability is required by customer contract and has been properly negotiated as to additional costs and requirements, then records shall be maintained for the unique identification of the individual product or lot.

8.5.3. Property belonging to Customers or External Providers

Processes for the control of verification, storage, and maintenance of customer-property, including customer-owned packaging, for incorporation into the supplies or for related activities shall be established and maintained. Customer property may include intellectual property and personal data. Any such property that is lost, damaged, or otherwise unsuitable for use shall be reported to the customer, and records shall be maintained.

8.5.4. Preservation of Product

Designated distribution warehouse storage areas, general warehouse storage areas or stock rooms are used to prevent damage or deterioration of product pending use or delivery. Appropriate methods for authorizing receipt to and dispatch from such areas shall be stipulated. Each stocking location shall apply appropriate methods for preservation and segregation of product to ensure that material or product will remain undamaged pending use or delivery. To detect deterioration, each stocking area shall, at appropriate intervals, assess the condition of the product.

Packaging, labeling and marking processes shall be controlled to the extent necessary to ensure conformance to established requirements. This shall include systems to conform to specific customer packaging and labeling requirements.

Materials that have a shelf life shall be clearly marked with an expiration date or a date of manufacture that can be used to calculate an expiration date. Materials shall not be used past the expiration date without documented engineering approval.

8.5.5. Post-Delivery Activities (Product Services)

Services and activities that are subsequent to product delivery will include consideration of applicable statutory and regulatory requirements, associated risks, product life, contractual requirements with the customer and feedback from the customer. Such activities may include product repair, on-site set-up and returned product testing and evaluation.

8.5.6. Control of Changes

Production changes must be effectively controlled through documented information (e.g.; deviations, waivers, temporary work instructions) that includes evidence of the review of changes and defines the change or modification along with appropriate authorization. Any necessary actions resulting from the review should also be documented.

8.6. Release of Products and Services (Verification and Inspection)

It shall be the responsibility of the business unit to determine the means of verifying that suppliers meet their contractual obligations related to the quality of the procured items. Inspection and test documented information results shall be retained and shall include traceability to the person(s) authorizing the release of product along with evidence of conformity. Product shall not be released until the planned arrangements have been met unless approved by applicable authority. Examples of ways this may be accomplished:

- Stock as received (SAR)/dock-to-stock – following receipt of the material, it can be placed directly into stores without any receiving inspection activity. Material may be designated stock as received based on supplier or part number certification as administered through purchasing or supplier quality assurance or as approved by the business unit. Purchasing/supplier quality assurance is responsible for periodic assessments of certified suppliers;
- Supplier warrants or certificate of analysis (C of A), with test results, submitted with the material;
- Incoming inspection – each lot of received material shall be inspected to confirm conformance to specifications;
- Skip lot inspection – lots of received material are inspected as defined by a skip lot plan; and
- Product is evaluated and reported as acceptable by an accredited supplier or test laboratory.

If materials are needed for manufacturing commitments before receiving inspection is complete, a plan shall be developed to provide for positive identification and control of the product produced until the material is verified as acceptable.

Unless the manufacturing site or the business unit implements specific directives, material received from other locations or subsidiaries of TE may be processed directly into stock without receiving inspection of product characteristics. Product acceptance shall be completed in accordance with standard procedures. In all cases it is the responsibility of the supplying operation to ensure the product meets established requirements.

It shall be the responsibility of incoming inspection to identify and segregate nonconforming procured items so they are not inadvertently used. Disposition of nonconforming items shall be made by the responsible engineering disciplines or designee. The supplier shall be formally advised of both the rejection and if there is a requirement to provide corrective action.

8.6.1. In-Process Inspection

In-process inspection, test, or review operations shall be clearly identified in all process documentation. Inspection and test documented information results shall be retained and shall include traceability to the person(s) authorizing the release of product along with evidence of conformity. Product shall not be released until the planned arrangements have been met unless approved by applicable authority. Quality or its designee shall be responsible for ensuring that appropriate inspection, test, or review operations are documented. The quality function shall also ensure that adequate instructions are provided for such operations. All nonconforming product at these operations shall be identified, segregated from acceptable material, and shall become the responsibility of Quality or its designee, which shall coordinate disposition and corrective action.

Where operator inspection or automatic inspection devices are used to determine product acceptance, appropriate product auditing shall be maintained to ensure the integrity of the QMS.

Where in-process inspection, test, or review operations are performed by other than the quality function (such as an engineer, technician, operator, setup person, or team member), records of verification performed and results of that verification must still be provided and retained.

8.6.2. Final Inspection

When specified in a documented procedure, final inspection and / or testing is performed to complete the evidence of conformance of the finished product to established requirements. Inspection and test documented information results shall be retained and shall include traceability to the person(s) authorizing the release of product along with evidence of conformity. Product shall not be released until the planned arrangements have been met unless approved by applicable authority.

All finished goods shall have some indication of acceptability. This acceptability indication normally shall be applied during or following the final manufacturing inspection operation. However, if quality or its designee has identified the need for a final inspection or audit operation, the evidence of acceptability will be applied after product compliance is verified.

Quality or its designee shall coordinate the activity of layout inspection and functional verification at a frequency as negotiated with the customer.

Final package material audits (e.g., product integrity, packaging, labeling, documentation, quantity, marking) may be scheduled at appropriate intervals as deemed necessary by the business units.

8.6.3. Inspection and Test Status

All production materials in-process or in inventory shall be identifiable as acceptable for further processing or shipment. This marking shall appear on each unit container used for handling and storage. Such markings may be in the form of identification which point to electronic inspection and test records. This marking may be on cartons, reel tags, routing cards, product travelers, or any suitable location, provided there is a clear indication that prior verification operations have been performed. The verification status indication shall permit identification of the operator(s) or inspector(s) who performed the prior inspection(s) or review. Records shall be maintained of authorized identifiers.

When the status is identifiable through a machine-readable code, there shall be sufficient information provided to identify verification status when the reader is not available.

It shall be the responsibility of the materials function to receive into stock only items that are clearly identified as acceptable.

For the service and support areas of the company, an appropriate indication of approval shall be used; when verification is electronic, this identifier shall consider computer security measures.

8.7. Control of nonconforming outputs

8.7.1. All product (production materials, components, assemblies, final product, etc.) detected or suspected as nonconforming to requirements shall become the responsibility of Quality (in conjunction with other functions as required) for:

- Controlling further movement of the material to prevent material from unintended use or delivery;
- Documenting and reviewing material;
- Coordinating the disposition action;
- Notifying appropriate personnel;
- Initiating corrective action as necessary and verifying for effectiveness;
- Establishing and tracking a prioritized defect reduction plan; and
- Providing trend analysis input for corrective and preventive action.

Nonconforming or suspected nonconforming material (including unidentified material) shall be immediately identified as nonconforming and shall be prevented from inadvertent further processing, where practicable, by storage in an area that is visually identified and segregated for this purpose.

If nonconforming product is detected after delivery or the start of customer usage, action shall be appropriate to the effects or potential effects.

Nonconforming material may be sorted, reworked, returned to the supplier, scrapped, or accepted with documented engineering approval.

If the nonconforming material is dispositioned for rework or repair, rework instructions shall be provided and the material shall be re-inspected before it returns to the process. Authority to dispose of defective material shall be defined by the business unit.

8.7.2. Records of nonconforming material transactions, including “accepted with engineering approval”, shall be maintained.

9. PERFRORMANCE EVALUATION

9.1. Monitoring, Measurement, Analysis, and Evaluation

9.1.1. General

Monitoring, measurement, analysis, and improvement processes shall be implemented to demonstrate product conformity, ensure QMS conformity, and advance the continual improvement and effectiveness of the QMS.

Quality (or other designated function) shall identify the need for and use of statistical techniques for establishing, controlling, and verifying processes that impact product characteristics and process capability. Process measurements shall be implemented and monitored at the appropriate points to ensure continual product conformance and to promote increased effectiveness of the process.

9.1.2. Customer Satisfaction

Information related to customer perception as to whether TE has met customer requirements shall be included as a QMS performance measure.

Trends in customer satisfaction and key indicators of customer dissatisfaction shall be documented and supported by objective information. As appropriate, these trends should be compared to those of competitors or benchmarks and reviewed by Top Management.

Customer satisfaction data is received in a variety of methods, including:

- Feedback received in response to answers to customer complaints;
- Industry positioning surveys;
- Supplier “report cards”;
- Meetings with customers; and
- Ship to customer request performance.

9.1.3. Analysis and Evaluation

The quality assurance director/manager and each business unit vice-president/director shall have the responsibility of maintaining performance data including:

- Specific industry required metrics and trends,
- TE directed quality measures;
- Customer satisfaction;
- Effectiveness of planning of the QMS;
- Effectiveness of actions taken to address risks and opportunities;
- Performance of external providers;
- Performance (e.g., productivity, efficiency, effectiveness) of key processes, products and services within the QMS; and
- Regulatory compliance.

9.2. Internal Audit

9.2.1.

QMS assessments shall be conducted at least annually to verify compliance with planned arrangements and to determine the adequacy, effectiveness, and suitability of the QMS to meet objectives and pertinent international and industry related QMS standards. Results of these assessments shall be reviewed by management as feedback for continual improvement and verification of conformance to QMS requirements. Records of such assessments and reviews shall be maintained.

9.2.2.

Each business unit shall conduct assessment of the QMS in accordance with documented procedures at regular intervals based on the status and importance of the activity. Assessment of the QMS shall be carried out by qualified personnel capable of demonstrating objectivity and for the area being assessed. Considerations shall be given to the importance of the process, shifts, previous audit results and quality performance. Corrective actions shall be addressed without undue delay. Follow-up assessment activities shall verify and record the implementation and effectiveness of the corrections and corrective actions taken.

9.2.3. Manufacturing Process Audits

Business units shall implement a program of manufacturing process audits to monitor the ability of manufacturing processes to achieve planned results. This program shall be established in accordance with a documented procedure and involve all TE production locations. These audits will ensure that product characteristic information, needed work instructions, suitable equipment and tools, and monitoring and measuring devices are available and used. Documented information shall be retained as evidence of implementation of the audit program.

9.2.4. External Assessments

TE recognizes that it will be necessary for some customers, agencies, and third-party registrars to perform quality assessments. During such customer surveys, source inspections, or quality assessments, employees shall neither demonstrate nor discuss production equipment, processes, methods, etc. which are proprietary. In those circumstances where the party performing the assessment may require additional information considered proprietary, additional consideration may be possible using confidential nondisclosure agreements.

Customer and third-party registrar requests to review nonproprietary manufacturing inspection data including review of SPC data, capability data, and other statistical data shall be supported. However, TE reserves the right to deny requests for process data below the level of the customer drawing/specification on the premise that such information is regarded as proprietary.

9.3. Management Review

9.3.1. General

Top Management team shall review the QMS at least annually to identify trends and adjust policy and business plans, as necessary, to meet the established goals for customers, suppliers, and internal activities. Management Reviews shall be used to verify that the quality management system processes are suitable, adequate, effective and in alignment with the strategic direction of the organization. Documented information relative to QMS reviews shall be maintained.

Manufacturing sites shall conduct management reviews twice/year (at a minimum) specific to their operations.

Business Units and non-manufacturing locations shall conduct management reviews annually (at a minimum) specific to their operations. Business units are responsible for local deployment and review of their quality systems.

9.3.2. Inputs

The input to management review shall include considerations regarding:

1. Status of actions from previous management reviews;
2. A review of the Strategic Quality Plan and any changes in the internal or external issues that impact the QMS;
3. Performance trends:
    - Customer Satisfaction and Feedback
    - Meeting Quality Objectives
    - Process Performance and Conformity of Products/Services
    - Nonconformities and Corrective Actions
    - Monitoring and Measurement Results
    - Audit Results
    - Performance of External Providers
4. Adequacy of resources;
5. Effectiveness of actions taken to address risks and opportunities;
6. Opportunities for Improvement;
7. Concerns relative to interested parties (Competitors, Regulatory Agencies, 3rd Party Registrars, Employees etc.)

9.3.3. Outputs

The output from the management review shall include any decisions and actions related to:

- Opportunities for Improvement;
- Any need for changes to the QMS;
- Resource needs.

Records shall be maintained and retained as evidence of the results of management reviews.

10. IMPROVEMENT

10.1. General

TE Connectivity emphasizes improvement throughout all processes to ensure that our customers consistently will have an extraordinary customer experience. Although corrective actions are in reaction to customer concerns, focus on proactive programs designed to address potential risks and act upon opportunities is highly encouraged. TEOA metrics and performance reviews identify process improvements and results designed to improve products and services; improvement and mitigation of potential risks are also incorporated.

10.2. Nonconformity and Corrective Action

10.2.1. Where a nonconformance is identified or where analysis indicates a nonconformance, the responsible function shall be notified. The responsible function shall use disciplined problem solving and mistake-proofing methodologies as defined by TEC-1035 Corrective and Preventive Action Process. Corrective action shall be to the degree appropriate to the magnitude of the problem and commensurate to the risks encountered.

TEC-1002 TE Complaint Handling System (TECHS) or other QLT approved system shall be used to manage formal customer complaints unless regulatory requirements require another system. This on-line software program will assign corrective action requests to the owning business unit such that the issues may be resolved within time frames defined by the customer.

10.2.2. Documented information pertaining to the nature of the nonconformities, subsequent actions and results of actions taken shall be retained and shall be included as an input for management review.

10.3. Continual Improvement

The business units shall promote and manage continual improvement in quality, productivity, service, and value. Continual improvement results shall be measured against management review outputs along with performance trends.