

PCB Piezotronics, Inc.

3425 Walden Avenue
Depew, NY 14043-2495

Quality Management System Policy Manual

**Documentation
Level: I**

Copy Number: _____

“Total Customer Satisfaction”

Quality Management System Policy Manual

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**Quality Management System
Policy Manual**

Information:

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Issuer:



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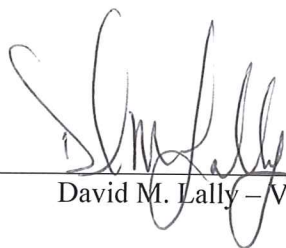
Organization:

PCB Piezotronics, Inc.
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Depew, New York 14043-2495
USA


PCB Piezotronics of North Carolina, Inc.
10869 Highway 903
Halifax, North Carolina 27839
USA

Industry Codes: S.I.C: 3679 N.A.I.C.S: 334419

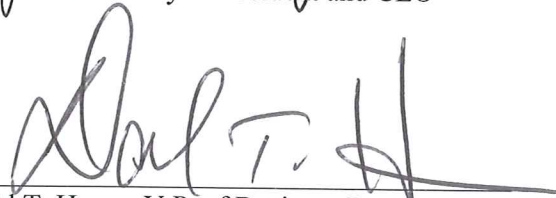
Approved by: Executive Management Team



David M. Lally – V.P. of Engineering



John A. Lally – President and CEO



David T. Hore – V.P. of Business Development

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Corporate Profile

OVERVIEW:

Incorporated in the State of New York, PCB Piezotronics, Inc. is a privately-owned, high-technology company specializing in the marketing, development and production of piezoelectric, capacitive, silicon and resistive-based instrumentation for measuring pressure, force, torque, load, shock, sound and vibration. These sensors and associated hardware are used for a wide variety of industrial, research, university, aerospace and military applications, ranging from the characterization of underwater blast wave propagation to monitoring micro-g vibrations on the solar panels of orbiting satellites. In essence, any structure that vibrates, pulsates, moves, compresses, surges or makes noise has the potential to be monitored by this instrumentation.

Founded in 1967, PCB has a rich history and has been responsible for many of the technological breakthroughs in the sensor industry. Perhaps the most noteworthy is the development of integral-electronic piezoelectric sensors. This technology has been directly responsible for lowering the cost per measurement channel, simplifying test methodology and greatly improving sensor performance. Today, PCB is recognized as the world's leading manufacturer of ICP[®] (Integrated-Circuit-Piezoelectric) sensors. In fact, most manufacturers of data acquisition and readout equipment now incorporate this constant-current excitation for direct connection to these sensors.

In order to remain successful and support the wide variety of test requirements, PCB prides itself on its commitment to "Total Customer Satisfaction" by extensive reinvestment in experienced personnel and automated equipment. Located on the western edge of New York State, the 160,000 sq. ft. (14865 sq. m.) Headquarters and technology center houses the necessary personnel and resources for marketing, sales, engineering, production and testing of the entire product line. Two additional facilities located in Provo, Utah (providing production for PCB's Larson Davis Division), and outside of Raleigh Durham, North Carolina (operated by PCB's wholly-owned subsidiary, PCB Piezotronics of North Carolina, Inc.) also accommodate necessary personnel and resources for production and testing to help meet the growing demand for our Sound and Vibration sensors and equipment. All processes are performed under approved and certified quality systems in accordance with International Quality Standards outlined under the Quality Section of this profile. It is our firm belief that this extensive investment allows for control over the entire product development cycle and provides for systems that can accurately, quickly and efficiently handle customer inquiries, delivery requirements, product quality and unique sensor customization situations.

To effectively service the various market segments, focused Divisions and corresponding Technology Centers have been established containing dedicated sales, engineering and production personnel that are supported by the main PCB infrastructure. All divisions comply with the rules and regulations of PCB Piezotronics, Inc. certified and accredited quality management systems.

These divisions include:

Test and Measurement - Accelerometers, Force & Torque, Pressure, Electronics, Cables, Microphones.
Automotive – Standard and Custom Designs.
Aerospace and Defense - Standard and Custom Designs.
Industrial Monitoring Instrumentation - Standard and Custom Designs.
Larson Davis - Sound Level Meters, Acoustic Analyzers.

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CORPORATE AFFILIATION:

PCB Piezotronics, Inc. is a wholly-owned subsidiary of PCB Group, Inc., a privately owned New York corporation. In addition to PCB Piezotronics, PCB Group, Inc. holds ownership positions in the following wholly-owned subsidiaries: (1) The Modal Shop, Inc. incorporated in Ohio; (2) STI Technologies, Inc. incorporated in New York; (3) PCB Piezotronics of North Carolina, Inc., a Delaware corporation, and (4) PCB Load and Torque, Inc., a Michigan corporation. PCB Group, Inc. files consolidated financial statements and acts as the management vehicle for the affiliate organizations.

Maintaining a close technical relationship with the University of Cincinnati – Structural Dynamics Research Laboratory, The Modal Shop, Inc. (TMS) was established in 1991. TMS specializes in consulting services as well as the rental and sale of sensors, calibration systems and associated hardware targeted for the structural analysis and acoustic marketplaces. STI, along with its affiliated companies are known collectively as SimuTech Group, provides analytical solutions for turbines and other high speed rotating machinery. STI's wholly and partially owned subsidiaries include JLR The Engineering Solutions Company, Ohio Computer Aided Engineering, Inc. and ROI Engineering, Inc.. The SimuTech Group companies also act as distributors for ANSYS, a well-known Finite Element Analysis software package. PCB Load and Torque, Inc. is a manufacturer and supplier of load cells, torque transducers, wheel force transducers, and fastening/assembly test equipment to the Automotive, Aerospace, Power Tool, and Heavy Equipment industries.

BUSINESS CLASSIFICATION AND STATEMENTS OF COMPLIANCE:

PCB Piezotronics, Inc. complies and/or can be identified according to the following characteristics:

- 1) is a large business, which currently employs approximately 645 people, and when combined with other PCB Group affiliated companies, employs approximately 900 people.
- 2) is a privately owned, manufacturing company with headquarters incorporated in the State of New York.
- 3) is an equal opportunity employer that posts EEO notices in our non-segregated facilities and annually files EEO-1 reports
- 4) has developed an affirmative action program.
- 5) complies with all requirements associated with Clean Air and Water Certification.
- 6) has never been on the EPA List of Violating Facilities.
- 7) meets all local, State and Federal environmental laws and regulations per facility locations.
- 8) is entirely US owned and operated.
- 9) operates a drug-free workplace.
- 10) is not located in a Labor Surplus Area.
- 11) has not used federally appropriated funds for the purpose of influencing any government employee.
- 12) has not provided, attempted to provide, offered, solicited or accepted any kickback.
- 13) is not currently and has never been debarred, suspended, proposed for debarment or declared ineligible for award of public contracts or grants by any federal agency.
- 14) has not been convicted of or had a judgment rendered against it or been indicted for commission of fraud or criminal offense connected with a public contract or violation of federal or state antitrust statutes or similar criminal offenses.
- 15) has never defaulted on any public contract, grant or loan.
- 16) prices its products independently without agreement with any other offeror or competitor of a public solicitation.
- 17) does not use in any process or manufacture any products, which contain ozone-depleting substances as identified by state requirements per facility locations.
- 18) is an open shop with no union affiliations.
- 19) complies with all applicable OSHA regulations per facility locations.

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INTERNAL STRUCTURE:

PCB has implemented integrated facilities, which includes most steps from initial sale to product shipment. This continuous reinvestment into facilities and equipment provides a high degree of self-sufficiency and offers flexible manufacturing, fast prototyping and customization services to meet developmental needs. Following is a detailed description of PCB's equipment and facilities.

Sales and Marketing: The sales and marketing staff has over 115 full time employees dedicated to sales and customer service: approximately 60 in Domestic Sales, 35 in International Sales, 15 for Marketing and 5 additional support personnel. Their efforts are supported by an extensive network of direct sales offices, which can be found in the USA as well as in Germany, France, Italy, United Kingdom, Japan, China and Sweden. PCB's extensive sales and distribution network includes approximately 19 domestic sales representatives along with 54 distributors in International markets providing additional support. This combined sales force serves as an efficient vehicle for supporting existing products as well as for bringing new technology to the market. Currently, PCB Piezotronics realizes approximately 55% of its annual sales volume in the USA.

Engineering: The engineering staff consists of over 90 full-time engineers and 15 support personnel. Approximately 20 of the engineers and 5 support personnel are dedicated full-time to R&D of new technologies, while the remaining personnel work on designing custom application solutions or manufacturing continuous improvement. All personnel rely heavily on tools such as Design for Six Sigma (DFSS), Design or Process Failure Mode and Effects Analysis (D/P-FMEA), Design of Experiments (DOE), Finite Element Analysis (FEA) and Circuit Simulations, to rapidly evaluate and diagnose complex electrical, mechanical and electromechanical designs. In addition, CAD/CAM tools allow accurate documentation and quick prototyping. Automated test equipment, environmental chambers, analyzers, digital oscilloscopes, shakers, shock tubes and other similar test equipment allow engineers to fully evaluate and test devices under a range of operating conditions.

Manufacturing: Utilizing approximately 2/3 of individual facilities and typically operating at 50% capacity, exceptional capability exists in transducer and signal conditioner manufacturing. Three production shifts, totaling approximately 400 personnel, utilize highly sophisticated, computer controlled, automated machining equipment, including CNC mills, dual-spindle lathes, swiss-style screw machines, punch presses, wire EDM's, and lapping wheels. In addition to the primary production operations, ten tool room lathes are dedicated to small quantity runs for prototypes and customer specials. Approximately 150,000 precision-machined parts are produced each month by our Machining Department. Automatic wirebonders, pick-and-place machines and laminar flow clean benches are used for fabricating the miniaturized electronic circuits, which are incorporated into most of the sensors. Other manufacturing capabilities include: laser welding, laser marking, grinding, sandblasting, wave soldering, hermetic connector and crystal manufacturing. Final products are tested under a variety of conditions using automated calibration workstations accredited to ISO17025, which utilize NIST and/or European PTB traceable standards.

Administration / Support: Approximately 50 personnel are utilized for various administrative and support functions, which include human resources, purchasing, accounting, information technology, legal, maintenance and shipping/receiving.

Each employee's job responsibilities and work instructions define the methods by which they support the customer's needs, their direct supervisor and/or Management Team member supports each employee.

Executive Management Team
President and CEO - John A. Lally
VP of Engineering - David M. Lally
VP of Business Development - David T. Hore

Management Team
(Vice Presidents, Officers, Directors and Managers directly reporting to the Executive Management Team.)

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QUALITY:

Headquarters facility located at 3425 Walden Avenue, Depew, New York:

The quality assurance system is certified to the International Quality Standards ISO9001 and AS9100 (See Appendix section of this Quality Policy Manual for all current facility certifications). These standards provide a model for aerospace quality assurance in design, development, production, installation and servicing. Compliance with all applicable processes and procedures is mandatory for all personnel. PCB is accredited to ISO17025 by The American Association for Laboratory Accreditation (A2LA). ATEX Production Quality Assurance Notification issued by KEMA for Directive 94/9/EC and EN13980 specification; IECEx Quality Assessment Report issued by CSA International for Ex/OD005 Scheme.

In addition, the facility complies with ISO10012; ANSI-Z540.3, former MIL-STD-45662A; MIL-Q-9858 and MIL-I-45208. Is a commercial-grade supplier to the Nuclear Power industry in accordance with applicable requirements of 10CFR50 Appendix B and reporting requirements of 10CFR21, and has implemented system requirements providing customers with products compliant to Directives 2002/95/EC and 2002/96/EC regarding use of hazardous substances and their disposal. Product Manufacturing Approval (PMA) realized will be in accordance with 14CFR21 and Authorized Repair Station requirements 14CFR145. All calibration standards used within the facility are traceable, at a minimum, to NIST and/or the European PTB Standards Organization.

The Quality Assurance Manager and ISO Management Representative: David J. Dulanski, reports to the TCS Manager and Vice-President of Engineering.

Facility located at 10869 Highway 903, Halifax, North Carolina:

The quality assurance system is certified to the International Quality Standard ISO-9001 and AS9100 excluding clause 7.2 Customer-Related Processes and 7.3 Design and Development (See Appendix section of this Quality Policy Manual for all current facility certifications). These processes are conducted only at the headquarters facility in New York providing justification for exclusion in North Carolina. These standards provide a model for quality assurance in design, development, production, installation and servicing. Compliance with all applicable processes and procedures is mandatory for all personnel. The facility is accredited to ISO17025 by The American Association for Laboratory Accreditation (A2LA). ATEX Production Quality Assurance Notification issued by KEMA for Directive 94/9/EC and EN13980 specification; IECEx Quality Assessment Report issued by CSA International for Ex/OD005 Scheme.

In addition, the facility complies with ISO-10012; ANSI-Z540.3, former MIL-STD-45662A; MIL-I-45208. Is a commercial-grade supplier to the Nuclear Power industry in accordance with applicable requirements of 10CFR50 Appendix B and reporting requirements of 10CFR21, and has implemented system requirements providing customers with products compliant to Directives 2002/95/EC and 2002/96/EC regarding use of hazardous substances and their disposal. All calibration standards used within the facility are traceable, at a minimum, to NIST or the European PTB Standards Organization.

The Quality Assurance Manager and ISO Management Representative: David J. Dulanski, reports to the TCS Manager and Vice-President of Engineering.

FINANCIAL:

Fiscal year is January 1 to December 31. PCB will provide additional corporate financial, financial institution and/or business references only in response to qualified requests on company letterhead. A partial higher-level customer list is provided below.

Federal Taxpayer Identification Number:

PCB Piezotronics, Inc.: 16-1503703
PCB Piezotronics of North Carolina, Inc.: 20-2128287
PCB Group: 16-0926514

Duns Number: 04-256-8774

GENERAL:

Cage Code: 52681

Congressional District: 26

Normal Payment Terms: Net 30 with Ex-Works Point of Shipment (PCB facility)

Internet Address: www.pcb.com

E-Mail Address: firstinitiallastname@pcb.com

Quality System Manual Level: I Revision: H Revision Date: 03/07/2012

Quality Management System Policy Manual

Introduction:

This quality process manual describes PCB Piezotronics, Inc. quality management system, the processes involved in the operation of our quality management system, the interaction of these processes within the system, and our established policies as they relate to applicable Quality Management System standard(s) Requirements.

The interaction of processes have been defined to demonstrate how a change in one process may have an impact on another process that in the long term could result in sub-optimization within our organization. Our quality management system is focused on process management and we have identified critical core processes and support processes and have determined how to monitor and measure these processes. Review of data from these measurements enables us to make informed decisions on correcting and preventing nonconformities and provides opportunities for continual improvement of the quality management system.

Scope:

Due to the nature of our business, this Quality Policy Manual addresses our entire quality management system and the applicable requirements of AS9100, ISO9001, Directive 94/9/EC (ATEX): EN13980, Ex/OD005 (IECEX Scheme), ISO17025 and associated standards ANSI-Z540-3 and ISO10012. PCB Piezotronics, Inc. does not have any exclusion statements applicable to the standards identified above for the New York state headquarters located at 3425 Walden Avenue.

The Halifax North Carolina facility located at 10869 Highway 903 does exclude AS9100 clause 7.2 Customer-Related Processes and 7.3 Design and Development (see page 6 for details). Those requirements not addressed in this manual are covered in related supporting procedures.

The ISO-17025 portion of our quality management system provides calibrations performed using processes having a test uncertainty ratio (TUR) of four or more times greater than the unit calibrated, unless otherwise noted on the calibration certificate. Calibration at 4:1 TUR provides reasonable confidence that the instrument is within product specifications.

Documentation Structure of the Quality Management System:

The quality management system of PCB Piezotronics, Inc. is documented in the following manner. Access to this documentation is made available to all employees at all facilities involved in operations essential to the effective functioning of the system.

- 1. Level I:** The quality management system (QSM) policy manual is considered the top-level document of PCB Piezotronics, Inc. quality management system. The manual defines our quality policy and objectives; top management's commitment to quality and the identification of our processes and their owner's. The manual is revised accordingly to keep it up to date with our processes as they are continually improved upon. Policy manual revisions are maintained by a document control system. Obsolete or superseded printed controlled copies of this document are retrieved and destroyed. Current uncontrolled copies are available from the ISO management representative upon request. A cross-referencing system identifies the level II supporting procedures that are linked to the related processes identified in this manual. The Quality Assurance Manager / ISO Management Representative controls and maintains this document.
- 2. Level II:** The quality assurance manual (QAM) level II procedures, process maps and flow charts define the primary responsibilities within each of the documented processes. This company wide documentation supports and links the policies established in this policy manual to the level III documentation. Control of this documentation is maintained by the Quality Assurance Manager / ISO Management Representative.
- 3. Level III:** The departmental level III procedure manuals support the level II quality assurance procedures, process maps and flow charts. This is required for consistently performing the execution of specific tasks on a routine bases. A Level III document contains forms with instructions, quality system records requirements and may be in the form of text document, drawing, shop router (traveler) or other means of ensuring consistent communication of information necessary for performing procedural tasks. Process owners, delegated document custodians and administrators, are responsible for creating, coordinating, maintaining and improving these procedures and user guides. Level of detail is commensurate with the complexity of the task.

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Quality Policy:

The PCB Executive Management Team has selected the following statement to convey the PCB Quality Policy:

“It is the policy of PCB Piezotronics, Inc. to do whatever is necessary to realize our vision of TOTAL CUSTOMER SATISFACTION. We have selected the expression TOTAL CUSTOMER SATISFACTION in order to communicate this policy. Our quality management system Policy Deployment metrics ensure the goal and vision of TOTAL CUSTOMER SATISFACTION is consistently achieved.”

The Executive Management, and Management Team, is dedicated and committed to continual improvement of the corporate quality objectives identified in Policy Deployment. The Policy Deployment main or “primal” quality objectives are:

- Bookings
- Shipments
- Inventory
- Gross Margin
- Delivery to Promised Date
- Delivery to Requested Date
- Quality at the Customer
- In-House Quality
- Scrap and Rework as % of COGS

The Management Team(s) conduct Management Review of the PCB Quality System on a quarterly basis. These reviews include, at a minimum, Policy Deployment primal objectives (listed above), the results of internal and external audits, customer complaints and feedback, process and product conformity, recommendations for improvements, corrective and preventive actions, matters arising from previous reviews, review of explosive atmospheres and aerospace product programs, review of calibration service programs, and status of personnel training. Supporting records for these criteria are incorporated into the Policy Deployment Status Spreadsheets. We trust that these items satisfy both our internal needs and the expectations of our customers.

In an effort to reach our goal of TOTAL CUSTOMER SATISFACTION, if at any time, any of the requirements of the PCB Quality System cannot be conducted, the Management Team will determine the appropriate effective action that will best serve our customer’s needs.

All PCB personnel are required to understand our goal of TOTAL CUSTOMER SATISFACTION, to familiarize themselves with the quality documentation, and to follow the policies and procedures applicable to their work.

In addition to this general PCB Quality Policy for both manufacturing and service activities, the Management Team is committed to good professional practice and quality of calibration service for our clients. To this end, PCB’s calibration activities shall maintain accreditation with ISO17025, ISO10012 and ANSI-Z540-1.

Mission Statement:

The Management Team has published the following mission statement. The quality policy, policy deployment objectives and this statement combine to form the basis for our company.

“Helping You Make Better Measurements With Quality, Innovative Instruments.”

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Organization Structure:

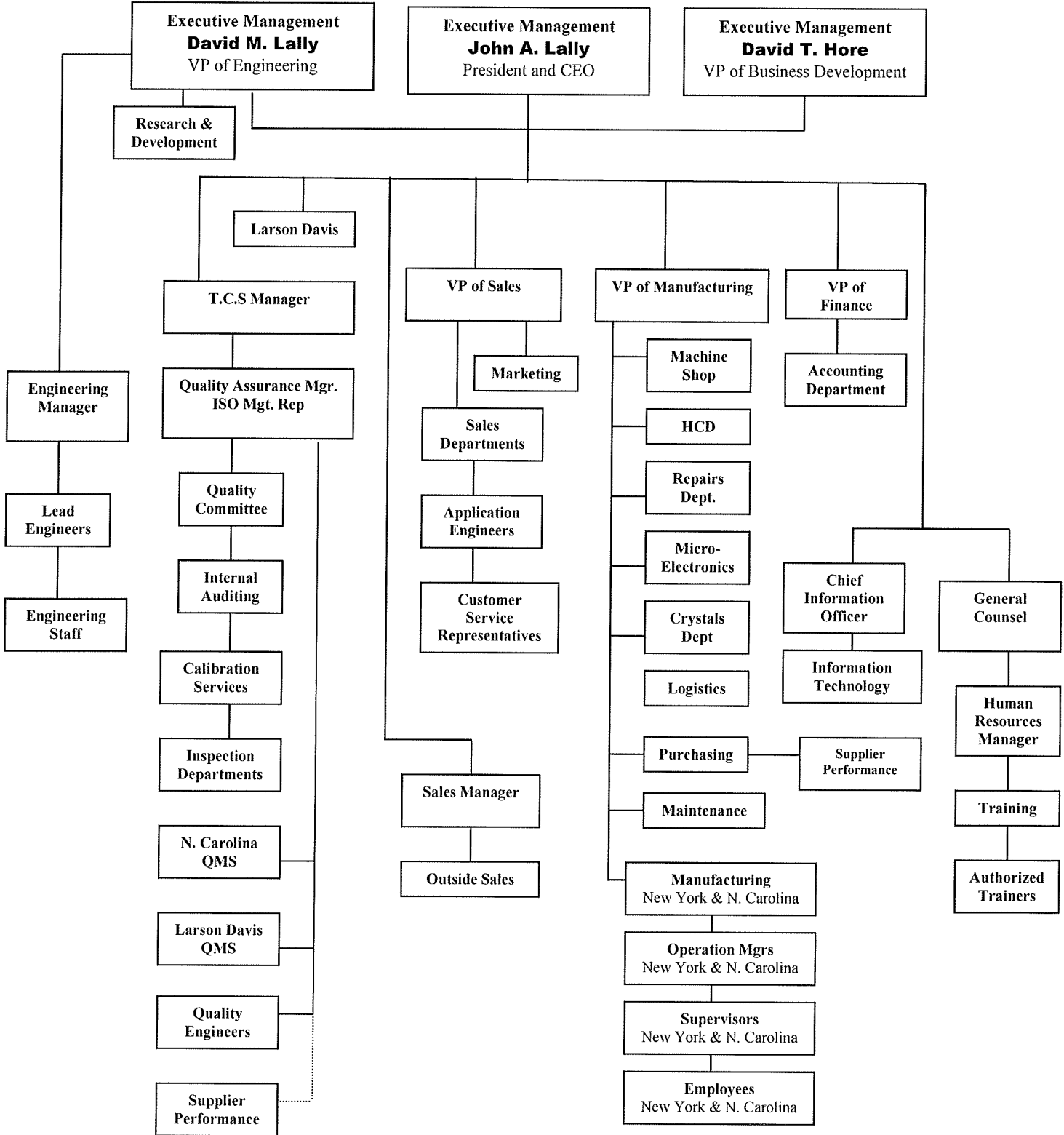
Key components of the PCB organization are defined as follows:

- **Executive Management:** VP of Engineering, President, VP of Business Development.
- **Management Team:** Vice Presidents, Officers, Directors, Managers and General Counsel directly reporting to the Executive Management Team.
- **Technology Centers:** Accelerometers, Microphones, Pressure/Force/Torque, Electronic Products, EMIT (Engineering Margin Improvement Team), North Carolina Operations and Utah Operations.
- **Divisions:** Test and Measurement, Automotive, Aerospace and Defense, Industrial Monitoring Instrumentation and Larson Davis.
- **Internal Suppliers:** Microelectronics, Machine Shop, Hermetic Connectors, Crystal Manufacturing, Repairs Department, Welding and Etching.
- **Functional Support Groups:** Drafting, Logistics, Marketing, Maintenance, Quality Assurance, Purchasing/Planning/Inventory, Information Technology, Human Resources, R & D, Finance, and Legal.
- **Quality Committee, Internal Auditors, Authorized Trainers, Material Review Board, Document Administrators, Special Process Approval Authorities.**

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PCB Piezotronics, Inc.

Organization Structure:



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Quality Management System Development:

The approach used to develop, implement and maintain our quality management system is influenced by various factors. We have determined the needs and expectations of our customers, interested parties, suppliers, our community, and our employees and have established a quality policy and objectives for our organization. We have identified our processes and responsibilities necessary to achieve our quality objectives. These processes have documented procedures that define the process owner(s) and related responsibilities. The process owners are responsible for ensuring supporting process instructions and user guides are properly documented, coordinated, and maintained.

Resources necessary for each functional area are identified for review by top management. Top management dispositions the resource requirement according to the impact on the quality management system.

Each Process owner is responsible for establishing methods to measure the efficiency and effectiveness of their processes and any related sub-processes. The results of these measurements are subject for review by top management during management review. The process owner is responsible for utilizing process measurements for preventing nonconformities and eliminating their causes and for identifying root causes of existing nonconformities and implementing corrective action. All process owners are responsible for establishing and implementing our organizational approach to continual improvement. Continual improvement is defined as recurring activity to increase our ability to fulfill requirements more efficiently.

Continual Improvement:

Continual improvement activity is used to increase our ability to meet customer requirements and our corporate objectives. Two fundamental ways continual improvement is conducted is by breakthrough projects leading to revision of existing processes resulting in significant cost savings, and/or ongoing improvement activities conducted within existing processes by process owners. These improvements are usually based on the analysis of data provided by the specific process measurements.

Basic actions for continual improvement are outlined in the following steps:

- Identifying areas for improvement by reviewing process data, interviewing people performing the process and possibly benchmarking activities.
- Establishing improvement objectives and determining if the improvement provides cost savings, eliminates a production problem, enhances compliance with customer requirements or improves our quality management system.
- Providing possible solutions to the established objectives.
- Reviewing possible solutions to determine that the desired outcome is achievable.
- Implementing the recommended change and training employees accordingly.
- Verifying the implemented changes to determine if the improvement has achieved planned results. If not then return to the beginning of the continual improvement process.
- When the implemented changes are determined to be effective, the changes are formalized, documents updated, related processes are reviewed to determine impact, and employees are trained on the revised process.

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Identification of Level II Process Procedures

Level II & AS9100 Reference

Procedure Title

QAM section 4 – 4.1	Quality Management System
QAM section 4.2 – 4.2.2	Quality System Documentation
QA01 & QAM section 4.2.3	Document Control
QA11 section 4.2.4	Records Control
QA02 section 5 – 5.6	Management Responsibility
QAM section 6 – 6.1	Resource Provisioning
QAM section 6.2	Human Resources
QAM section 6.3 – 6.4	Infrastructure and Work Environment
QAM section 7 – 7.1	Planning of Product Realization
QAM section 7.2	Customer Related
QAM section 7.3	Design and Development
PD02 section 7.4	Purchasing
QAM section 7.5	Production and Service Provision
QAM section 7.6	Control of Monitoring and Measuring Devices
QAM section 8 – 8.1	Measurement, Analysis and Improvement Planning
QAM section 8.2 – 8.2.1	Customer Satisfaction
QA03 section 8.2.2	Internal Auditing
QAM section 8.2.3	Process Monitoring and Measurement
QAM section 8.2.4	Product Monitoring and Measurement
QAM section 8.3	Control of Nonconforming Product
QAM section 8.4	Analysis of Data
QAM section 8.5.1	Continual Improvement
QAM section 8.5.2	Corrective Action
QAM section 8.5.3	Preventive Action

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4. Quality Management System

PCB Piezotronics, Inc. Executive Management has adopted a process management approach for operation and has established a customer-oriented environment of systems and processes that are continually improved upon for effectiveness and efficiency. Policy Deployment metrics and corresponding data are used to determine the satisfactory performance of our quality management system.

4.1 General Requirements

Responsibility: Management Teams.

PCB Piezotronics, Inc. has established, documented, implemented, maintains and continually improves a quality management system that meets the requirements of AS9100 and/or ISO9001 Quality Management Systems Requirements and, where applicable, ensures compliance of product with the type described in the EC type-examination certificates. This has been accomplished by identifying processes needed for the quality management system, their application, sequence and interaction throughout the organization. Our processes have defined criteria and methods to ensure effective operation and control. Top management ensures all processes have adequate resources and information availability for supporting operations. All process metrics are analyzed to determine action plans that ensure the operations achieve planned results and identify areas for continual improvement. All identified processes are managed in accordance with the requirements of these standards.

4.2 Documentation Requirements

Responsibility: ISO Management Representative and Management Team.

Quality Management System documentation includes this Quality Policy Manual which states our Quality Policy and Quality Objectives, procedures required by the AS9100 and/or ISO 9001 Standards, any additional customer quality requirements, applicable statutory and/or regulatory authority requirements, additional documents needed to ensure consistent and effective planning, operation and control of processes, and the associated records demonstrating objective evidence of our Quality Management System. All PCB Piezotronics, Inc. personnel have access to system documentation and are trained in relevant lower level procedures. Documentation is available to customers and/or regulatory authorities through subsequent control structures.

Our Quality Policy Manual includes the scope of the Quality Management System and defines any exclusion to standards in the Scope portion of this manual on page 7. All supporting lower level procedures and user guides are directly related to specific requirements of the governing International Standards through the clausal structure of system manuals. Identified processes are briefly described indicating how they are measured, linked to each other, their responsible individuals and the Level II documents of support.

PCB Piezotronics, Inc. has documented procedures defining the controls over internal and external documents and data that relate to our Quality Management System. These controls include the review, approval, prompt revision issuance and obsolescence, and availability at point of use. Documents are readily identifiable, legible, retrievable and obsolete documents are suitably identified if retained for any purpose. Document revisions are coordinated with customers and/or statutory/regulatory authorities per contractual requirements.

Records control is established and maintained to provide evidence of conformity to requirements and of the effective operation of the Quality Management System. Documented procedures exist defining the controls needed for identification, storage, protection, retrieval, retention time and disposition of legible and retrievable records. Control procedures exist governing records that are created by and/or retained by suppliers when required by customer contract. Records are available for review by customers and/or statutory/regulatory authorities per contractual requirements.

5. Management Responsibility

The basis of our Quality Management System is leadership, commitment and involvement of our Executive Management. Executive Management established vision, policies and strategic objectives promotes continuous improvement and ensures the effectiveness of our Quality Management System while creating an environment that encourages involvement and development of employees.

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5.1 Management Commitment

Responsibility: Executive Management.

The Executive Management of PCB Piezotronics, Inc. is committed to the development, implementation and continual improvement of our Quality Management System. This commitment is provided by: communicating to the organization the importance of meeting all customer, statutory and regulatory requirements; the establishment of our quality policy and quality objectives; reviewing and ensuring resource requirements necessary to meet customer and product requirements; and by conducting management reviews at defined intervals to ensure the effectiveness and efficiency of the Quality Management System.

5.2 Customer Focus

Responsibility: Executive Management.

Executive Management ensures that all customer requirements are determined and met with the main focus of improving customer satisfaction. This is accomplished by identifying, understanding and satisfying current and future needs and expectations of our customers. These needs and expectations are communicated and translated throughout the organization into improving the processes used to realize customer product and services. Executive Management conducts appropriate action in the event Quality Objective(s) performance is not achieved.

5.3 Quality Policy

Responsibility: Executive Management.

The Executive Management has defined a Quality Policy that is appropriate to the purpose of our organization and includes a commitment to continuous improvement. The Quality Policy addresses our commitment to comply with customer requirements and is communicated and understood throughout the organization. The Quality Policy is reviewed for continuing suitability during management review and all Department Managers are responsible for communicating how the Quality Policy applies to each employee's specific function. The Quality policy is the basis for creating our organizational Quality Objectives and each area creates goals relevant to the support of these objectives.

5.4 Planning

Responsibility: Executive Management.

Executive Management has defined quality objectives, including those needed to meet requirements for product, that are established at relevant functions and levels within the organization. These objectives are measurable, tracked, and reviewed during our management review activities. Executive Management plans the quality management system in order to define objectives and requirements. When system revisions are proposed or implemented to the quality management system, the advance planning ensures the integrity of the system is maintained.

5.5 Responsibility, Authority and Communication

Responsibility: Executive Management.

Executive Management defines and communicates the responsibilities and authorities necessary to implement, maintain and improve the effectiveness of the quality management system. Organization charts indicate interrelations of the corporate functions; this quality policy manual shows management responsibilities and related procedures identify corresponding authorities within the quality management system.

Management has appointed a management representative with complete organizational freedom to resolve all matters pertaining to quality. Irrespective of other responsibilities, this representative has the responsibility and authority for reporting to top management on the performance of the quality management system including ensuring required system processes are established, implemented and maintained and any need for improvements while promoting the awareness of customer requirements throughout the organization. Executive Management has

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defined various channels of communication within the organization regarding the effectiveness of the quality management system.

5.6 Management Review

Responsibility: ISO Management Representative and Executive Management.

Executive Management reviews the quality management system at planned intervals ensuring its continued suitability, adequacy and overall effectiveness. This review assesses opportunities for improvement, the need for changes in the system, and the continued validity of the quality policy and established objectives. The schedule for management review activity is coordinated with the timely submission of Policy Deployment and process data to facilitate the strategic planning process. Outputs of management review are communicated to appropriate personnel in the organization to flow-down to appropriate levels required to implement changes. The results of these reviews are recorded and maintained.

Input for our management review activities is generated from various sources including, but not limited to, reviewing the results of internal and external audits, customer feedback, status of corrective and preventive actions, improvement actions, process measurements and controls, performance toward objectives, supplier performance, competitive market analysis, items or actions from previous reviews, financial effects of quality related activities and changes that could affect the quality management system. The output from our management review activities include decisions and actions related to the improvement of the quality management system and its processes, improvements of the product related to customer requirements, and associated resource needs.

6. Resource Management

Top management ensures that resources necessary for the effective implementation of our business strategy and the achievement of our quality objectives are identified and made available.

6.1 Provision of Resources

Responsibility: Executive Management

Department Managers identify resources needed to implement, maintain, and improve the effectiveness of their processes within the quality management system and to enhance their ability to meet customer requirements. Identified resource needs are submitted to Executive Management for their review and approval.

6.2 Human Resources

Responsibility: Human Resources Manager and Department Managers

PCB Piezotronics, Inc. ensures that training needs are identified and training provided to all personnel performing activities effecting quality. Personnel are qualified based upon appropriate education, skills, training, and/or experience. Necessary competence is determined and individual training is developed. Education and training to achieve the required level of performance is conducted. The results of the training are evaluated to determine effectiveness. Employees are made aware of the relevance and importance of their assigned responsibilities and how they support the quality objectives and contribute to the success of the organization. Records of employee training, education, experience and skills are maintained.

6.3 Infrastructure

Responsibility: Executive Management

When determining, providing and maintaining the infrastructure needed to achieve product conformity consideration is given to the objective, function, performance, availability, and associated cost. Preventive Maintenance methods are in place to ensure the infrastructure continues to meet our needs. The infrastructure is evaluated during management review to determine the continued suitability to meet customer requirements.

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6.4 Work Environment

Responsibility: Executive Management

Department Managers ensure the work environment has a positive influence on employee motivation and satisfaction. A suitable work environment considers ergonomics, workplace location, hygiene, cleanliness, temperature, humidity, lighting, protection from electrostatic discharge, creative work methods and workplace safety. The proper work environment contributes to the organization's ability to achieve conformity to product requirements. PCB maintains documented procedures defining required manufacturing controls of environmental conditions for maintaining product protection, integrity and conformity during manufacturing, assembly and logistical operations.

7 Product Realization

Executive Management ensures the effective and efficient operations of realization and support processes, the interrelations of these processes and their impact on the ability and capacity to satisfy the requirements of all interested parties.

7.1 Planning of Product Realization

Responsibility: V.P of Engineering

PCB Piezotronics, Inc. plans and develops the processes needed to produce the product that meets customer requirements. Planning of product realization is consistent with the requirements of other processes in the quality management system. In planning the product realization processes, consideration is given to associated support processes, process inputs and outputs, key actions, configuration management, process measures, linked processes, and required resources. Planning also considers the quality objectives and requirements of the product, the necessary documents/records, inspection requirements and process verification and validation. The output of the planning activity is in a format suitable with our method of operation. Consistent with the PCB Piezotronics, Inc. Quality Policy, the planning activity commits subsequent Customer Service and Application Engineering resources and user manuals to support the proper operation and maintenance of all delivered products.

7.1.1 Project Management

Responsibility: V.P of Engineering

As deemed appropriate for quality management system processes of PCB Piezotronics, Inc., product realization is planned and managed in a structured and controlled manner taking into account risk, resources and identified constraints.

7.1.2 Risk Management

Responsibility: V.P of Engineering

PCB has established, implemented and maintains appropriate processes for managing risk in achieving compliance to product requirements. Risk management responsibilities and corresponding criteria are identified, defined, assessed and communicated throughout product realization. Actions taken to mitigate risks that exceed defined risk acceptance criteria are identified and implemented; including acceptance of risks remaining after implementation of mitigating actions.

7.1.3 Configuration Management

Responsibility: VP of Engineering.

PCB has established, documented and maintains a configuration management process, appropriate to the product, in accordance with AS9100 and ISO10007 when contractually or internally determined to be required.

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This process defines the planning, configuration identification, change control, configuration status accounting, auditing, responsibilities and authorities for satisfying all customer, statutory and regulatory requirements.

7.1.4 Control of Work Transfers

Responsibility: V.P of Manufacturing

PCB has established, implemented and maintains appropriate processes for planning, control, product conformance verification and temporary or permanent transfer of product realization parameters.

7.2 Customer Related Processes

Responsibility: V.P of Sales

PCB Piezotronics, Inc. ensures requirements received from the customer are fully understood and capability exists to meet aspects of the customer requirements prior to acceptance of the contract. Customer requirements are fully understood, including requirements for delivery and post delivery activities. Requirements not stated by the customer but necessary for the specified use of the product are identified. Any additional statutory, regulatory or technical requirements are identified and included in quality planning activities.

Requirements are reviewed prior to acceptance of the contract or order. This review ensures all verbal or documented special requirements, including any associated risks, are adequately defined, documented and agreed upon before their acceptance and requirements differing from original quote are resolved prior to contract acceptance. Appropriate personnel are notified when contract changes occur. Contract amendments are reviewed and approved and affected functions are advised of the impact. Records of contract reviews and resulting actions are maintained.

Customer service is the primary function designated for communicating with the customer in relation to product information and requirements, changes to requirements, and customer feedback including customer complaints.

7.3 Design and Development

Responsibility: V.P of Engineering

Product design and development at PCB Piezotronics, Inc. is a planned and controlled process. The product design and development planning process includes the identification of the design and development stages. This process organizes task sequences, mandatory steps and significant stages through the configuration management process. Design plans include identification of the responsibilities and authorities for each activity, a scheduled review and the appropriate verification and validation activities at each applicable stage of the plan. Dependent upon complexity, a design process may be structured into significant elements with individual analyses of tasks and necessary resources for realization. Analysis of each significant element provides for an identified responsible individual and takes into consideration design content, input data, planning constraints and performance conditions. Input data specific to each element is reviewed to ensure consistency with product requirements. Planning output is updated, as appropriate, as the design and development progresses. Appropriate personnel are assigned responsibility for the design and development of the product ensuring effective communications of issues and concerns throughout the design process. Design and development tasks are additionally defined by any safety or functional objectives specified by customer and/or regulatory requirements.

Design inputs relating to product requirements are identified and recorded. Design inputs include functional and performance requirements, statutory and regulatory requirements, experience gained from previous design efforts, and other requirements essential for successful completion of the design and production effort. All design inputs are reviewed by appropriate authorities for adequacy, completeness, ambiguity, and conflict with other requirements.

The output of the design and development process is determined in the planning stage. Output is in a form that enables verification against the inputs to the design and development process. This is accomplished prior to release. Design and development input and output data is compared for compliance, product specification, acceptance criteria, and specifications relating to product characteristics that are essential for its safe and proper

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use. All output data pertinent to product identification, manufacture, inspection, use and maintenance are defined. Applicable key characteristics are identified in accordance with design or contractual requirements.

During the design planning process, design reviews are identified for appropriate stages in the process. These reviews are conducted to evaluate the ability of the design to meet all requirements, to identify any concerns associated with meeting the requirements, to provide the necessary action to eliminate the problems and to authorize progression to the next design stage. Representatives of appropriate functions concerned with the design and development of the product include the customer, suppliers and internal functions. Records of design reviews and resulting actions are maintained.

Design verification is conducted to ensure the design outputs have satisfied the design input requirements. Recorded results of verification activity and any resulting activity are maintained.

Design validation is conducted to ensure the resulting product is capable of fulfilling requirements for the intended use or application. If practical, validation is completed prior to delivery or implementation. Occasionally, validation requires delivery and setup of the product. Records of design validation and resulting actions are maintained. When design and/or development is completed, evidence that the final definition of the product meets specification requirements is documented through pertinent data including reports, test results and calculations. Any testing necessary to accomplish such verification and validation, is controlled, reviewed and documented. Testing plans or specifications identify the product being tested and define test characteristics such as resources, objectives, conditions, parameters and acceptance criteria. Procedures describe method of operation, test performance and recording of results. Documented output from verification and validation testing provides proof of correct product configuration standard tested, observation of test plan and procedure requirements, and satisfaction of all acceptance criteria.

Design changes are identified, controlled, and records of changes and actions resulting from the changes are maintained. Design changes are reviewed and approved prior to implementation and where necessary the changes are verified and validated. The review of the design changes evaluates the impact on like parts and delivered product. As required by contract or regulatory body, PCB provides for customer and/or regulatory authority approval of design changes through the configuration management process.

7.4 Purchasing

Responsibility: Purchasing Manager

PCB Piezotronics, Inc. maintains documented procedures to ensure products and services obtained from outside suppliers conform to specified requirements. PCB maintains responsibility for the quality of all products purchased from any supplier or customer-designated source. Supplier control depends upon the type of product, impact on final product quality and previous history of supplier. A register of approved suppliers including their scope of approval is maintained. Supplier Quality and Delivery performance is reviewed quarterly and during management review. Records of supplier evaluations and any resulting actions are maintained. These records determine the level of control to be implemented on suppliers. Procedures dictate the actions taken with suppliers that, by not meeting defined requirements, are deemed unacceptable. The authority to disapprove a supplier rests with the same entities that are responsible for approving supplier quality systems. PCB Piezotronics, Inc. ensures customer-approved special process sources are used when specified.

PCB compiles a comprehensive set of purchasing requirements that must be satisfied by all suppliers according to individual account criteria and the nature of the product to be purchased. All requirements are reviewed for adequacy prior to their communication to the supplier. Purchasing documents clearly describe the products ordered, and where applicable, requirements for approval of product, processes, equipment, requirements for qualifications of personnel, and quality management system requirements. Additionally, documentation positively identifies required product related technical data including specifications, drawings, process requirements or inspection instructions and test specimen criteria needed for acceptance. PCB allows no nonconforming material to be supplied or changes in product and/or process definition unless prior approval is obtained. PCB requires all suppliers to allow right of access to facilities and records by our organization and corresponding customers and

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associated authorities. Suppliers to PCB must ensure product requirements are flowed down to sub-tier suppliers including critical product and process characteristics.

Verification that products conform to specified purchasing requirements is ensured prior to their use or processing. Verification is achieved through Receiving Inspection with review and evaluation of objective evidence for product compliance received in the form of certifications, test reports and other supporting documentation. Product verification may also take place at supplier premises through audit, inspection and documentation review. Purchased product is not used unless verification to specified requirements is completed and accepted. Delegation of product verification to a supplier is documented with requirements defined on the purchase order and delegation register maintained. Test data used to verify product conformity is verified against applicable product specifications. Raw material product reports are periodically validated by a customer-approved testing facility and/or customer-approved in-house test method as applicable. When a customer of PCB requires product verification at a supplier location, arrangements are documented in the purchasing information. Per contractual agreement, the customer, or a representative, reserves the right to verify subcontracted product conformance at PCB or at its supplier's premises. Customer verification does not prove supplier quality, absolve PCB of the responsibility to ensure acceptable product nor preclude subsequent product rejection by the customer.

7.5 Production and Service Provision

Responsibility: VP of Manufacturing

PCB Piezotronics, Inc. ensures that production processes are planned, analyzed and qualified to ensure quality performance. Where key characteristics have been identified, PCB has established process controls and developed control plans for measurement qualification. In-process verification points have been identified where conformance measurement cannot be obtained at subsequent product realization stages. Processes are carried out under controlled conditions such as: the use of suitable production equipment to carry out product realization

processes, availability of information describing the characteristics of the product, documented procedures accessible at operator work stations for operation and process monitoring, correct monitoring and measuring devices available for use, proper process measurements to control critical process parameters, implementation and control of product release, delivery and post-delivery activities. Accountability of product is maintained during manufacturing operations. Evidence that manufacturing and inspection operations are completed with authorized approval as planned is documented. Engineering and manufacturing controls provide for prevention, detection and removal of foreign objects and contamination. Utilities and supplies are monitored and controlled to minimize any effect on product quality. Level III documentation including Standard Operating Procedures, routers, tooling, software programs and drawings provide clear and practical criteria for workmanship quality and form the basis for production operation control.

Production process changes are controlled through the identification of authorized individuals to evaluate potential changes and provide approval. Any changes requiring customer or regulatory approval per contractual requirements are identified and acceptance properly acquired. Changes affecting processes, equipment, tools and programs are documented, with procedures in place to control their implementation. Results of changes to production processes are assessed to confirm that the desired effect is achieved. All production equipment, tools and programs are validated prior to use and periodically thereafter through documented calibration and preventive maintenance procedures. First Article Inspection (AS9102) procedures are in place where applicable to ensure that production output conforms to design specifications. Periodic preservation and condition checks of stored equipment and tools provide assurance that reliable replacements are available if needed.

Controls exist to ensure the capability of any external entity to provide quality work or service temporarily transferred outside of PCB facilities. In house servicing operations provide collection and analysis of in-service data, investigation, reporting and action plans all consistent to contractual and/or regulatory requirements. Procedures are in place to control the update of technical documentation, approval and use of repair schemes and any operation conducted at customer facilities or other external location.

New production processes and other associated production equipment is properly tested and validated prior to production usage. Special Processes are qualified and approved by Engineering and Manufacturing personnel with delegated authority to provide process qualification, approval, maintenance and control. Process measurements are identified for monitoring and measurement and process data is analyzed to make necessary

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improvements or changes in processes to achieve planned results. Appropriate records are maintained for personnel, equipment and processes.

Systems are established to maintain identification of product through each stage of receipt, production, and delivery. The Configuration Management process maintains product configuration identification to identify any differences between the actual configuration and the agreed configuration. Product status is identified and maintained in accordance with monitoring and measurement requirements. Media used to exhibit proof of acceptance authority is also controlled. Product traceability is established where required to record unique product identification as well as track product from receipt of raw materials to delivery to the customer. Product identification is maintained when required throughout product life by model number and serial number. Traceability of raw material or manufacturing batches provides record of product destinations including nonconforming material, rework and scrap, when required. Manufacturing records are maintained.

Documented procedures define the processes used to control products furnished by customers and to ensure they are identified, verified, stored, and protected while under the responsibility of PCB Piezotronics, Inc. Unsuitable, lost or damaged products are identified; their condition recorded; and immediately reported to the customer. Customer provided intellectual property, such as data furnished for design, production and/or inspection purposes, is likewise safeguarded.

PCB Piezotronics, Inc. has documented procedures to ensure that products are controlled through handling, storage, packaging, preservation, and delivery in such a manner that product integrity is maintained. Designated storage areas have been identified that utilize appropriate methods for preservation, segregation, receipt, and dispatch of materials. Inventory is periodically assessed for possible deterioration. Packaging, preservation, storage, and shipping processes are monitored and controlled to ensure compliance to customer requirements. Constituent parts contributing to final product integrity are also preserved in accordance to product specification and or applicable regulations. Component, assembly and finished product cleanliness, including foreign object prevention, detection and removal are controlled by documented procedures. Regulated special handling protocols for sensitive or hazardous material or product, including special marking, labeling, safety warning, shelf life and stock rotation, are adhered to. Product documentation provided upon delivery is protected against loss or deterioration.

7.6 Control of Monitoring and Measuring Devices

Responsibility: Quality Assurance Manager

PCB Piezotronics, Inc. has determined the monitoring and measurement requirements of product characteristics needed to demonstrate product conformance, and the monitoring and measurement devices to be used for product verification. Defined processes are in place to ensure that inspection, measuring, and test equipment is controlled, calibrated, adjusted, handled, stored and maintained. Environmental conditions are suitability controlled to provide accurate calibration, inspection, measurement and test. Equipment is consistent with the required measurement capability and the methodology used to collect the data is consistent with the monitoring and measurement requirements. This capability is verified and recorded. Processes are defined for the calibration of inspection, measuring and test equipment, including recall protocol when calibration is required. Acceptance criteria and corrective action are included in this process. Inspection, measuring and testing equipment is identified, calibrated, safeguarded from adjustments that would invalidate the accuracy, and adjusted at prescribed intervals or prior to use against certified equipment traceable to nationally recognized standards. Where no standards exist, the basis for calibration is documented. Prescribed intervals are established for each testing medium and records of results are maintained. If equipment is found to be out of calibration, validity of prior inspections is assessed and appropriate action is initiated. Handling, preservation and storage practices ensure that accuracy is maintained. Calibration software is confirmed prior to use and reconfirmed as necessary. A register of all gages, measuring and test equipment is maintained that defines the calibration process including equipment details, unique identification, location, check method, check frequency and acceptance criteria. Calibration records are maintained.

8. Measurement, Analysis and Improvement

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Policy Deployment data is used for making fact-based decisions. This is accomplished by ensuring effective and efficient measurement, collection and validation of data and its intended use for adding value to the organization.

8.1 General

Responsibility: Quality Assurance Manager

PCB Piezotronics, Inc. plans and implements improvement processes by monitoring process measurements and analyzing process data. This method is used to demonstrate conformity of the product, the quality management system and to continually improve the effectiveness of the system. We have determined the tools, methodology and statistical techniques used to monitor and measure our processes, product and services and the extent of their use. Statistical techniques may be used to support product from initial design through final inspection.

8.2 Monitoring and Measurement

Responsibility: V.P. of Sales / V.P of Manufacturing / Quality Assurance Manager

Customer service monitors information relating to customer perception as to whether PCB Piezotronics, Inc. has fulfilled its customer requirements. This information is submitted for management review. Various methods are used such as: surveys, feedback relating to products, market needs, and customer requirements compared to contract information.

PCB Piezotronics, Inc. has a documented process established for planning and performing internal audits. Internal audits are conducted annually to verify conformance to our quality management system and International Standards, as well as assess the operational effectiveness of the quality system. Audit plans give consideration to the status and importance of the activity to be audited, results of previous audits and also incorporate contract and/or regulatory requirements. Each scheduled audit is supported by a checklist that guides the performance of the audit. The acceptability of the selected auditing tool is measured against the effectiveness of the audit process and overall organization performance. Audits are conducted by personnel who are independent of responsibility in the areas being audited and do not audit their own work. Documented procedures describe the responsibility for planning, conducting, recording and reporting the audit results. Audit results are communicated to management who are responsible for the area being audited and timely action is taken to eliminate the cause of identified nonconformity. Corrective action taken is documented and verified for effectiveness. Results of verification are recorded. Results of audit activities, corrective action taken and results of verification are submitted to the management representative to be included in management review activities.

The internal auditing process is the primary method used to measure and determine the overall effectiveness of the quality management system. When system nonconformity is identified, correction and corrective activity is taken to ensure continued product conformity. If after evaluation of the nonconforming process it is determined that product nonconformity also resulted, the effected product is identified and controlled per documented nonconforming product procedures.

PCB Piezotronics, Inc. maintains defined processes for inspection and testing to verify that specified requirements for products and services are met. The requirements for inspection and testing are detailed and necessary records are identified. Where sampling inspection is implemented, all plans are statistically valid, appropriate for the inspection and preclude the acceptance of any lot with known nonconforming samples. Sample plans are submitted for customer approval, when required. Review, analysis and recording of process data provide us with evidence of product conformance. Product characteristics, including identified key characteristics, are measured and monitored during stages of product realization where it is possible for this to occur as defined in our process control documentation. Material is not released prior to verification unless positive recall is provided. No product is dispatched until all required inspections and tests are carried out. Inspection documentation specifically describes all measurement requirements for the appropriate product or service. Records of all verification activities are maintained and clearly identify the status of the product, at what sequence the measurements took place, record of the measurement results, the type of instrument used and any specific testing parameters. They also list the criteria used for the determination and the authority responsible for release. Test records showing actual test result

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data are generated when required by specification or acceptance test plan. Where required to demonstrate product qualification, PCB Piezotronics, Inc. ensures that records provide evidence that the product meets defined requirements.

Our First Article Inspection Report (FAIR – AS9102) process provides verification and documentation of a representative item from the first production run of a new product, or following any subsequent change that invalidates the previous customer approved first article inspection report.

8.3 Control of Nonconforming Product

Responsibility: Quality Assurance Manager

PCB Piezotronics, Inc. maintains documented procedures to ensure that product that does not conform to specified requirements is controlled and prevented from unintended use. Control provides for identification, evaluation, segregation (when practical), disposition and notification of areas affected. Active programs to reduce scrap and rework are in effect. Material Review Board responsibilities for review and disposition of nonconforming product, and the decision process involved, are defined in documented procedures.

The action taken by PCB Piezotronics, Inc. for dealing with nonconforming product is by one or more of the following ways: by taking action to eliminate the cause of nonconformity, by accepting the product as is provided customer authorization is obtained where required, or rejecting or scrapping the product. Nonconforming product that is repaired or reworked is re-inspected to determine it meets all specified requirements. Dependant upon PCB or customer designed product and contractual obligations, PCB will disposition nonconforming product in accordance with customer contractual requirements. Product under customer-authorized deviation or waiver is properly identified and tracked per customer requirements. All product dispositioned as scrap are clearly and permanently marked and/or positively controlled. When required by the customer, scrapped product will be physically rendered unusable prior to disposal. Records of product nonconformities and the resulting actions are maintained. This includes concessions or waivers obtained from customers.

Appropriate action is taken in the event nonconforming product is detected after delivery or use. Affected parties (i.e. suppliers, customers, distributors, regulatory authorities) will be notified in a timely manner of any delivered nonconforming product. Notification will consist of a clear description of the nonconformity, including as necessary the component(s) affected, customer and/or PCB Piezotronics, Inc. part identification, quantity, traceability numbers and delivery dates.

8.4 Analysis of Data

Responsibility: Executive Management Team and Management Team

Processes are defined to collect and analyze system data from process monitoring and measurement and other relevant sources to demonstrate the suitability and effectiveness of the quality management system. Policy Deployment data used for continuous improvement analysis provides information relating to customer satisfaction, product conformance, suppliers, and trends to identify preventive actions.

8.5 Improvement

Responsibility: Executive Management Team, Management Team and Quality Assurance Manager

PCB Piezotronics, Inc. takes a proactive approach to continual improvement. We continually look for ways to improve our operations, rather than wait for a problem to occur and then implement system improvements. Our quality policy and objectives brings focus to our continual improvement efforts and through the use and proper analysis of audit results, process data, corrective and preventive action and management review appointed improvements are made in the system before problems occur.

PCB Piezotronics, Inc. maintains documented procedures for implementing corrective and preventive action. Actions taken are commensurate with the problems identified and their impact.

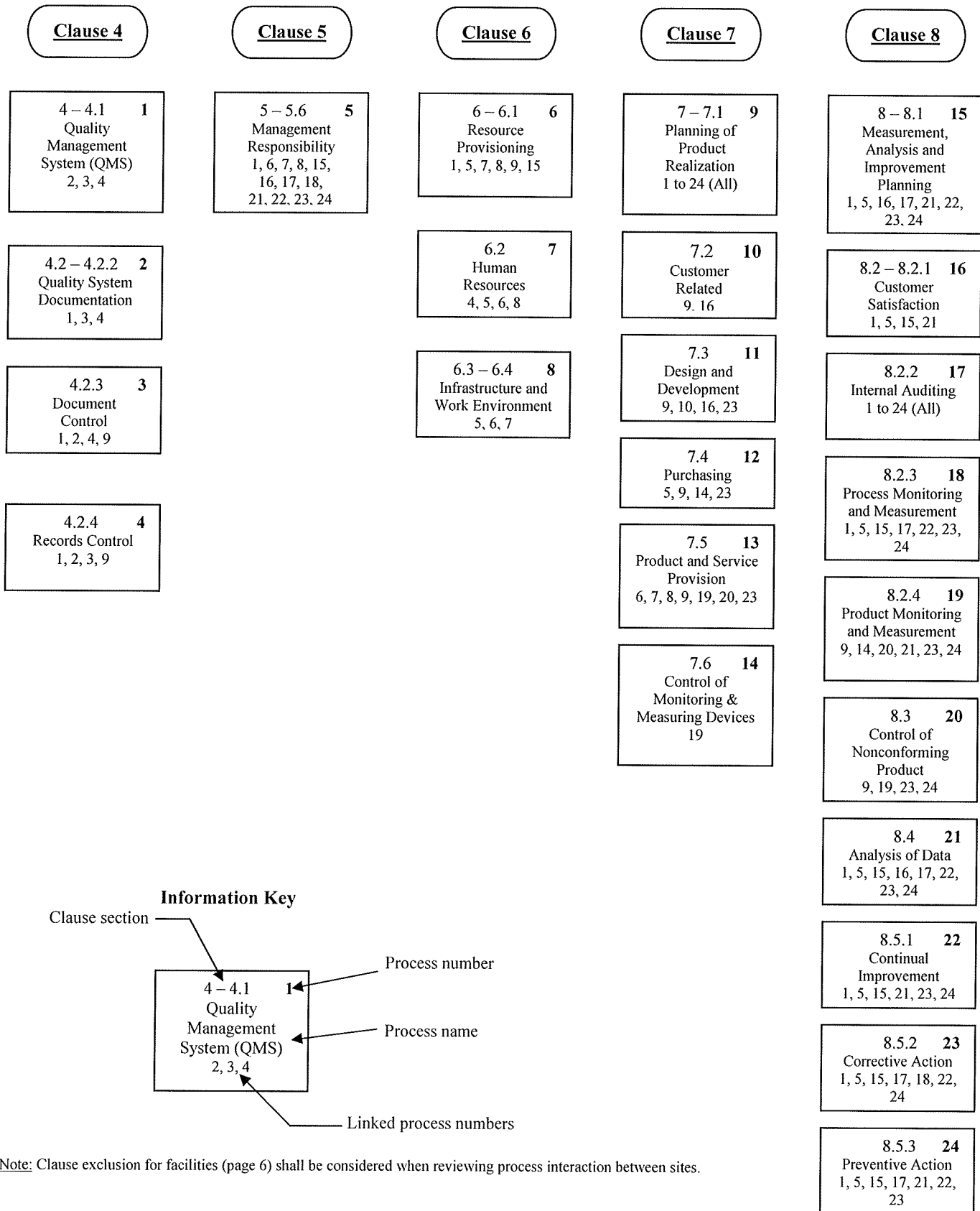
Quality management system corrective actions include: effective handling of customer complaints and reports of nonconformities; investigation and documenting the causes of nonconformance and the action needed to prevent recurrence; the analysis of processes and operations, concessions, quality records, customer complaints, and returned product failure analysis to detect and eliminate potential causes of the nonconformities; verification that

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corrective actions are taken and are effective. Procedures driving the process dictate specific action in the event that timely corrective action is not satisfactorily achieved. Additionally, when it is determined that a supplier is responsible for the root cause of a nonconformity, requirements for addressing the issue are communicated appropriately through defined processes.

Quality management system preventive actions include: maintaining and utilizing information on performance to detect, analyze and eliminate potential causes of nonconformities; determining and planning the steps needed to improve and obtaining customer approval where applicable; implementing the plan and verifying the results; submitting relevant information for management review activities. Records of corrective and preventive action activities and results are maintained.

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Illustration of Identified Process Interactions**



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Glossary of Terms

(Reference applicable ISO, AS, ANSI, IEC, EN, CFR and FAA standards for definitions used in this manual.)

Bibliography

ISO-9001

Quality Management System - Requirements

ISO-17025

General Requirements for the Competence of Calibration and Testing Laboratories

Directive 94/9/EC (and EN-13980)

Explosive atmospheres – Application of quality systems

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IECEX Scheme for explosive atmospheres

ISO-10007

Quality Management System – Guidelines for configuration management

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Quality Assurance Requirements for Measuring Equipment

ANSI Z540-3

Calibration Laboratories and Measuring and Test Equipment - General Requirements

10CFR21

Code of Federal Regulations – Reporting of Defects and Noncompliance

10CFR50 Appendix B

Code of Federal Regulations – Quality Assurance for Nuclear Power Plants and Fuel Reprocessing

ANSI Z1.4

Sampling Procedure and Tables for Inspection by Attributes

AS-9100

Quality Management System – Aerospace requirements

AS-9101

Quality Management System Assessment

AS-9102

Aerospace – First Article Inspection Requirement

AS-9103

Variation Management of Key Characteristics

14CFR145

Code of Federal Regulations – Repair Stations

14CFR21

Code of Federal Regulations – Parts Manufacturing Approval (PMA)

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Appendix – A: Current certifications (after this page)