

Title: QUALITY MANUAL

Document Number: QM-1

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Table of Contents

1.0	ACTEL QUALITY POLICY	2
1.1	STATEMENT OF COMMITMENT	2
2.0	MISSION STATEMENT AND CORPORATE QUALITY OBJECTIVES	2
3.0	SCOPE	3
4.0	QUALITY MANAGEMENT SYSTEM (QMS)	4
4.1	General Requirements	5
4.2	Documentation Requirements	5
4.3	Configuration Management	5
5.0	MANAGEMENT RESPONSIBILITY	8
5.1	Management Commitment	8
5.2	Customer Focus	8
5.3	Quality Policy	8
5.4	Planning	8
5.5	Responsibility, Authority and Communication	9
5.6	Management Review	9
6.0	RESOURCE MANAGEMENT	10
6.1	Provision of Resources	10
6.2	Human Resources	10
6.3	Infrastructure	11
6.4	Work Environment	11
7.0	PRODUCT REALIZATION	11
7.1	Planning of Product Realization	11
7.2	Customer-Related Processes	11
7.3	Design and Development	12
7.4	Purchasing	14
7.5	Product and Service Provision	15
7.6	Control of Measuring and Monitoring Devices	18
8.0	MEASUREMENT, ANALYSIS, AND IMPROVEMENT	19
8.1	General	19
8.2	Monitoring and Measurement	19
8.3	Control of Nonconforming Product	20
8.4	Analysis of Data	21
8.5	Improvement	21
9.0	REVISION HISTORY	22

1.0 ACTEL QUALITY POLICY

“CONSISTENTLY MEET CUSTOMER EXPECTATIONS BY CONTINUAL IMPROVEMENT OF QUALITY, AND THE QUALITY MANAGEMENT SYSTEM”

1.1 STATEMENT OF COMMITMENT

This Quality Manual defines Actel’s Quality Management System and conformance to ISO 9001, ISO/TS 16949, MIL-PRF-38535, and AS9100. Actel’s management and employees are committed to all Quality Manual requirements.

2.0 MISSION STATEMENT AND CORPORATE QUALITY OBJECTIVES

Mission Statement

“Actel’s mission is to attack power consumption from both the chip and system levels with innovative programmable logic solutions that are highly valued by our customers, rewarding to our employees, and profitable to our shareholders”

2.1 QUALITY OBJECTIVES

(Reference for measurements: C-00-MR Management Review)
(Reference for goals and objectives: C-00-SP Strategic Planning)

- 2.1.1 Top management establishes quality objectives where relevant to achieving each Corporate goal.
- 2.1.2 Quality objectives are directly in support of the Quality Policy and the degree to which objectives are achieved is measurable:
 - customer satisfaction is monitored.
 - a process is implemented and maintained for continual improvement of quality and the Quality Management System.
- 2.1.3 As evidence of commitment, top management reviews progress on quality objectives and is actively involved in supporting continual improvement.
- 2.1.4 Effectiveness of the Quality Management System is improved by establishing and reviewing objectives for:
 - analysis of data
 - audit results
 - corrective action
 - preventive action
 - management review action items

3.0 SCOPE

This Quality Manual defines Actel's Quality Management System (QMS), which ensures quality throughout all stages of design and processing of products and services. This QMS utilizes the process approach and quality management principles contained in the international standards: ISO 9001, ISO/TS 16949 and AS9100 to enhance our ability to continually improve.

A separate document (**Reference: C-00-QMP Quality Management Program**) defines the conformance of Actel's QMS to MIL-PRF-38535 Integrated Circuits Manufacturing, General Specification (QML is the Qualified Manufacturing List from the US Department of Defense).

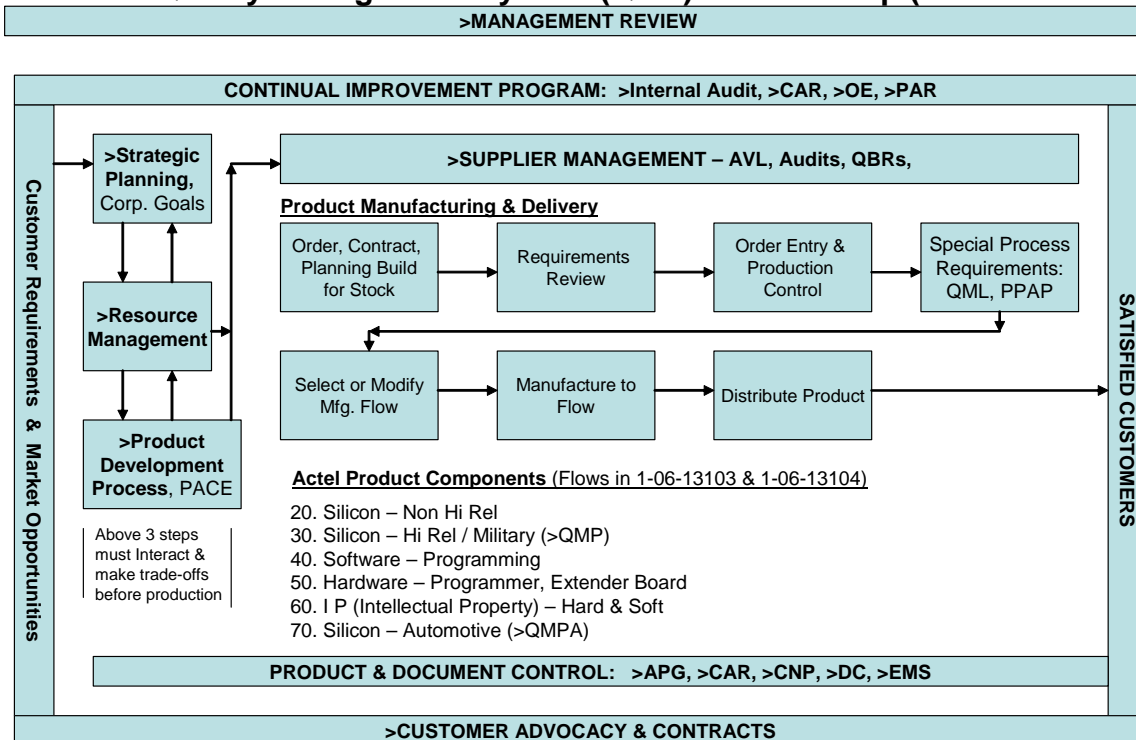
A separate document (**Reference: C-00-QMPA Quality Management Program Automotive**) defines the requirements for Actel's automotive program for the design, development, production, and where relevant, service of automotive related products.

Actel maintains an Environmental Management System (EMS) intended to align with ISO 14001, with an Environmental Policy to: "Consistently meet or exceed government legal requirements with continual improvement of environmental performance to meet Actel environmental objectives and prevent pollution." The EMS is coordinated with Actel's QMS for mutual support (**Reference: C-00-EMS Environmental Management System**).

The Quality Manual does not address other government-regulated areas such as occupational safety and health, and financial management. Policies defining general business or functional practices are contained in **C-00-APG Actel Policies and Guidelines**.

4.0 QUALITY MANAGEMENT SYSTEM (QMS)

Actel Quality Management System (QMS) Process Map (>Core Procedures)



SUPPORT Processes – Holds, Inventory, MPC, MSA, OPS Data, RMA, SAR, Training, TRB (see below)

**Actel QMS Process Map
Purpose & Definition of Terms**

PURPOSE: Display a concise overview of relationships between Actel's QMS Core Procedures, Product Manufacturing & Delivery Flow, with list of Product Components Flows and Support Processes.

General Support Processes

See Quality Manual, par. 4.2 for list of Core Procedures (marked ">" in above diagram).

- QMS process documentation is referenced in Core Procedures.
- Actel QMS Process Maps & Requirements are described in 1-04-13109

AVL – Approved Vendor List (Info system), 1-04-13043

Holds – Hold & Release Processes, nonconforming material, 1-06-13088

Inventory – JDE & Info system

MPC – Manufacturing Process Control; maintains Actel's manufacturing process travelers, 1-04-13094

MSA – Measurement Systems Analysis for adjusting mfg. processes, gages, calibration, preventive maintenance, 1-04-13114

OPS Data – Operations Data Management: online systems and databases for operational data.

RMA – Return Material Authorization, 1-04-13059

QBR – Quarterly Business Reviews with Suppliers, 1-04-13043

SAR – Systems Action Request process

Training – includes performance reviews & operator certification, 1-04-13093

TRB – Technical Review Board, 1-04-13046

4.1 General Requirements

This Quality Manual documents Actel's QMS: that part of the overall management system which establishes, documents and implements the quality policy and related processes for providing products and services which meet customer requirements. Actel's QMS meets the requirements of: ISO/TS 16949; ISO 9001; AS 9100; and MIL-PRF-38535.

Actel has adopted the process approach advocated by ISO 9001, by defining and managing:

- process inputs, controls, and outputs to ensure desired results are achieved, and
- interfaces between interrelated processes to ensure system effectiveness is achieved.

Management is responsible for monitoring and continually improving key processes to ensure that products and services conform to customer requirements; and for ensuring the availability of resources and correct up-to-date information necessary for their organizations to operate effectively.

4.1.1 *General Requirements – Supplemental.* When using subcontract or consulting services, Actel takes responsibility for controlling outsourced processing via supplier management programs to ensure that third parties conform to QMS requirements.

4.1.2 Procedures, Work Instructions, and related documentation to describe operating practices and control of process activities are maintained in Document Control. Such documents are an integral part of the QMS.

4.2 Documentation Requirements (Reference: C-00-DC Document Control)

4.2.1 General

Actel's Quality Management System documentation is detailed in this Quality Manual. The Quality Manual contains the Quality Policy, and Corporate quality objectives. Documents required by ISO 9001, ISO/TS 16949, AS 9100, and MIL-PRF-38535, are in place to ensure that planning, operations, and control of processes are effective. Documentation shall include QMS requirements as imposed by applicable regulatory authorities. Records are maintained as required. Personnel shall have access to QMS documentation and are aware of relevant procedures. As required, customer and/or regulatory authorities representatives shall have access to QMS documentation.

4.2.2 Quality Manual

This Quality Manual defines Actel's QMS and overall framework for documentation - Core Procedures with supporting procedures, specifications, handbooks, work instructions/forms, records (see Figure 1). This documentation structure ensures effective planning, operation and control of QMS processes, with the creation and retention of quality records. The relationship between the requirements of the international standards (ISO 9001, ISO/TS 16949, and AS 9100) and Actel's documented procedures is clearly defined. The scope of Actel's QMS does not include ISO/TS 16949 7.5.1.8 "Service Agreement with Customer" and AS 9100 7.5.1.5 "Control of Service Operations". Actel's products are not repairable, we do not have any service agreements with our customers, nor does Actel have any service operations.

4.2.3 Control of Documentation

All QMS documentation is controlled using Actel Document Control to ensure required approvals. The Livelink system is used for version control and securing the structure of compound document sets. The Document Control core procedure establishes defined controls needed to approve documents prior to issuance, review, update, and re-approve documents, to ensure that the current revision and change status of documents is identified, relevant versions of applicable documents are available at points of use, documents remain legible and readily identifiable, documents of external origin are identified and their distribution controlled. Obsolete documents are identified and controlled to prevent unintended use. Documents required for the operation of the QMS are managed by the Document Control function within Corporate Quality, located in the Livelink database, with hardcopy filed in Document Control when necessary. For computer application tools, user documentation and records may be located within each application and its database. Document changes with customers and/or regulatory authorities will be coordinated in accordance with contract or regulatory requirements.

4.2.3.1 Engineering Specifications

Tactical Marketing oversees our process for assuring the timely review, distribution and implementation of all customer engineering standards/specifications and changes based on customer-required schedule. Reviews are considered timely if performed within two working weeks of receipt. A change requires an updated record of customer production part approval when the specifications are referenced in the design record, or if the change affects Production Part Approval Process (PPAP) documents.

4.2.4 Control of Records

Records are maintained for effective operation of the QMS, and provide evidence of conformance to requirements. Records must be readily retrievable, legible, and clearly identified. Records shall be available for review by customers and regulatory authorities in accordance with contract or regulatory requirements. The document control core procedure (C-00-DC) establishes the controls needed for identification, storage, protection, retrieval, retention period and disposition of records. The supplier management core procedure (C-00-SM) defines the method for controlling records that are created by and/or retained by suppliers.

4.2.4.1 Records Retention

The document control core procedure (C-00-DC) ensures that record controls satisfy all regulatory and customer requirements, and that they are properly disposed of once their useful life has ended.

4.3 Configuration Management

A configuration management process which is appropriate to the product(s) has been established, is documented and maintained by Software Engineering.

QMS Document Organization, FIGURE 1

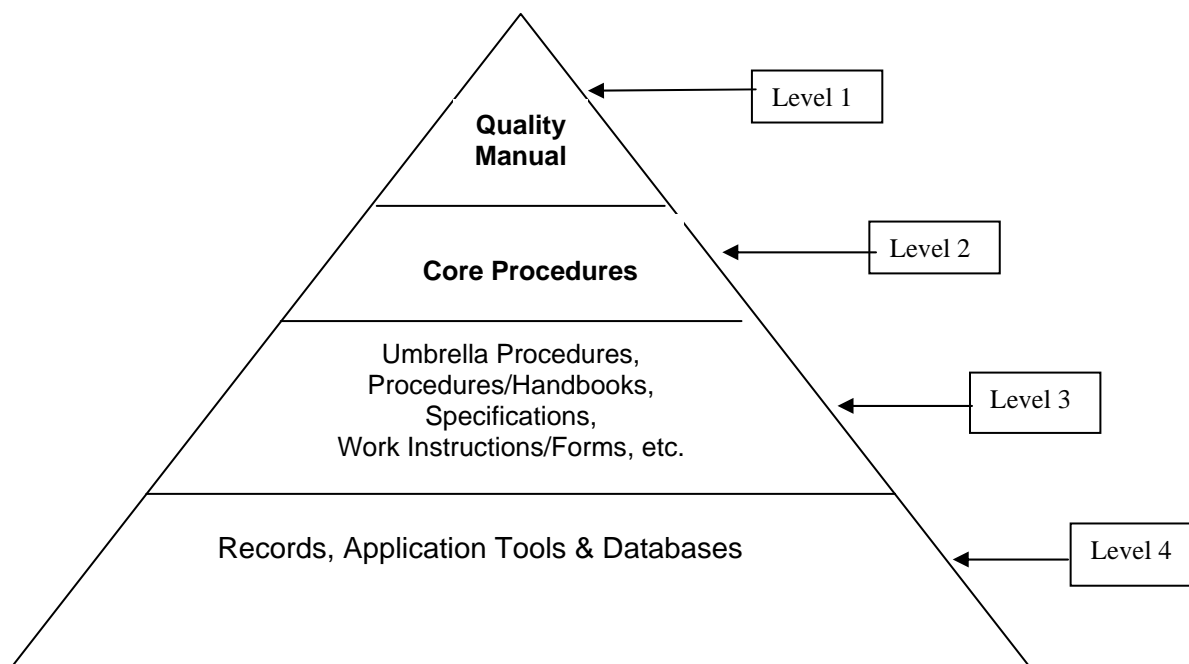


Figure 1 Reference Documents

Level 2 Core Procedures	Title	ISO/TS/AS References
C-00-APG	Actel Policies and Guidelines	4.2
C-00-CAC	Customer Advocacy and Contracts	5.2, 7.2
C-00-CAR	Corrective Action Requirements	8.5.2
C-00-CNP	Control of Nonconforming Product	7.5, 7.6, 8.0-8.4
C-00-DC	Document Control	4.2
C-00-EMS	Environmental Management System	ISO 14001
C-00-IA	Internal Audit	8.2.2
C-00-MR	Management Review	5.1, 5.4-5.6
C-00-OE	Operational Excellence	7.6, 8.2, 8.4, 8.5
C-00-PAR	Preventive Action Requirements	8.5.3
C-00-PDP	Product Development Process (PACE)	7.0-7.3
C-00-QMP	Quality Management Program, MIL-PRF-38535	7.5
C-00-RM	Resource Management	6.0
C-00-SM	Supplier Management	7.4, 7.5
C-00-SP	Strategic Planning	7.1
C-00-QMPA	Quality Management Program, Automotive	ISO/TS 16949

Level 3 – Other procedures and working documents.

Level 4 Records - Reports, Qualification and Characterization data, Lot Histories, Training Records, Computer Applications/Tools/Modeling Databases, etc.

5.0 **MANAGEMENT RESPONSIBILITY**

5.1 **Management Commitment**

Actel Top Management is committed to the development, implementation and maintenance of the QMS, and to continually improving its effectiveness. This includes reinforcing to all organizations the importance of meeting customer requirements. Top management has established, maintains and communicates the Quality Policy and Quality Objectives through the Livelink database on the Actel Intranet. Top management is actively involved in supporting improvements through management reviews and by providing resources and direction for these improvements. In addition, our quality policy and objectives are communicated and deployed throughout the organization using individual performance objectives established and reviewed during employee performance reviews.

5.1.1 **Process Efficiency**

Top management reviews product realization and support processes to assure both effectiveness and efficiency during management reviews.

5.2 **Customer Focus (Reference: C-00-CAC Customer Advocacy and Contracts)**

Actel's quality policy (*par 1.0*) articulates our commitment to our customers.

Top Management provides customer focus by taking these steps - determine customer needs and expectations, convert these into requirements, verify and validate that requirements are achieved, and monitor customer satisfaction.

5.3 **Quality Policy**

Top Management confirms that the Quality Policy (par. 1) is appropriate to Actel's business purpose. This Quality Manual begins with a Statement of Commitment (par. 1.1) to requirements of ISO/TS 16949. Top Management also commits to establishing and reviewing Quality Objectives, that these are communicated and understood by all organizations, and that both Quality Policy and objectives are reviewed for continuing suitability.

5.4 **Planning**

5.4.1 **Quality Objectives (Reference: C-00-MR Management Review)**

Our overall quality goal is to achieve our quality policy, and maintain the integrity of and continually improve a QMS compliant with ISO 9001, ISO/TS 16949, AS 9100, and MIL-PRF-38535.

5.4.1.1 **Quality Objectives - Supplemental**

Top Management utilizes the strategic planning process to define Quality Objectives necessary to achieving product and service quality, consistent with Quality Policy and Quality Management Objectives (par. 2). Quality Objectives are measurable targets that are established and maintained in Executive Goals and Department Goals, and monitored in management reviews.

5.4.2 **Quality Management System Planning**

5.4.2.1 The management representative is responsible for ensuring that plans required by the QMS are developed, implemented and maintained to meet requirements of the business model and ISO/TS 16949. The integrity of the QMS is maintained whenever changes are planned and implemented.

5.4.2.2 Quality Planning includes developing and implementing controls for product development, manufacturing, assembly, test and inspection equipment and techniques to assure that product meets design and quality criteria. Quality Planning provides for resources, tools, skills, training, and certifications required for product design and development, manufacturing and inspection operations.

5.4.2.3 Quality Planning uses guidance from Management Reviews and ensures that customer requirements and Company objectives for quality are met. Quality improvement projects are identified in Executive-level and department goals. Customer-specific quality plans may be developed as specified in contracts.

5.4.2.4 All personnel who manage, perform, and verify work that affects quality are responsible for compliance with quality plans and procedures.

5.4.2.5 Records of quality planning decisions are recorded during Management Reviews and records of planned goals and results are maintained.

5.4.2.6 All levels of management are responsible for ensuring that changes are made with adequate controls, and that the integrity of the QMS is preserved.

5.5 Responsibility, Authority and Communication

5.5.1 Responsibility and Authority

To ensure effective administration of the QMS, responsibilities and authorities have been defined and communicated within the organization. The Management Representative has been assigned; effective internal communications have been implemented; documentation and records are effectively controlled. The primary method of communicating responsibilities and authority to every level of the organization is through QMS documentation, especially procedures and handbooks. The following sections reflect responsibilities as defined in ISO clauses.

5.5.1.1 Responsibility for Quality

Personnel responsible for product quality have the authority to stop production to correct quality problems. All shifts are staffed with personnel responsible for product quality.

5.5.2 Management Representative

Top Management Has appointed the Senior Vice President of Technology & Operations as Management Representative. The Management Representative and The Senior Quality Representative (SQR) have the overall responsibility for effectiveness of the QMS, and report directly to Top Management. The SQR has responsibility and authority:

- to ensure that the QMS is implemented and maintained in accordance with ISO/TS 16949: and other requirements,
- to report to management on QMS performance,
- to serve as liaison with external parties to maintain and improve the QMS (e.g. ISO/QML Registrar, customers, suppliers, consultants),
- to ensure promotion and awareness of QMS requirements by periodic reinforcement at management meetings,
- and has the organizational freedom to resolve matters pertaining to quality.

5.5.2.1 Customer Representative

Customer Representatives, with responsibility and authority for ensuring that customer requirements are sufficiently addressed throughout our organization, are assigned to each of our automotive customers.

5.5.3 Internal Communication

Actel communicates QMS requirements across organization levels and functions, primarily via QMS documentation (Figure 1). Other processes for communication and conformance include training, staff meetings, internal audits, employee focal performance reviews, and management reviews.

5.6 Management Review (Reference: C-00-MR Management Review)

5.6.1 QMS Reviews

Top Management conducts QMS Reviews at least annually to ensure continuing suitability, adequacy, and effectiveness. QMS reviews are focused on conformance and achievement of quality objectives and customer satisfaction. Cost of poor quality is also reviewed. Opportunities for improvement and changes to the QMS may be noted. Records are maintained of QMS reviews.

5.6.1.1 QMS Performance

QMS reviews include the requirements of the QMS and its performance trends, including monitoring of quality objectives, regular evaluation of the cost of poor quality, and an assessment of the suitability and effectiveness of support processes.

5.6.2 Review Inputs

Reports (including Corrective Actions and Internal Audit findings) generated by the Senior Quality Representative (SQR) are used as a primary input to QMS Reviews. These inputs include progress toward quality objectives, audit results, customer feedback, product quality conformance, metrics, preventive and corrective actions, process performance, follow-up actions from previous reviews, any change that could have significant effects on the QMS, and recommendations for improvement to the QMS.

5.6.2.1 Review Input – Supplemental

In addition, Engineering provides an analysis of actual and potential field-failures and their impact on quality, safety or the environment as an input to the management review process.

5.6.3 Review Outputs

Outputs include decisions and actions to improve the QMS, processes the QMS governs, improvements of products or services related to customer requirements, and resource issues.

6.0 RESOURCE MANAGEMENT (Reference: C-00-RM Resource Management)

6.1 Provision of Resources

Top Management provides resources needed to establish, maintain, and improve quality results including customer satisfaction and the QMS. Business strategies, plans, and budgets are developed annually by function and approved by the Executive Staff to authorize personnel staffing, training, expenses for contract/consulting services, and other support for business objectives and goals.

6.2 Human Resources

6.2.1 General

Top Management assigns personnel to fulfill responsibilities defined in the QMS, and ensures they are competent in terms of education, training, skills, and experience. Human Resources provides a framework for developing consistent job descriptions to support the hiring and promotion process.

6.2.2 Competence, Awareness and Training

Top Management identifies competency requirements for personnel whose work affects quality, provides training, and evaluates effectiveness of training. Management also ensures that personnel are aware of the importance of their activities in meeting Quality Objectives. Training and Certification requirements (such as ESD training) and storage of these records are outlined in C-00-RM Resource Management. On-the-Job Training may be used and records kept by managers where formal training may not be practical.

6.2.2.1 Product Design Skills

All managers are responsible for ensuring that personnel with product or manufacturing process design responsibility are competent to achieve design requirements and are skilled in design methods needed to achieve desired results.

6.2.2.2 Training

All managers identify training needs for their employees and are responsible for the competence of all personnel performing activities affecting product quality. Personnel performing specific assigned tasks are qualified, as required, with particular attention to the satisfaction of customer requirements.

6.2.2.3 Training on the job

Responsible managers ensure on the job training is provided for personnel in any new or modified job affecting product quality, including contract employees. Through the employee performance review process, they also ensure that employees are aware of the relevance and importance of their activities and how they contribute to the achievement of Actel's objectives.

6.2.2.4 Employee motivation and empowerment

The performance review process is used to motivate employees to achieve objectives. Extensive use of teams, celebrations of achievement, patent awards and other activities promote innovation, empowerment, and continual improvement.

6.3 Infrastructure

Top Management provides and maintains the necessary infrastructure for product conformity to quality requirements, including facilities, work environment, utilities, process equipment (both hardware and software), and supporting services (such as logistics and communications).

6.3.1 Plant, facility, and equipment planning

Actel uses a multidisciplinary approach for developing plant, facility and equipment plans. The Director of Test Operations ensures plant layouts are designed and continually evaluated through the application of lean manufacturing principles to minimize material travel and handling; and maximize value-added use of floor space and synchronous flow.

6.3.2 Contingency plans

Actel has contingency plans for emergency situations that could affect customer requirements

6.4 Work Environment

Top Management provides and manages the work environment needed to achieve conformity of product and quality requirements.

7.0 PRODUCT REALIZATION (Reference: C-00-PDP Product Development Process - PACE)

7.1 Planning of Product Realization (Reference: C-00-SP Strategic Planning)

Actel plans and develops processes required for product realization including: product concept, feasibility, development, introduction, manufacture, and support. Planning of product realization is consistent with requirements of the QMS and documented as suitable for Actel's method of operation.

Management determines the quality objectives for products and projects and any needs to adapt processes and documentation, and provides resources and facilities necessary for verification, validation, monitoring, inspection, and testing, with criteria for acceptability. Records are defined as needed to control conformity to requirements of products and services.

7.1.1 Planning of product realization – Supplemental

Customer requirements and references to its technical specifications are included in the planning of product realization as a component of the quality plan.

7.1.2 Acceptance Criteria.

Acceptance criteria are approved by the customer, where required.

7.1.3 Confidentiality

Actel ensures the confidentiality of customer products and projects under development and related product information.

7.1.4 Change Control

Actel obtains necessary customer approval of changes to quality plans, acceptance criteria, product and/or manufacturing process, and all related changes that may impact product realization. When required by the customer, additional verification and identification of requirements is performed, such as required for new product introduction and validation.

7.2 Customer-Related Processes (Reference: C-00-CAC Customer Advocacy and Contracts)

7.2.1 Determination of Product Requirements

7.2.1.1 Customer requirements, including requirements for designation, documentation, and control of special characteristics are identified, reviewed, communicated, and documented (including those that are not explicitly stated), along with delivery and post-delivery activities. Statutory and regulatory requirements are reviewed. Inputs for new products are accumulated from the following sources: customers, Actel Executives, Actel's Extended Sales Channel, Actel Marketing/Engineering/Design Services resources and competitive analysis (marketing research and trends).

7.2.1.2 For existing products needing additional resources the Major Opportunity process is used.

7.2.1.3 Customers may reference requirements on their RFQ, specification, or purchase order, which are reviewed and exceptions identified; records of exceptions are maintained.

7.2.2 Review of Product Requirements (Reference: C-00-PDP)

Requirements are reviewed to ensure Actel's ability to meet such requirements, before commitment to provide product or services to the customer. Risks are evaluated as well. Reviewing organizations keep records of their evaluation and response which defines their capabilities for meeting requirements.

When requirements are changed, the review process defines accepted changes, updates documentation, and notifies affected organizations of such changes.

7.2.2.1 Review of requirements related to the product – Supplemental.

Actel's products are designed long before customers are identified; therefore marketing represents potential customers in product requirements reviews.

7.2.2.2 Organization of manufacturing feasibility

Actel out-sources manufacturing to foundries which are TS 16949 certified. These manufacturing sources specify their manufacturing capabilities as *Design Rules*. These are included in the product design requirements, and are reviewed as part of the PACE process.

7.2.3 Customer Communication

Actel has arranged and implemented effective communication processes with customers relating to product information vs. requirements, responses to inquiries, contracts and contract revisions, order handling, and customer feedback and/or complaints. Records of such communications and resolutions are retained in Sales Order and other customer files.

7.2.3.1 Customer communication – Supplemental

Actel has established and maintains the ability to communicate information, including data, in a customer specified language and format. (<http://www.actel.com>). Actel requires and utilizes EDI methods throughout the supply chain, and as required by our customers.

7.3 Design and Development (Reference: C-00-PDP Product Development Process – PACE and C-00-SP Strategic Planning)

7.3.1 Design and Development Planning

Actel plans and controls the design and development of products and services through the **PACE Product Development Process**. Design and development planning stages are described below:

- PACE Phases - Concept Evaluation, Feasibility & Definition, Product Development & Verification, Product Validation, Volume Production, End of Life.
- Technical and business reviews, verification/validation activities as appropriate for each Phase.
- Responsibility and authority definitions.
- Resource allocation and identification to meet due dates and tradeoff decisions to manage schedules.
- Task sequence, mandatory steps, significant stages, and method of configuration control

- Input data specific to each PACE phase shall be reviewed to ensure consistency with requirements.
- Management of interfaces between organizations to ensure effective assignment of responsibilities and coordination.
- Design and development tasks are defined according to any specified safety or functional objectives of the product in accordance with customer and/or regulatory authority requirements.
- Plan of Record maintained by Program Management Office to record changes in product requirements and development.

Planning output is updated as design and development progresses, and records are maintained in PACE Project Books.

7.3.1.1 Multidisciplinary approach

Actel utilizes multidisciplinary Core Teams who own the entire project, from concept evaluation through volume production.

7.3.2 Design and Development Inputs

Inputs defining product and service requirements are documented, reviewed for adequacy, and records are maintained. Incomplete, unclear, or conflicting requirements are resolved and updated.

7.3.2.1 Product design input

- Functional and performance requirements.
- Applicable information derived from previous similar designs.
- Other requirements essential for design and development.
- Applicable regulatory and legal requirements.

7.3.2.2 Manufacturing process design input which may include

- product design output data,
- targets for productivity, process capability and cost,
- customer requirements (if any)

7.3.2.3 Special Characteristics are identified for inclusion in the control plan.

7.3.3 Design and Development Outputs

Outputs of the design and development are documented in a manner that enables verification against overall input requirements; any significant differences are documented and approved prior to release. Design and development outputs:

- Meet the input requirements or differences are approved prior to release.
- Provide appropriate information for customers, suppliers, manufacturing, and service operations.
- Contain or reference the product acceptance criteria.
- Define characteristics of the product that are essential to its safe and proper use.

7.3.3.1 Product design outputs – Supplemental

Product design outputs are expressed in terms that can be verified and validated against product design input requirements, including: design FMEAs and reliability results; product key/special characteristics and specifications; product error-proofing, product definition including drawings or mathematically based data; product design review results; and diagnostic guidelines.

7.3.3.2 Manufacturing process design outputs

Manufacturing process design outputs are expressed in terms that can be verified against manufacturing process design input requirements and validated. These include: specifications and drawings; manufacturing process flow chart; manufacturing process FMEAs; control plans; work instructions; process approval acceptance criteria; tool designs; data for quality, reliability, maintainability and measurability; results of error-proofing activities; and methods of rapid detection and feedback of product/manufacturing process nonconformities.

7.3.4 Design and Development Review – PACE provides for systematic reviews at each Phase to:

- Evaluate the ability to meet requirements.
- Identify problems and define resolutions.
- Obtain agreement on Inputs and Outputs among the functions performing each PACE Step.
- Document and communicate decisions and changes in plan or requirements.

- Record review results and subsequent follow-up actions.
- Authorization to progress to the next phase

7.3.4.1 Monitoring

The Core Team Leader monitors the design project by defining, analyzing and recording measurements at specified stages of design and reports summary results as an input to PACE reviews. Measurements may include performance risks, costs, lead-times, and critical paths.

7.3.5 Design and Development Verification

Verification is performed as planned in the PACE Process, to ensure outputs of each stage are conforming with input requirements. Results of the verification and subsequent follow-up actions are recorded.

7.3.6 Design and Development Validation

Validation is performed as planned in the PACE Process to confirm that overall performance after integrating multiple product components meets requirements for the specified applications or intended use. When practical, validation is completed prior to delivery or implementation of the product; otherwise, partial validation is performed. Results of validation and subsequent follow-up actions are recorded.

7.3.6.1 Design and Development Validation – Supplemental

When specific customer requirements exist, including program timing, these requirements are included in the design and development validation.

7.3.6.2 Design and Development Verification and Validation documentation

At completion of design and/or development, documentation such as reports, calculations, test results, etc. demonstrate that the product definition meets the specification requirements for all identified operational conditions.

7.3.6.3 Design and Development Verification and Validation Testing

Tests used for verification and validation are planned, controlled, reviewed, and documented to ensure and prove the following:

- test plans or specifications identify the product being tested and the resources being used, define test objectives, and conditions, parameters to be recorded, and relevant acceptance criteria
- test procedures describe the method of operation, the performance of the test, and the recording of results
- correct configuration standard of the product is submitted for the test
- requirements of the test plan and the test procedures are observed
- acceptance criteria are met

7.3.6.4 Prototype Program

When required by the customer, Actel will develop a prototype program and control plan to meet their needs. When possible, it is carried out using the same suppliers, tooling and manufacturing processes as will be used in production. All performance testing activities are monitored for timely completion and conformity to requirements, and technical leadership is provided to ensure outsourced services are performing as intended.

7.3.6.5 Product Approval Process

Actel is committed to complying with its customers requirements regarding product approval processes.

7.3.7 Control of Design and Development Changes

Changes are identified, documented and controlled, including evaluation of the effect of such changes on products already delivered. Changes are verified or validated as appropriate, and approved before implementation. Results of change reviews and subsequent follow-up actions are documented. When required by contract or regulatory requirements, the customer and/or regulatory authority will approve changes.

7.4 Purchasing (Reference: C-00-SM Supplier Management)

7.4.1 Purchasing Process

Actel ensures that purchased products and services conform to requirements. Methods of control applied to purchasing are appropriate to their importance in meeting final products and services requirements. Evaluation and selection of suppliers is based on their ability to meet requirements. Criteria are defined and used for evaluation, re-evaluation, and

selection. Results of evaluations and subsequent follow-up actions are recorded. As required by Actel's supplier management core procedure (C-00-SM):

- The AVL (Approved Vendor List) maintains a register of approved suppliers that includes the scope of approval;
- Supplier performance is reviewed periodically; records of these reviews are used as a basis for establishing the level of controls to be implemented;
- Necessary actions to take are defined when dealing with suppliers that do not meet requirements;
- Where required, ensure that both Actel and all suppliers use customer-approved special process sources;
- QA has the responsibility for approving supplier quality systems and the authority to disapprove the use of sources.

7.4.1.1 Regulatory Compliance

Purchased products or materials are verified to ensure conformity to applicable regulatory requirements.

7.4.1.2 Supplier quality management system development

In order to ensure the quality of the parts shipped by Actel, we have established systems to manage the parts and materials received from our supply base and we initiate supplier development based on importance of the supplied product and supplier quality performance.

7.4.1.3 Customer-approved sources

Where specified (by contract or specification) we purchase products, materials or services from customer-approved sources. Actel is responsible for the quality of all products purchased from suppliers, including customer-designated sources.

7.4.2 Purchasing Information

Purchasing information defines products and services to be purchased. As appropriate, purchase orders may include approval requirements for product, equipment, and processing, qualification of personnel, and assessing the QMS of primary suppliers. Purchase requirements are documented in specifications and reviewed for adequacy before being communicated to suppliers. Other requirements for purchasing information include (where appropriate):

- the name or other positive identification, and applicable references to specifications, drawings, process requirements, inspection instructions and/or other relevant technical data
- requirements for design, test, examination, inspection, and related instructions for acceptance
- requirements for test specifications for design approval, inspection, investigation, or auditing.
- requirements relative to supplier notification to organization of nonconforming product and arrangements for organization approval of supplier nonconforming material
- requirements for the supplier to notify Actel of changes in product and/or process definition and, where required, obtain organization approval
- right of access by Actel, Actel's customer, and regulatory authorities to all facilities involved in the order and to all applicable records, and
- requirements for the supplier to flow down to sub-tier suppliers the applicable requirements in the purchasing documents, including key characteristics where required.

7.4.3 Verification of Purchased Product

The Quality Manager or authorizing function ensures that purchased product is verified prior to use or release in accordance with provision of this section. Verification of Purchase Product is documented in C-00-SM.

7.4.3.1 Incoming Product Quality

Actel has implemented inspection and testing as necessary to ensure that purchased product meets specified requirements. When Actel or its customers wish to verify conformance at the supplier's premises, the required verification arrangements and method of acceptance are specified in purchasing agreements.

7.4.3.2 Supplier Monitoring

Actel monitors all suppliers using various methods listed in 1-04-13043 Supplier Approval and Relationship.

7.5 Product and Service Provision (Reference: C-00-OE Operational Excellence)

7.5.1 Control of Production and Service Provision

Management plans and controls production and servicing under controlled conditions by: a) making available information on product characteristics; b) ensuring availability of work instructions; c) using suitable equipment including measuring devices; d) implementation and use of monitoring and measurement equipment; e) implementing release, delivery, and post-delivery activities; f) accountability for all product during manufacture (e.g., parts quantities, split orders, nonconforming product), g) evidence that all manufacturing and inspection operations have been completed as planned, or as otherwise documented and authorized; h) prevention, detection, and removal of foreign objects; i) monitoring and control of utilities and supplies such as water, compressed air, electricity and chemical products to the extent they affect product quality; and j) criteria for workmanship shall be stipulated in the clearest practical manner (e.g., written standards, representative samples, or illustrations).

Planning for control also includes: the establishment of process controls and control plans where key characteristics have been identified (see 7.5.1.1) and the identification of in-process verification points when adequate verification of conformance cannot be performed at a later stage of production.

7.5.1.1 Control Plan

Control Plans are developed as specified in 1-04-13115 Process Control Plan procedure.

7.5.1.2 Work Instructions

Actel provides appropriate work instructions for all processes that impact product quality and/or employee safety

7.5.1.3 Verification of Job Setups

Job set ups are verified prior to commencing each new production run and/or when process changes are made. In some cases this verification is automated within computer controlled operations.

7.5.1.4 Preventive and Predictive Maintenance

Actel maintains a Total Preventative Maintenance Plan for all key process equipment. At a minimum these plans include:

- Planned maintenance activities
- Packaging and preservation of equipment, tooling, and gauging,
- Availability of replacement parts for key manufacturing equipment
- Documenting, evaluating, and improving maintenance objectives.

7.5.1.5 Management and Control of Production Equipment and Tooling

Engineering management is responsible for tool and gage design and qualification, including both hardware and software. Engineering management has established and maintains a system for production tooling and equipment management, including:

- Validation prior to use (this includes verification of the first article produced to the design data/specification)
- maintenance (including periodic inspection) and repair facilities and personnel
- storage (including periodic preservation/condition checks) and recovery
- setup
- tool changing programs for perishable tools
- tool design modification documentation, including engineering change level
- tool identification, defining the status, such as prototype, production, repair, or disposal.

7.5.1.6 Production Scheduling

Production Planning schedules production to meet customer requirements and our goal to achieve the best on-time delivery performance.

7.5.1.7 Feedback of Information from Service

Marketing and Sales collect and communicate servicing concerns to Actel management, for the purpose of initiating appropriate corrective, preventive or other improvement action.

7.5.1.8 Service Agreement with Customer (ISO/TS 16949 - 7.5.1.8) and Control of Service Operations (AS9100 - 7.5.1.5)

Both of these are exclusions of Actel's scope. Actel's products are not repairable, we have no service agreements with our customers. Also, Actel does not have any service operations.

7.5.1.9 Production Documentation

Production is carried out in accordance with approved data which contains (as necessary) – drawings, part lists, process flow charts (with inspection operations), production documents (e.g., travelers, work orders); and inspection documents. Also, a list of specific or non-specific tools and numerical control (NC) machine programs required and any specific instructions associated with their use.

7.5.10 Control of Production Process Changes

Changes affecting processes, production equipment, tools, and programs are documented. Procedures are in place to control their implementation. In addition, results of changes to production processes are assessed to confirm that the desired effect has been achieved without adverse effects to product quality.

Persons authorized to approve changes to production processes are identified in the Technical Review Board (TRB) Procedure 1-04-13046 (primary reference). Identification of and obtaining customer and/or regulatory approval for changes in accordance with contract or regulatory requirements is documented in the Product Change Notification (PCN) Procedure 1-04-13045.

7.5.11 Control of Work Transferred, on a Temporary Basis, Outside Actel's Facilities

If it becomes necessary to temporarily transfer work to a location outside of Actel's facilities, processes to control and validate the work will be defined in Actel's Corporate Business Contingency Plan.

7.5.2 Validation of Processes for Production and Service Provision

Actel validates that processes are in control, where output cannot be verified by immediate measurement of product characteristics (where deficiencies become apparent only after the product is in use); the primary validation is through use of Electrical Test data.

Methods used for these processes may also include specified criteria for review and approval of process capability, equipment evaluation and approval, qualification of personnel, requirements for records and revalidation. For specialized processes, **C-00-QMP Quality Management Program** provides further definition as an extension of this Quality Manual.

7.5.2.1 Validation of process for production and service provision – Supplemental

Process validation applies to all processes for production and service provision related to our automotive products.

7.5.3 Identification and Traceability

Products are identified as appropriate throughout all Actel-controlled operations. Measurement and monitoring requirements are defined and product status is controlled accordingly. The identification of the configuration of the product is maintained in order to identify any differences between the actual configuration and the agreed configuration. Controls are established and documented where acceptance authority media is used (e.g. stamps, electronic signatures, passwords).

Where traceability is required, products receive unique identification which is recorded and used to control product processing. Based on the level of traceability required by contract, regulatory, or other established requirement, Actel provides for: a) identification maintained throughout the product life (use of MESA and JDE); b) all products manufactured from the same batch of raw material or from the same manufacturing batch to be traced, as well as the destination (delivery, scrap) of all products of the same batch; c) for assembly, the identify of the components and those of the next higher assembly can be traced; and d) for a given product, a sequential record of its production (manufacture, assembly, inspection) can be retrieved.

7.5.4 Customer Property

Third party property (including intellectual property and/or customer furnished data used for design, production, and/or inspection) under Actel control is identified, verified, and protected including customer property for incorporation into the product. Access and distribution controls are defined to protect Customer Design Files (CDF). Any such property which is lost, damaged, or otherwise unsuitable for use is reported to the customer and records are kept.

7.5.4.1 Customer-owned production tooling

Actel does not use customer-owned production tooling.

7.5.5 Preservation of Product

Product quality is preserved during internal processing and delivery, including identification, handling, packaging, storage, and protection, including constituent parts. Preservation of product also includes (where applicable in accordance with product specifications and/or applicable regulations): a) cleaning, b) prevention, detection, and removal of foreign objects; c) special handling for sensitive products; d) marking or labeling including safety warnings; e) shelf life control and stock rotation; and f) special handling for hazardous materials.

Documents required by the contract/order to accompany the product are present at delivery and are protected against loss and deterioration.

7.5.5.1 Storage and inventory

Actel's products do not deteriorate over time, and no condition assessments are made to detect this. Actel uses an automated inventory management system to optimize inventory turns over time and assure stock rotation on a 'first-in-first-out' (FIFO) basis. Obsolete product is controlled as nonconforming product.

7.6 Control of Measuring and Monitoring Devices (Reference: C-00-OE Operational Excellence)

Management identifies measurements to assure that product conforms to requirements, including measuring and monitoring devices required. Processes are defined and followed to ensure monitoring and measurement actually meets the requirements. A list is maintained of the monitoring and measuring devices and the Calibration control procedure (1-04-13012) defines the process for calibration and the recall method.

To ensure valid results the measuring and monitoring devices are calibrated or verified at specific intervals (or prior to use) in suitable environmental conditions against measurement standards traceable to international or national standards. In the absence of such standards, the basis for calibration/verification is recorded. Equipment is adjusted as necessary, is marked to identify its calibration status, is protected from adjustments that would invalidate measurement results, and is protected from damage or deterioration during handling, maintenance and storage. Records of calibration and verification results are maintained.

When measuring and monitoring devices are found to be out of calibration, previous results are reviewed and corrective action taken on the equipment and product affected, as appropriate.

All monitoring and measuring devices are handled, maintained and stored in a manner that ensures accuracy and fitness for use is maintained.

Any computer software used for monitoring and measurement is confirmed prior to the initial use and reconfirmed as necessary.

7.6.1 Measurement systems analysis

Statistical studies are conducted to analyze the variation present in the results of each type of measuring and test equipment system (referenced in the applicable control plan). Such measurement systems analyses conform to applicable customer reference manuals including the AIAG "Measurement System Analysis" reference manual.

7.6.2 Calibration/verification records

Records of the calibration/verification activity for all gauges, measuring, and test equipment needed to provide evidence of product conformity to determined requirements, including employee and customer owned equipment, includes:

- Equipment identification, including the measurement standard against which the equipment is calibrated
- Revisions following engineering changes
- Any out-of-specification readings as received for calibration/verification
- An assessment of the impact of an out-of-specification condition
- Statements of conformance to specification after calibration/verification
- Notification to the customer if suspect product or material has been shipped

7.6.3 Laboratory Requirements

7.6.3.1 Internal Laboratory

Engineering Management manages our internal laboratory and maintains records that define/demonstrate its capability to perform the required inspection, test or calibration services.

7.6.3.2 External Laboratory.

QA ensures external laboratories used for inspection, test, or calibration services are either acceptable to the customer or accredited to ISO 17025.

8.0 MEASUREMENT, ANALYSIS, AND IMPROVEMENT

8.1 General

Management plans and implements the monitoring, measurement, analysis and improvement processes needed to ensure conformity of products and services and improve the QMS. These processes define necessary methodologies (including statistical techniques) and the extent of their use.

8.1.1 Identification of Statistical Tools

The SQM ensures that statistical tools used to monitor QMS processes are identified during quality planning and included control plans, as applicable. Statistical techniques for on-going process control and improvement are established per the AIAG "Statistical Process Control" (SPC) reference manual, SPC-3.

8.1.2 Knowledge of Basic Statistical Concepts

Employees utilizing statistical tools to manage, verify or perform work will attend a Basic Statistics course containing an overview on basic concepts such as variation, control (stability) process capability

8.2 Monitoring and Measurement (Reference: C-00-OE Operational Excellence)

8.2.1 Customer Satisfaction

Actel collects information on customer perceptions (as appropriate) to monitor whether customer requirements are being met by Actel. Procedures for obtaining, securing, and using this data are defined. The information is analyzed and presented in management reviews.

8.2.1.1 Customer Satisfaction – Supplemental

At a minimum, related performance indicators include, but are not limited to:

- delivered part quality performance
- customer disruptions / field returns
- delivery schedule performance / incidents of premium freight
- customer notifications related to quality and delivery issues.

8.2.2 Internal Audit (References: C-00-IA Internal Audit; C-00-CAR Corrective Action Requirements)

Quality Assurance conducts internal audits at planned intervals to determine whether the QMS has been effectively implemented and maintained to achieve the business mission and all the QMS standards' requirements. Internal audits monitor that the QMS is effectively maintained. Internal audits shall meet contract (Customer Specific Requirements) and/or regulatory requirements. Audit frequency is based on status and importance of the area to be audited, plus previous audit results. Audit criteria, scope, and methodologies are defined. Auditors are selected and trained to ensure objectivity and impartiality of the audit process. Auditors do not audit their own work, but may participate on a team auditing their own function to take advantage of their expertise.

Audit tools such as checklists, process flowcharts, requirements tables are used to support the audit of the QMS requirements. Acceptability of these tools is measured against the effectiveness of the internal audit process and overall organization performance.

Management responsible for each audited area takes action without undue delay to eliminate reported nonconformities and their causes. Follow-up includes verification of corrective actions taken and the reporting of verification results.

8.2.2.1 Quality management system audit

We conduct QMS audits to determine conformity to ISO/TS 16949 and any additional QMS requirements that may apply.

8.2.2.2 Manufacturing process audit

Key manufacturing processes are audited at least annually to determine their effectiveness and/or performance and to identify opportunities for improvement.

8.2.2.3 Product audit

Product audits are also conducted at appropriate stages of production and delivery to verify conformance to all specified requirements contained in the control plan.

8.2.2.4 Internal Audit Plans

Internal audits of all of our QMS processes are conducted in accordance with a published schedule that identifies the audit scope and frequency. The schedule is updated on the basis of status and importance of the activity to be audited and previous audit results. Customer complaints or other non-conformities will result in an increase of audit frequency to of the processes involved.

8.2.2.5 Auditor Qualification

Internal auditors are qualified to audit to ISO/TS 16949 requirements. Audits are carried out by qualified personnel who do not have direct responsibility for the activity being audited.

8.2.3 Monitoring and Measurement of QMS Processes

Actel has implemented procedures that include methods of monitoring QMS processes, including measurement where appropriate. These methods confirm the continuing ability of QMS processes to meet planned results. When such results are not achieved, corrective action is taken to ensure product and service conformity.

8.2.3.1 Monitoring and measurement of manufacturing processes

All manufacturing of Actel's products is performed by suppliers. Actel partners with these suppliers to perform process studies on all new manufacturing process to verify process capability and to provide additional input for process improvement and control. Suppliers are responsible for maintaining process capability and to provide this information to Actel. When a process nonconformity is identified, appropriate action is taken to correct the nonconforming process; an evaluation is conducted to determine whether the process nonconformity has resulted in product nonconformity; and the identification and control of the nonconforming product occurs in accordance to clause 8.3 (Control of Nonconforming Product).

8.2.4 Monitoring and Measurement of Product

Actel monitors product characteristics to verify that quality requirements are being met. Monitoring is done at stages defined in product realization process plans. Evidence of conformity with acceptance criteria is documented, and records indicate individuals who authorize the release of product. Product release and service delivery does not proceed until all specified activities are satisfactorily completed, unless otherwise approved by authorized individuals, or by the customer. Sampling inspection as a means of product acceptance is statistically valid and appropriate for use (Test/Programming Minimum Yield Hold Limit Criteria 1-04-10033). Sampling plans preclude the acceptance of lots whose samples have known nonconformities. When required, the plan shall be submitted for customer approval.

8.2.4.1 Inspection Documentation

Measurement requirements for product or service acceptance is documented. This documentation includes: a) criteria for acceptance and/or rejection; b) where in the sequence measurement and testing operations are performed; c) a record of the measurement result, and d) type of measurement instruments required and any specific instructions or acceptance test plan. For demonstration of product qualification, records provide evidence that the product meets the defined requirements (Qualification procedure 1-04-13016).

8.2.4.2 First Article Inspection

A process exists for the inspection, verification, and documentation of a representative item from the first production run of a new part (Engineering Sample), or following any subsequent change that invalidates the previous first article inspection results. Engineering Sample qualification data requirements are determined and documented by each product core team in the Livelihood PACE project folder.

8.3 Control of Nonconforming Product (Reference: C-00-CNP Control of Nonconforming Product)

Management ensures that product which does not conform to requirements is identified and controlled to prevent delivery or unintended use, and that control responsibilities are defined in documented procedures.

Procedures are defined for: a) action to eliminate the detected nonconformity; b) authorizing waivers for its use, release, or acceptance by designated individuals or by the customer; c) taking action to prevent use for its original application. Records are maintained defining the actual nonconformities and subsequent actions taken, including authorized waivers for use.

The QMS requires that products and services delivered to Actel customers conform to specified requirements stated in contract specifications, or applicable regulatory requirements/performance standards. If a product or service does not meet these requirements, it is nonconforming, and if corrected it is re-verified after correction to demonstrate conformity. When nonconforming product is detected after delivery or use has started, Actel takes action appropriate to the effects of the nonconformity.

The responsibility for review and authority for the disposition of nonconforming product and the process for approving personnel making these decisions is discussed in C-00-CNP Control of Nonconforming Product.

8.3.1 Control of nonconforming product – Supplemental

Product with unidentified or suspect status is classified and processed as nonconforming. Product dispositioned for scrap is conspicuously and permanently marked until physically rendered unusable.

8.3.2 Instructions for Reworked Product

Instructions for rework, including re-inspection requirements, are documented and utilized by appropriate production personnel.

8.3.3 Customer Information

Responsible Sales or Marketing personnel notify the customer immediately upon discovering that nonconforming product has been shipped. In addition to any contract or regulatory authority reporting requirements, any delivered nonconforming product that may affect reliability of safety is reported in a timely manner. This notification includes a clear description of the nonconformity, which includes as necessary parts affected, sales order number(s), customer/Actel part numbers, quantity, and date(s) delivered.

8.3.4 Customer Waiver

Where the customer has previously approved the production process, the customer contact obtains a customer concession or deviation permit prior to further processing whenever the product or manufacturing process is different from that which is currently approved. Actel maintains a record of the expiration date or quantity authorized; ensures compliance with the original or superseding specifications and requirements when the authorization expires; and ensures material shipped on an authorization is properly identified in each shipping container. This waiver process also applies to purchased product and Actel will provide evidence of concurrence with the supplier (if applicable) before submission to the customer.

The organization shall not use dispositions of us-as-is or repair, unless specifically authorized by the customer, if the product is produced to customer design, or the nonconformity results in a departure from the contract requirements. Unless otherwise restricted in the contract, product which is controlled via a customer specification may be dispositioned by an organization as use-as-is repair, provided the nonconformity does not result in a departure from customer-specified requirements.

8.4 Analysis of Data

Actel determines, collects, and analyzes appropriate data to determine the suitability and effectiveness of the QMS and to evaluate opportunities for improvement. This includes data generated as a result of monitoring and measurement or from other sources. Data analyzed includes: a) information on customer satisfaction; b) conformity to product requirements; c) suppliers; d) characteristics or trends of processes and products and opportunities for preventive action.

8.4.1 Analysis and Use of Data

Trends in quality and operational performance are compared with progress toward objectives and related recommendations for improvement are developed and are presented to Top Management for review and action during management reviews.

8.5 Improvement (Reference: C-00-OE Operational Excellence)

8.5.1 Continual Improvement

8.5.1.1 Continual improvement of the organization

Management plans and manages the continual improvement of the QMS through use of the Quality Policy, Quality Objectives, audit results, analysis of data, corrective and preventive actions, and Management Review. Employee

Annual Reviews require at least one Continual Learning/Improvement goal for the coming year, and results are evaluated early the following year.

8.5.1.2 Manufacturing process improvement

Engineering partners with our manufacturing suppliers to improve yield through adjustment to process parameters, and improvement of designs and masks. Our ISO/TS 16949 certified manufacturing suppliers are also responsible for reduction of variation in products of characteristics and manufacturing process parameters.

8.5.2 Corrective Action (Reference: C-00-CAR Corrective Action Requirements)

Management takes corrective action to eliminate causes of nonconformities and prevent their recurrence; such actions are appropriate to the effects of the nonconformities. Documented procedures are established for: a) reviewing nonconformities (including customer complaints); b) determining causes; c) evaluating need for action to prevent recurrence; d) defining and implementing actions needed; e) keeping records of actions and results; f) reviewing corrective actions taken; g) flow down of the corrective action requirement to a supplier when it is determined that the supplier is responsible for the root cause; and h) specific actions where timely and/or effective corrective actions are not achieved.

8.5.2.1 Problem Solving

Actel uses the "8D" method of corrective action investigation for all corrective actions. The "5 Why" method of root cause analysis is used primarily for specified automotive customers.

8.5.2.2 Error Proofing

Actel within its manufacturing and design processes has multiple error proofing methods including – machine configuration, part insertion restrictions, and pass/fail system and software checks.

8.5.2.3 Corrective Action Impact

Actel applies corrective action and implemented controls to other similar processes and products to eliminate the cause of the nonconformity.

8.5.2.4 Rejected Product Test/Analysis

Engineering analyzes parts rejected by the customer and initiate corrective action to prevent recurrence; records of these analyses are retained and made available upon request by the customer.

8.5.3 Preventive Action (Reference: C-00-PAR Preventive Action Requirements)

Management defines preventive action to eliminate causes of potential nonconformities to prevent their occurrence. Preventive actions are appropriate to the effects of the potential problem. Documented procedures are established to define requirements for: a) determining potential nonconformities; b) evaluating the need for action to prevent their occurrence; c) determining and implementing necessary actions; d) reviewing preventive actions taken; e) keeping records of results.

9.0 REVISION HISTORY

REV	ECN NUMBER	Description Of Change	EFFECTIVE DATE	ORIGINATOR	DOC CON initials
0	0-01-0001/1	Initial Release	04/24/90	Jim Chang	BJJ
1	0-01-0001/1	Added Section 29 Mil Program Plan	06/07/90	Jim Chang	BJJ
2	0-01-0001/2	To reflect change in quality	12/21/92	B Jo Jerkins	BJJ
3	970046	Completely re-written per ISO 9000 requirements. Change document title and number to 1-04-13000.	02/09/98	Terence P. Daquioag	CMO
4	980056	Para. 1.1.5.1, change frequency of management review meeting from monthly to quarterly. Change referenced MIL-PRF-38535 para. numbers	03/11/98	Terence P. Daquioag	CMO
5	990320	Changed the length of years for maintaining quality records to 7 years or as required by contract on section 1.16.3.2 and modified chart 2	11/01/99	J Lim / C Ordonez	CMO
6	2001317	Reviewed, (Edited, updated, revised as necessary) and renumbered	8/17/2001	Craig E Taylor	CMO
7	2002330	Rewritten to conform with ISO 9001-2000.	12/20/2002	Neal Ramer	COR

				Craig Taylor	
8	2003065	Improve quality objectives and add ISO language based on audits & consultant gap assessment recommendations.	03/07/2003	Neal Ramer Craig Taylor	COR
	2003387	Administrative Change - Added Process interaction diagram to page 3. Minor administrative change left from initial generation of the New Quality Manual & Logo Change	9/5/2003	Craig Taylor	
9	Signed in 11/2/05 Management Review	2.0 Mission; 3.0 add EMS & AS9003; 4.3 add C-00-EMS & re-title C-00-QMP; add 7.2.1.3.	11/2/05	Neal Ramer	SM-Y
10	Signed in 5/3/06 Management Review	1.1 Titles; 4.0 new QMS Map; 7.5.4 Customer Design Files; 8.5.1 Continual Improvement Goal in Annual Reviews.	5/3/06	Neal Ramer	SM-Y
11	Signed 3/21/08	Revise multiple sections to conform to ISO/TS 16949 and AS9100, Change Mission Statement, revise signatories, and change to new Actel Logo	3/21/08	Larry Robinson (consultant) / Stephanie Martin-Young	SM-Y
12	Signed 7/11/08	Revise multiple sections to conform to AS9100	7/11/08	Stephanie Martin-Young	SM-Y
12.5	ECN #2010344	<p>Changed Logo, Added document number "QM-1"</p> <p>1.1 Removed Hard Copy signature fields, revised commitment statement</p> <p>3.0 Removed years notation for the standards, removed obsolete statement of alignment to AS9100</p> <p>4.1, 4.2.1, 4.2.2, 5.3, - Remove years notation for the standards</p> <p>4.2.3 Change Quality Assurance to Corporate Quality and removed "on the Actel Intranet" about Livelink.</p> <p>4.2.4 Add statement that C-00-CM defines the method for controlling records created by and/or retained by suppliers.</p> <p>5.3. Remove year notation for the TS16949 standard and removed phrase about "signed as a record of their commitment"</p> <p>5.4.1 Remove year notation for the TS16949 standard and added ISO 9001</p> <p>5.4.2.1 Removed year notation for the TS16949 standard</p> <p>5.5.1 Changed "elements" to "clauses"</p> <p>5.5.2 Remove year notation for the TS16949 standard</p> <p>7.2.2 Remove year notation for the TS16949 standard</p> <p>7.4.2 Revise statement to read "As appropriate, purchase orders may..." and remove "QA" review</p> <p>7.4.3.2 Revise section to reference 1-04-13043 Supplier Approval and Relationship for monitoring of suppliers</p> <p>8.2.2 Remove specific reference to ISO/TS16949 – this statement applies to all the standards</p> <p>8.2.2.1 Remove year notation for the TS16949 standard</p> <p>8.2.2.5 Remove year notation for the TS16949 standard</p> <p>8.5.1.2 Remove year notation for the TS16949 standard</p> <p>8.5.2.1 Revised the statement about "8D" and "5 Why" methods for clarity</p>	6/2/10	Stephanie Martin-Young	SM-Y