Micron Quality Manual

Control Information

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1. Foreword

The goal of any Quality Management System (QMS) is one of continual improvement and customer satisfaction. Micron's QMS is an integral component in achieving Micron's quality strategy.

2. Quality Manual Management

This Quality Manual is the document for defining and deploying the Quality Management System (QMS) within Micron.

The manual is used to apply quality standards deemed important to meet Micron's quality and business needs. Micron's Global Quality Management Office (QMO) function owns the Quality Manual and is responsible for its content and any subsequent changes.

The document may be revised periodically and/or on an as-needed basis: updates may result from interested parties' needs, changes in the standards, and continual improvement efforts.

2.1. Purpose and Scope

This manual provides:

1. An overview of Micron's organization
2. The scope of the QMS
3. An overview of QMS processes, their sequence, and interactions
4. Context of the organization

5. Needs and expectations of interested parties
6. Reference to documented processes established for the QMS
7. Reference to where within the organization's QMS their customer-specific requirements are addressed
8. Where to find additional details necessary to maintain and improve quality at Micron

3. Company Overview

Micron Technology, Inc. is a global leader in the semiconductor industry. For more than 40 years, Micron has dedicated itself to collaborating with team members to drive innovation and transform what is possible. Micron has been instrumental to the world's most significant technology advancements, delivering optimal memory and storage systems for a broad range of applications.

Micron is a leader in innovative memory solutions that transform how the world uses information. Through global brands Micron offers the industry's broadest portfolio. Micron is the only company manufacturing today's major memory and storage technologies: DRAM, NAND, NOR, mNAND, SSD and 3D XPoint™ memory. Micron's solutions are purpose-built to leverage the value of data to unlock financial insights, accelerate scientific breakthroughs and enhance communication around the world.

For additional and the most up-to-date information on Micron, including Corporate Profile and product solutions, visit the company's external website: www.micron.com

3.1. Our Commitment to Corporate Responsibility

Nothing is more important than Micron's commitment to integrity. The quality of Micron's reputation is just as important as the quality of the products. Micron's future is built on continuous innovation, but the day-to-day operations would not be possible without Micron's team members' commitment to conducting business with uncompromising integrity and professionalism. The company takes a proactive approach to environmental stewardship, occupational health and safety, and high-quality product standards. As a result, Micron's award-winning efforts have been recognized internationally.

The behavior of individual team members significantly affects Micron's success. All employees are expected to know and follow Micron's Code of Business Conduct and Ethics and the basic legal concepts relevant to their roles. All team members are made aware of Micron's policies through certification and periodic recertification of compliance training courses which emphasize the following key aspects of the Code: The Code of Business Conduct and Ethics, Information Security, Protecting Proprietary Information. The following compliance training courses are targeted towards team members based upon team member roles: Antitrust, Avoiding Bribery and Corruption, Avoiding Workplace Violence, Responsible Business Alliance, Global Data Protection and Privacy, Global Health and Safety for Leaders, and Global Supply Chain Product Compliance.

Team members also have 24x7 access to a Compliance Hotline which is an anonymous option, managed by a contracted 3rd party, for team members to report a concern or ask a question clarifying the Code of Conduct.

3.2. Micron Company Vision

Transforming how the world uses information to enrich life.

3.3. Micron Company Mission

Be a global leader in memory and storage solutions.

3.4. Micron Core Values

People: We care about each other.

Innovation: We develop solutions that shape the world's future.

Tenacity: Nothing shakes our resolve.

Collaboration: We work as one team.

Customer Focus: We win by knowing our customers.

4. Micron Quality Overview

4.1. Quality Mission and Vision

Our Quality Vision	Lead and inspire world class quality through effective and efficient quality system and services that deliver industry leading products of choice. Make Micron the customer's first choice for quality.
Our Quality Mission	Lead and inspire world class quality through an effective and efficient quality system and services that deliver industry leading products of choice.

4.2. Quality Policy

Micron Technology provides best-in-class products and services that meet or exceed customer, statutory and regulatory requirements.

Our team members are committed to achieving total quality excellence, building on Micron's three quality foundations: customer-focused quality, continuous internal quality improvements and igniting a passion for quality.

4.3. Quality Definitions

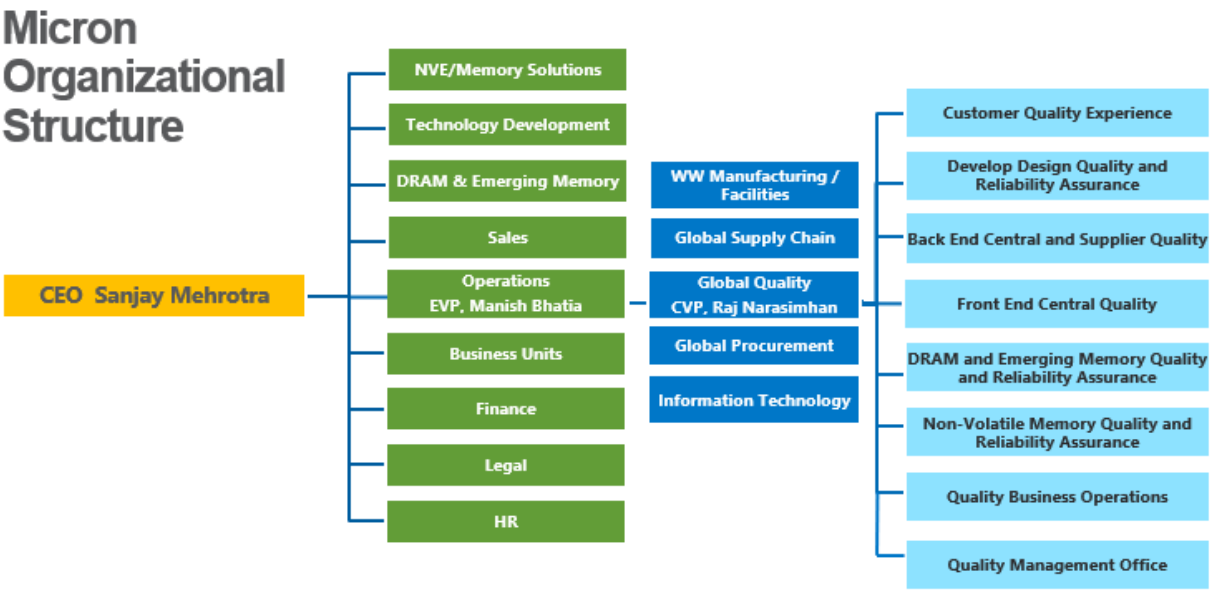
Micron applies the following definitions to distinguish quality and reliability:

Quality – risk of nonconformance requirements upon receipt or at start of *use* by external customer

Reliability – risk of nonconformance to requirements over expected lifetime by external customer

4.4. Micron Organization and Quality Function

Specific quality reporting structures include functions as depicted in **Error! Reference source not found.**. External and Internal quality facing organizations enable us to efficiently and effectively drive Total Quality Excellence throughout the organization.



4.5. Global Quality – QMO Office Specific Functions

4.5.1. Quality Management Office (QMO)

This role assists with the QMS deployment across the value chain, auditing internal quality business process/system and standards, driving global quality standards, performing and interfacing with respect to auditing (internal, external, and customer), and design and improve business processes with inputs from content owners.

5. Foundations of the Micron QMS

5.1. Context of the Organization

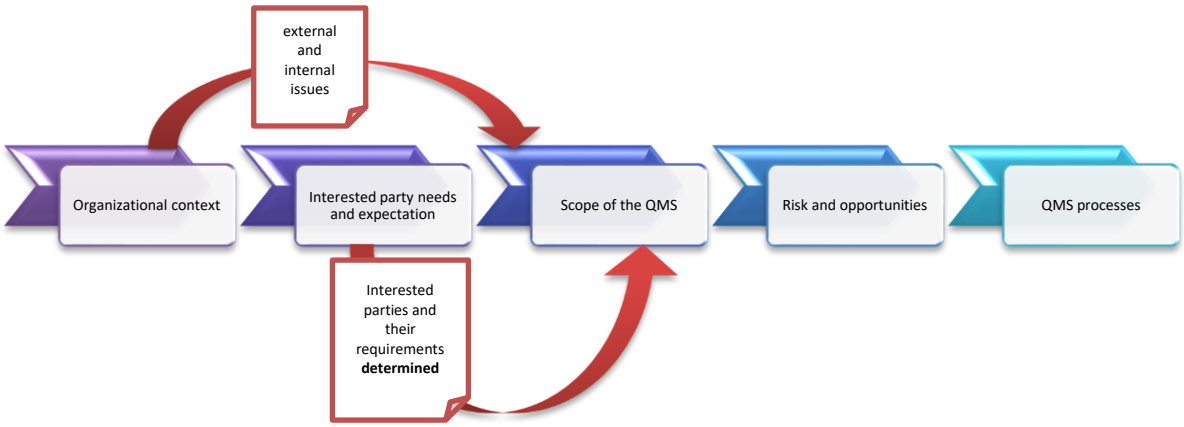


Figure 1. Micron Context of Organization.

Micron is committed to defining its position in the market place and understanding how relevant factors arising from legal, technological, social and economic environmental, cultural, and market issues influence the company's ability to achieve the intended results of the Quality Management System (QMS).

External and internal context information is evaluated within strategic planning and further refined and acted upon within the annual business plan. Positive and negative issues are described within these plans and changes are addressed in periodic business plan review meetings.

Opportunities and Risks relative to our context and these issues are addressed in the same fashion, with the business plan being heavily oriented towards opportunity definition – markets, competitive factors, product and technology response. Risks to these plans are further evaluated via structured activities facilitated by the Global Risks and Resiliency (GRR team).

Micron has identified the interested parties relevant to the QMS and their needs and expectations. This information is reviewed to ensure that a continual understanding of each group's requirements is derived and maintained. To facilitate the understanding of Micron's context, the company regularly considers issues that influence its context during strategic or business planning activities at both a global level and at regional or local site manufacturing levels.

Micron's global and manufacturing site context descriptions are detailed in Micron Global Quality Organizational Context.

5.2. Scope of the QMS

This Quality Management System has been developed to meet customer, regulatory and statutory requirements and continually improve the quality of products. To promote the benefits of QMS

within the company and align with standards recognized by our customers, Micron's QMS is in compliance with the requirements of the ISO 9001:2015 and IATF16949:2016 Standards.

Micron subscribes to ISO9001 certification with the application of IATF16949 in compliance to the rules set forth by both accreditation of International Accreditation Forum (IAF) and the International Automotive Task Force (IATF). Roadmaps and certifications are available including the scope and locations on Micron's external website: www.micron.com

The scope of Micron's QMS inclusion is as follows:

Micron site locations and products referenced in current certification locations, also summarized in this Micron Product Chain document

All business processes reflected within the QMS Process Relationship map

The needs and requirements of the following interested parties:

-suppliers of technology, key materials, equipment;

-customers and markets including value-added resellers and ecosystem enablers;

-employees including sub-contractors and temporary employees

Control of outsourced QMS processes or activities within those processes (such as manufacturing contractors, portions of development)

Customer specific requirements (CSRs) which have been communicated by customers and accepted by Micron; these are stored in a central database

Legal requirements pertaining to provision of products and services to Micron's customers and operation of manufacturing, delivery, and supporting processes

Policies from corporate responsibility-related processes which pertain to the QMS

5.3. Risk and Opportunity Management

Risk and opportunity management can be likened to the sports analogy of "playing defense" and "playing offense" and within Micron both aspects are considered essential aspects to fulfillment of the business plan.

Opportunity identification, prioritization, promoting actions to increase the likelihood of beneficial outcomes, and capitalizing actions to enhance benefits occur in many ways yet these are most primary:

Business planning activities culminate in an annually revised business plan which establishes objectives and resources towards the fulfillment of market and customer needs through new product and solution development and delivery.

Continual improvement activities aimed at improving operational effectiveness and efficiency, waste elimination and variation reduction in all aspects of the company which include large-scale efforts such as programs, projects, and key initiatives and smaller or incremental efforts such as suggestion programs or tightening of metric targets.

Risk-based thinking ensures that potential negative consequence likelihood and impact is considered during business planning and business process management. Risk identification, prioritization, and action establishment are managed under the guidance of Micron's Global Risk and Resiliency (GRR) team. One of the programs owned by the GRR team is Enterprise Risk Management (ERM) which helps with the management of risks associated with, but not limited to business planning, product nonconformance, and the achievement of customer satisfaction.

Management of risk includes:

- Avoiding risk by not doing activity that gives risk to the risk
- Mitigating risks in changing the probability or consequences
- Taking risk to pursue an opportunity
- Retaining risk by informed decision

Objective evidence on how Micron includes risk-based thinking includes but is not limited to:

- Analysis of the current and forecasted customer satisfaction with inclusion of actions for risk and opportunities
- Evaluating manufacturing feasibility and re-evaluating changes in processes
- Inclusion of the risk-based thinking in the internal audit planning and execution
- Utilization of Failure Mode and Effects Analysis (FMEA) for product and process risks for product design, raw material Incoming Quality Control, manufacturing process, facility infrastructure processes, and product delivery
- Consideration of lessons learned from product recalls, product audits, customer factory and field returns, complaints, scrap, yield loss, and rework
- Establishment of extensive Business Continuity Plan and emergency response plans in place to minimize disruptions to Micron's customers' business and maximize recovery from accidents

The assessment of risk is also applied to outsourced process: the types and extent of control for suppliers, subcontractors, or joint ventures is increased or reduced through monitoring of their performance, assessment of risks, and effectiveness of the action taken to address the risks.

5.4. QMS Communication

Micron considers effective communication a building block for being a successful, collaborative organization. Micron places an emphasis on effective use of electronic media to communicate across the global enterprise per global, site, and department communication plans. The Micron Employee Resource Center (Micron Now) is the primary communication hub with content that is managed both globally and locally for maximum communication effectiveness.

5.5. QMS Processes

A system of processes has been identified to provide products and services that meet and exceed customers' expectations and satisfy international standards for quality system management. A detailed listing of processes, how ISO 9001 and IATF 16949 requirements are applied, and process deployment by site are included in the Micron QMS Process Matrix, which is maintained by Micron Global Quality QMO team.

Key Performance Indicators (KPIs) monitor the efficiency and effectiveness of the overall quality management system. With KPIs, process status can be measured objectively, and a baseline established to pursue continual improvement. In addition to KPIs, numerous process-specific metrics and monitors are used by process owners to analyze aspects of performance that may contribute to these KPIs.

The sequence and interaction of these processes and the top-level interactions of Micron process categories are reported in the Micron Process Relationship Map.

5.6. Management and Employees Responsibilities

Management is responsible for developing, implementing, and improving the QMS. The Quality policy statement, company priorities, and objectives are established, documented, communicated, implemented, and maintained at all levels of the organization. The established objectives are communicated through individual performance and reviewed during employee performance reviews. The importance of meeting all applicable requirements (including customer, regulatory, and legal) through the continual improvement of processes, products, and services is recognized.

Management is responsible for ensuring customer requirements and expectations are fulfilled.

Employees are responsible for the quality of their work and the implementation of the policies and procedures applicable to their job function.

5.7. Management Oriented Processes

Management Oriented Processes (MOPs) are aimed at ensuring that all processes are documented, measured, and reviewed by management teams to ensure alignment to Micron's Key Priorities and Corporate Goals. Management Review

5.7.1. Management Review

Management Reviews are conducted at the corporate and manufacturing sites as part of Micron's quality management system. Management Review requirements are met through a combination of executive-level meetings which are outlined within the Management Review process. Processes for achieving Micron's business plans and priorities are reviewed for efficiency and effectiveness, identifying needed resources, and identifying further opportunities for improvements to the QMS. Inputs and outputs for management review meet QMS requirements and are monitored for compliance.

Appropriate QMS resources are provided to maintain and update the QMS, including involvement in internal and external audits, revisions of Micron's quality manual, improvements of the processes and procedures, and scheduling of team member training.

Reviews are conducted at the manufacturing site levels and at the executive level for headquarters. Within manufacturing sites, management review and operational business planning are combined into a single process. Manufacturing processes and supporting processes shall be reviewed on an annual cadence or more frequent, if needed.

5.7.2. Develop Business Plan

An annual operational business plan is developed to enable execution of Micron's mission and to communicate company priorities to all employees.

Market needs, competition, internal boundary conditions, and long-term strategy are evaluated which results in a plan that is aggressive and achievable.

5.7.3. Manage Quality Audit

Quality audit programs (internal, certification, and customer) are performed to maintain QMS health and to provide Micron and involved parties with deep insights, value, and recommendations for improvement to support overall Company achievement of strategic objectives.

5.8. Customer Oriented Processes (COPs)

Encompass product realization activities and are aimed at ensuring that customer requirements are captured, understood, and translated into product and services as needed by the customer.

5.8.1. Manage Product Lifecycle

Manage Product Lifecycle process AKA PLM is intended to manage an array of competitive products and technologies to enable customer solutions with a profitable portfolio.

The PLM Process is based on a phase-gate approach dividing the product lifecycle into five phases separated by decision point gates. The PLM operating model insures the management of the product portfolio and the performance of the process itself.

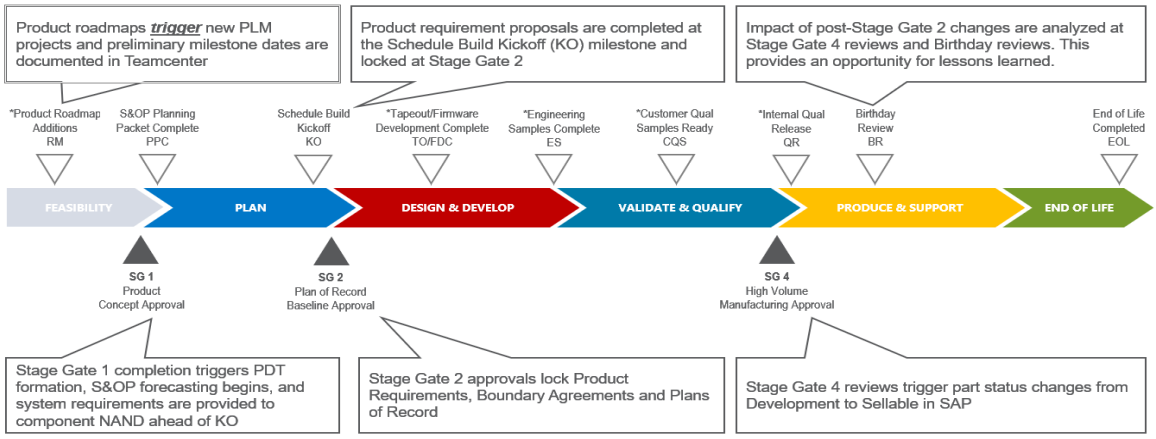


Figure 2. PLM Product Lifecycle.

5.8.1.1. Plan Phase

Finalizes the product plan, specifications, and business value to facilitate the informed decision to commit resources to product design.

5.8.1.2. Design & Develop Phase

Leverages the outputs of the Plan phase to define detailed product plans, drawings, descriptions, and manufacturing/support capabilities necessary to build and evaluate the product.

Evaluates and refines the product and support capabilities to prepare for product qualification. Product is at a quality level to begin qualification.

5.8.1.3. Validate & Qualify Phase

Performs exhaustive evaluation of product operation expected in the product's application. The product is validated against internal and external requirements to ensure that all form, fit, function, quality, and reliability requirements (datasheet) are met for new or significantly changed processes and products. In addition, low volume manufacturing activities are initiated.

5.8.1.4. Produce and Support Phase

Leverages the outputs of Validate phase to manufacture, improve, service, and support the product.

5.8.1.5. End-of-Life Phase

End-of-Life leverages the outputs of the Produce and Support phase to transition the product, all associated resources to build and support the product, and the customers to an end-of-life state.

5.8.1.6. Customer and Enabler/Ecosystem Product Validation

External product validation ensures production volume ramp enablement through successful introduction of products to external customers and the timely resolution of customer prioritized issues.

Field applications engineers are the technical interface to the customer and ensure that a qualification occurs. They also lead customer qualification failure debug and resolution.

5.8.2. Develop Technology

A Stage-Gate methodology (Technode) and business process used by Manufacturing Technical Development organizes technology development programs according to key points in time where decisions to invest additional resources are approved.

TECHNODE applies to all alpha memory and package technologies developed in Manufacturing Technical Development with the intent of qualifying and ramping to volume in production manufacturing.

5.8.3. Develop Integrated Operational Plan

This process describes the planning activities associated with operating a supply chain. Inclusive with this category are forecast demand planning, sales planning, customer support plans, allocation planning, demand planning, and developing the master production schedule.

Activities within these processes include gathering customer requirements, collecting information on available resources, and balancing requirements and resources to determine planned capabilities and resource gaps. This is followed by identifying the actions required to correct any gaps.

5.8.4. Manufacturing Processes

All products manufactured for sale are produced using qualified processes, approved equipment release, certified operators, and controlled specifications.

Methods such as failure mode and effects analysis (FMEA), feasibility reviews, or other risk assessment techniques are used to identify potential risks. Preventive actions designed to address critical risks are included as part of the product and process development plans and are integrated into manufacturing process control systems or into plant layout and construction plans.

No product is manufactured using a nonstandard process without review and release according to established procedures. Rework is prohibited unless specifically allowed by the process instructions when qualified and documented. Product manufactured is uniquely identified through lot tracking systems to prevent mixing.

Production and service processes are identified, planned, and carried out under controlled conditions to ensure the quality of the products and services.

5.8.4.1. Introduce New Products

Supports the introduction of new products into the Manufacturing FE and BE, improving product yield, quality, and reliability in preparation for high volume manufacturing.

Includes all product and process design and development activities that occur post EFF (Engineering Full Flow).

Process changes that are initiated with new product introductions are validated as part of the internal product qualification.

5.8.4.2. Execute Manufacturing

Move work-in-process (WIP) through production tools following the pre-defined traveler-flow, conforming to production procedures, while meeting manufacturing output and quality requirements.

5.8.4.3. Control of Manufacturing

The intent of these processes is to assess, refine, execute and manage risk-based control strategy to improve product quality and achieve customer requirements. The processes allow

us to react to data to ensure that the manufacturing process runs within specified output requirements and that the material disposition occurs according to specifications.

The Production process is validated according to dedicated procedures. A process must be statistically stable and capable of meeting relevant specifications before it is qualified to build saleable products.

All manufacturing process steps (wafer fabrication, probe, component and module assembly, and electrical testing) are shown on the applicable execution system. A lot "traveler" is commonly used to designate the required processing, measuring, monitoring, and inspection steps, as well as the sequence in which they are to be performed. At the completion of the entire process, the lot information file is stored and retained per Micron's retention schedule.

A computerized system for traceability is maintained for all direct materials, work-in process, and finished products at the plant location. This applies to all processes, from wafer start through finished goods.

For a critical process, a supporting control plan is established. Process Capability Values (Cpk) and control limit values influencing the performance and reliability of a product are identified and statistically monitored during production via Statistical Process Control (SPC). These values are established by DOE, FMEA, engineering judgment, and supplier feedback. Control plans are updated when a change impacts product reliability or performance. These changes may include manufacturing process, measurement, logistics, or supply change control plans.

5.8.5. Manage Sales Order

A quote or contract for price and delivery is created after a customer request. The pricing is negotiated by Sales prior to creating a formal price contract. The Business Unit reviews and validates the quote, availability of the product for the customer is verified, and the response of price and delivery is provided to the customer.

5.8.6. Manage Effective Problem Solving

Customer complaints are prioritized based on severity and managed through this process. This process scope also includes internally detected problems which may impact customer delivery or quality, or which are otherwise deemed significant to cost, quality, delivery and other objectives. The process structured the execution of the underlying disciplines (modelled after 8D) used to ensure effective problem solving. Product Returned Material Authorizations (RMAs) for failure analysis, material review board (MRB) activities for evaluating product impacts, and customer communication are all included in the scope of this process.

5.9. Manage Requirements

5.9.1. Manage Customer Requirements

Customer Specific Requirements are items a customer expects from Micron regardless of product, and have an impact to a process or processes within the QMS. The GCSR process governs the capture, analysis, and response to a customer requirement. As well as the storage of response and process impact within an enterprise level process and technology solution.

5.9.2. Manage Product Requirements

Product Specific Requirements are typically documented in a product requirements document that contains all the requirements for a certain product. It is written to allow people to understand *what* a product should do. A product requirements document should, however, generally avoid anticipating or defining *how* the product will do it to later allow designers and engineers to use their expertise to provide the optimal solution to the requirements.

5.10. Manage Warehouse

Intent of the process is to store, handle and manage raw, spares, indirect and direct materials, finished good, and semi-finished goods inventory. Ensure effective disposition to manufacturing for production and support of products, as well as receipt of finished goods for effective customer order fulfillment.

6. Support Oriented Processes

Support Oriented Processes (SOPs): are used to ensure the efficiency of Customer Oriented Processes (COPs).

6.1. Manage Human Resources

Micron's learning and development philosophy addresses both the technical and human sides of doing business. As part of team member development leaders identify the quality-related responsibilities for each team member, define the team member's training needs, and ensure that the team member completes training related to performance of their role.

Micron's learning and development organization consists of several autonomous groups working closely to coordinate efforts and meet the diverse training needs of the company at the corporate, site, and department levels. A wide range of development opportunities are offered which focus on developing the skills necessary for team members to perform their roles well.

Employee satisfaction and engagement is checked annually using Micron's employee satisfaction survey. Individual employee satisfaction is reviewed as part of Micron's performance management system. Local initiatives can be launched to evaluate engagement and satisfaction at the organization level. All results are used to establish improvement plans, as necessary.

Management has the responsibility to review training requirements for personnel as they relate to product quality, to provide training or take other actions to satisfy these needs and ensure that team members can perform at the appropriate level. The learning investment is dedicated to performing a specific task and to develop skills, knowledge, and abilities for future needs. Training shall apply to all team members (operators, technicians, engineers, product design resources, and agency or contract employees).

6.2. Manage Source to Pay

Process intent is to deliver value to Micron by procuring cost-effective goods and services through supplier partnerships using an end-to-end process and leverage best known methods to maintain a

compliant and sustainable supply base, effectively manage supply, and consistently meet quality requirements.

6.3. Manage Information Technology

Information Technology (IT) is responsible for information technology at Micron. This includes everything from computing hardware and software that enables manufacturing lines and office productivity to the network that connects Micron globally.

IS also provides services to support strategies (e.g. business changes, mergers and acquisition, resources), operations (e.g. incidents, knowledge, problems), designs (e.g. asset, project, release), and transitions (configuration, operation changes).

6.4. Maintain Equipment

Micron maintains equipment in a condition to perform its intended function within the standard manufacturing specifications, while maximizing output by managing scheduled and reducing unscheduled downtime. Product-specific tooling is generally required during the production process.

Assumptions are:

- Maintenance Management system may be different site to site and within department,
- Real time monitoring could be Automatic Process Control (APC), Fault Detection Classification (FDC), alarms, and so on,
- The equipment is in steady state,
- Monitoring and continuous improvement can be performed while the equipment is running, and
- Calibration pertains to any test and measurement equipment that can affect product quality, safety, environmental and statutory regulations, and customer requirements.

6.5. Manage Facilities

Each manufacturing site's maintenance group develops and implements an effective preventive maintenance program, using predictive maintenance methods as appropriate.

A cross-functioning team (from Facilities, Operations, Information Systems, and Human Resources) ensures operational quality in plant design and development and defines redundant infrastructure for critical systems to mitigate the impact of unexpected events. Plant layouts are also established to facilitate synchronous material flow.

A suitable working environment, including controlled noise, temperature, and humidity as defined by ISO 14001 standards is maintained through deployment of Micron environmental policy and practices. The environmental policy assists in meeting the ecological and environmental requirements and all corporate standards, considering the most stringent environmental requirements of the countries in which Micron operates. Risks for employees are mitigated and treated by Micron's Health and Safety organization's policy and manual, which describe how Micron complies with relevant international standards. It is the responsibility of each functional area to maintain the cleanliness and good repair of the premises in a manner consistent with process needs.

6.6. Outsourced Processes

Micron identifies the requirement to outsource any process, or part thereof, which affects conformity with the stated requirements. When outsourcing a process, Micron identifies control criteria such as performance specifications, supplier selection criteria, process control monitors, supplier assessments, and supplier performance reviews. The controls identified do not absolve Micron of the responsibility to conform to client, statutory, and regulatory requirements but instead they enhance Micron's capacity to effectively manage its supply chain. The controls adopted are influenced by the potential impact of outsourcing on meeting customer or stakeholder requirements and the degree to which control of the process is shared. All applicable statutory and regulatory requirements and special product and process characteristics are cascaded to suppliers as they apply.

7. Documentation Requirements

7.1. Documentation Structure

The documentation structure for Micron is described in the documentation pyramid:

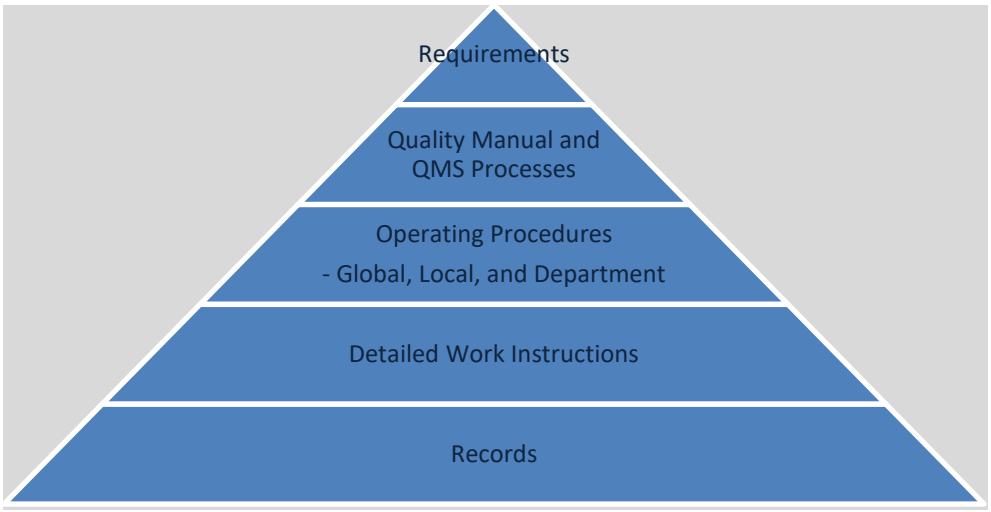


Figure 3. Documentation Pyramid.

Requirements: Micron's structure illustrates how requirements are translated into documented processes, procedures, work instructions, and records. Requirements includes customer, regulatory and statutory sources that are considered in the Documentation Structure defined in the Quality Manual. These requirements are considered within the documentation structure of the company

Global Quality Standards are defined as documents that apply to the company or to Micron's worldwide activities and processes. For instance, policies within the Micron Code of Ethics and Conduct apply to all departments at all sites; whereas a corporate purchasing procedure would apply across all sites, but only to specific functions.

Procedures shall conform to relevant high-level documentation. Site or lower-level procedures may exist to provide additional detail to meet higher-level procedures or requirements.

Local operating procedures are defined as those documents that apply to all departments at a single site, but not multiple sites. Differences in governmental regulation, operating environment, and culture are factors that may preclude a global operating procedure in favor of a local operating procedure.

The Global Quality Standards Template is a recommended template.

7.2. Documented Information

Documented information is supported through document control, records management, and software execution systems. The table below demonstrates how Micron is fulfilling the requirements for documented information:

Table 1
Documented Information References

Documented information to maintain (procedures, documented process) and applicable QMS standards clause	**Internal Reference**
scope (sub-clause 4.3)	Refer to section 5.2 in this quality manual
product safety (sub-clause 4.4.1.2)	Product Safety at Micron
processes (sub-clause 4.4.2 a)	Micron QMS Relationship Map
quality policy (sub-clause 5.2.2 a)	Refer to section 4.2 in this quality manual
quality objectives (sub-clause 6.2.1)	Refer to Corporate Goals section on Micron Now
manage calibration and verification (sub-clause 7.1.5.2.1)	Global Quality Control and Monitoring of Measuring Devices Standard
competence of personnel (sub-clause 7.2.1)	Global Quality Workforce Development Standard
internal auditor competency (sub-clause 7.2.3)	Global Quality Internal Audit Standard Global Quality Product Audit Standard
internal audit (sub-clause 9.2.2.1)	
employee motivation (sub-clause 7.3.2)	Refer to Micron Now section on Incentive Pay Plans (IPP), employee suggestion programs, good catch program, and innovation incentivization (Micron Now, spot lights and patent award programs). See also Success Factors (SF) system modules including team member

	Performance, Career, and Learning management.
engineering specifications (sub-clause 7.5.3.2.2)	Refer to Requirements Management process and Customer Request management activities
operational control (sub-clause 8.1)	Global Quality FMEA and Control Plan Business Rules Standard Global Quality GSPEC Standard Global Quality ESD Control Program Standard In addition, a variety of instructions, forms are provided to production personnel to clearly define processing and process monitoring requirements for product characteristics.
design and development (sub-clause 8.3.1.1)	Refer to Product Life Cycle (PLM) processes for Product Development and Technode processes for Development of Manufacturing Technology
external provider selection (sub-clause 8.4.1.2)	Refer to Supplier Selection Guidelines
outsourced processes (sub-clause 8.4.2.1)	Refer to Micron's Supplier Quality Requirements Document (SQRD) and Global Subcon Manufacturing Quality Requirements Specification
statutory and regulatory requirements (sub-clause 8.4.2.2)	Refer to the Requirements Management process
external provider performance (sub-clause 8.4.2.4)	Refer to Global Supplier Performance Reporting Procedure
job set-ups status (sub-clause 8.5.1.3)	Job set-up requirements are defined within each equipment operating procedures and records of status and history are maintained within the Equipment Tracking (ET) system.
TPM system (sub-clause 8.5.1.5)	The Maintain Equipment process KPIs define maintenance objectives. Preventive and predictive maintenance requirements are defined within equipment standard operating procedures. Software systems

	such as BOM, MATREQ, and SAP control availability of replacement parts.
identification and traceability (sub-clause 8.5.2.1)	Identification and traceability requirements are applied to the Control Manufacturing process and supported by information and records within MES, MAM and SAP execution tracking systems.
feedback (sub-clause 8.5.5.1)	Refer to the Manage RMA process
control of changes (sub-clause 8.5.6.1)	Global Quality Change Control Standard
manage alternative methods (sub-clause 8.5.6.1.1)	Global Quality Change Control Standard
reworked product (sub-clause 8.7.1.4)	Global Quality Nonconforming Product Standard
repairs (sub-clause 8.7.1.5)	
nonconforming product disposition (sub-clause 8.7.1.7)	
problem solving (sub-clause 10.2.3)	Global Quality 8D Process Standard
error-proofing devices (sub-clause 10.2.4)	Global Error-Proofing Standard
continual improvement (sub-clause 10.3.1)	Global Continual Improvement Standard

8. Revision History

Table 2
Revision History

See Control Information on Page 1 for information about the current revision.

Revision	Date	Revision Description	Originator
1-2	Mar–Aug 2011	Draft versions of a combined MU and ex-Numonyx	Flavia Redaelli
3	Oct 2011	Final edited version sent via workflow of manual	Flavia Redaelli
4	Mar 2012	Revised QMS process relationship and descriptions	Jim Nuxoll
5-29	4-May-12	For previous revision history reference document version history.	Jerry Corts
30	4-May-12	Document was converted to a new template	Jerry Corts
31	4-May-12	Admin changes – no content revisions	Jerry Corts

Revision	Date	Revision Description	Originator
32	8-May-12	Updated with references to revised QMS processes.	Jerry Corts
33	8-May-12	Admin changes – no content revisions	Jerry Corts
34	30-May-12	Admin changes – no content revisions	Jerry Corts
35	13-Aug-12	Admin change to correct spelling error.	Jerry Corts
36	20-Sept-13	See attached list of changes.  QM changes.xlsx	CQMS
37	14-Jul-14	Updated Fig. 4. in Section 5.6.1.	George Langer
38	16-Jul-14	Admin changes – no content revisions	pcampbell
39	11-Feb-15	Complete revision from clause-based to process based content format. ECN #300840237	jbcorts
40	23-Feb-15	Corrected minor typo errors	jbcorts
41	9-Apr-15	Corrected typo in vision statement	jbcorts
42	22-Apr-15	Updated changes to executive org. chart	jbcorts
43	5-Jun-2015	Added reference link to the web version of manual.	jbcorts
44	16-Jun-15	Revision Description: Modifications required to align with web version to assure both are in harmony Detailed changes can be found: July 16 revisions	jbcorts
45	18-Aug-15	Removed exec endorsement	jbcorts
46	17-Sept-15	Removed reference to VP on Org Chart	Jbcorts

Revision	Date	Revision Description	Originator
47	8-Feb-16	300886708 ● Section 4 - Updated Micron Organization Chart. Subject to change - Org structure currently under review. ● Section 5 - New company top level QMS relationship map. Removed Continual Improvement, Quality Audit and Manage Facilities processes at the top level. ● Section 5.1.2 - ▪ Was: Quality Management Review ▪ Is: Management Review ● Section 5.1.3 - Removed link for Continual Improvement Process. Continual improvement is part of PDCA at each process and not at the enterprise level. ● Removed section 5.2.1.7 Develop Silicon Technology. Created section 5.2.2 Develop Silicon and Package Technology.	Avi Bruchim
48	11-Mar-16	Admin Only - Corrected typos on Mission and Statement heading.	abruchim
49	29-Sept-16	300914694 Click here for a detailed list of changes.	sberggren
50	11-Oct-16	Admin Only – Remove Quality 1st image from header, this is being phased out.	pcampbell
54	10/4/2019	Updates include refresh of department descriptions, updating regulatory and statutory requirements for different sections. Added 5.9, 5.10, and rewrote 6.2.	abruchim
ECN History			