



APEX QUALITY MANUAL

FINE-LINE CIRCUITS LIMITED

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1 Purpose And Scope Of The Quality Management System

- 1.1 This document describes the Quality Management System, conforming to ISO 9001:2000 standard, as adopted by **Fine-Line Circuits Limited & High-Tech Multilayer Unit**. This manual applies to all activities, which contribute to the quality of the products and services offered by the **Fine-Line Circuits Limited & High-Tech Multilayer Unit**.
- 1.2 The document covers the Quality Management System for products provided by the **Fine-Line Circuits Limited & High-Tech Multilayer Unit** to its clients in the areas of:
- Manufacturing of Printed Circuit Boards
- 1.3 The Quality Management System defined in this manual addresses the processes employed to satisfy customers by providing above-mentioned product.
- 1.4 The following are the major business processes employed in **Fine-Line Circuits Limited**:
- **Marketing**
 - **Engineering**
 - **Purchase**
 - **Manufacturing**
 - **Quality Assurance**
 - **Export and Shipping**

The support processes employed within the organization to enable the above processes to deliver to the customer his requirements are as follows:

- **Maintenance**
 - **HR**
 - **Process Engineering**
 - **Production Planning and Control**
 - **Material Planning and Control**
- 1.5 Quality Management System related processes, as per ISO 9001:2000, are addressed in this manual and referenced documents with this manual. The main processes of QMS, including the following are addressed:
- Document control
 - Record control
 - Management responsibility related processes like Management commitment, Customer focus, Quality Policy, Quality Objectives, QMS planning, Defining responsibilities and authorities, Internal communication, Management review process etc.
 - Human resource, Infrastructure and work environment
 - Product realization process as per clause 7 of ISO 9001:2000



- Customer satisfaction
- Internal audit
- Monitoring and Measurement of processes
- Monitoring and Measurement of products
- Control of non-conforming products
- Corrective action and
- Preventive action

1.6 Other operational processes that do not directly affect Quality Management System are also covered under this Quality System at this juncture for standardization and to minimize risk.

1.7 This Quality Management System is applicable for **Fine-Line Circuits Limited & High-Tech Multilayer Unit** located at **Andheri (SEEPZ), Mumbai.**

1.8 The intent of the documentation is to validate, standardize processes leading to enhancing customer satisfaction and improving the effectiveness of Quality Management system.

2 Exclusion To Quality Management System And Justification

Design & Development (Clause 7.3) is not applicable at this point in time. By excluding this, the organization's ability or responsibility, to provide product that meets customer and applicable regulatory requirements, will not be affected. The system will be established and implemented as and when requirement arises.

3 Company Profile

3.1 About Fine-Line Circuits Limited & High-Tech Multilayer Unit

Fine-Line Circuits Limited & High-Tech Multilayer Unit is the leading manufactures & supplier of Printed Circuit Boards started in 1989 by Mr. B. T. Doshi & family. Fine-Line Circuits Limited & High-Tech Multilayer Unit today manufactures high quality Printed Circuit Boards in a medium volume facility located in India's premier free trade zone (SEEPZ) at Mumbai.

The entire PCB production is dedicated for export to customers around the world. (USA, Germany, UK, Switzerland & Singapore). Latest state-of the art manufacturing facility helps to produce high quality products.

Fine-Line is a publicly traded corporation on the Mumbai stock exchange since 1992.

Fine-Line Circuits Limited & High-Tech Multilayer Unit is striving for excellence in products and consistent quality to achieve customer



satisfaction by implementing ISO 9001:2000 Quality Management Systems.

4 Products And Services

The following are the products and services offered by **Fine-Line Circuits Limited & High-Tech Multilayer Unit**:

1. Printed Circuit Board

- **Multi Layer PCBs**
- **Impedance Controlled PCBs**
- **Backplane PCBs**
- **Immersion Gold finish PCBs**
- **Immersion Tin finish PCBs**
- **Hard Gold finish PCBs**

5 Resources

Human Resources:

Band	No. of Full time Employees
Senior	22.00%
Middle	42.00%
Junior	36.00%
Total	100%

Infrastructural Resources:

- Production Facility:
 - Production facility includes the Vacuum Press, Micro Drilling machines, Photo Imaging machines, Plating, Wet processing, Lamination, Solder mask, Fabrication (Routing, Punching, Scoring), vacuum press, Two sided Electrical Testers etc.
- Inspection & Measurement facility:
 - Inspection & Measurement facility for pH measurement, AOI System, microscope, venire caliper, micrometers etc. are available.
- Information & technology facility:
 - Facility for communication & back up is available.
 - Also facility for Gerber Data analysis is available.



6 Organizational Structure

The organization structure (chart) below illustrates the functional authority of the persons who manage, perform and verify activities affecting Quality:

ORGANIZATION CHART

Click here to see the [Organization Chart](#)

7 Organizational Management System Policies And Guidelines

Important policies and guidelines relevant for the Organizational management system, which have impact on the quality of Products and Services offered, are listed in the following sections 8, 9, 10, 11 & 12.

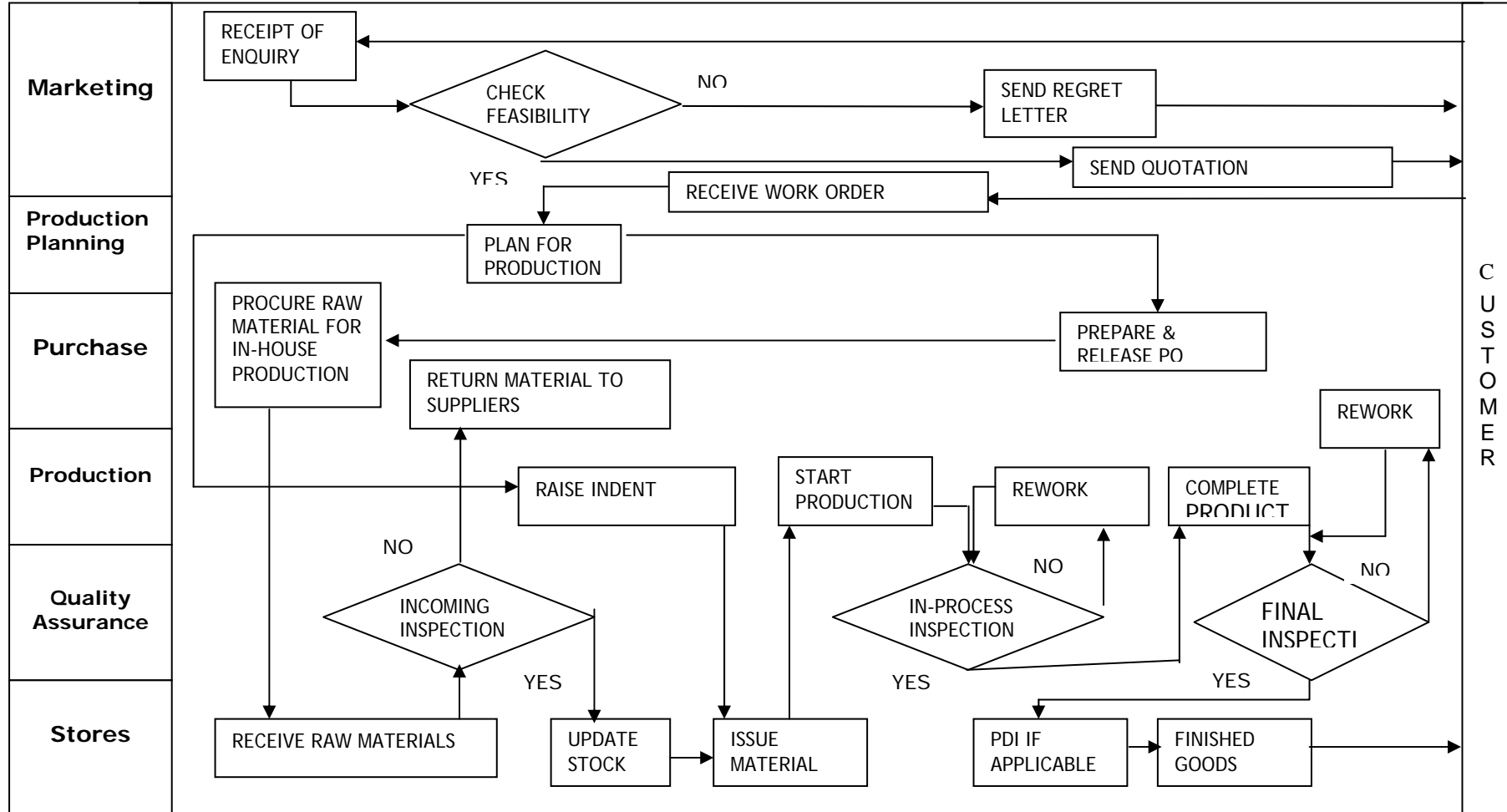
8 Quality Management System (QMS) (Clause 4.1 of ISO 9001:2000)

8.1.1 QMS is defined and documented as a Quality Manual complying with the requirements of ISO 9001:2000.

8.1.2 **Fine-Line Circuits Limited & High-Tech Multilayer Unit** has identified the following business processes for meeting customer and regulatory requirements. The interface and sequence of the processes are also depicted as below:

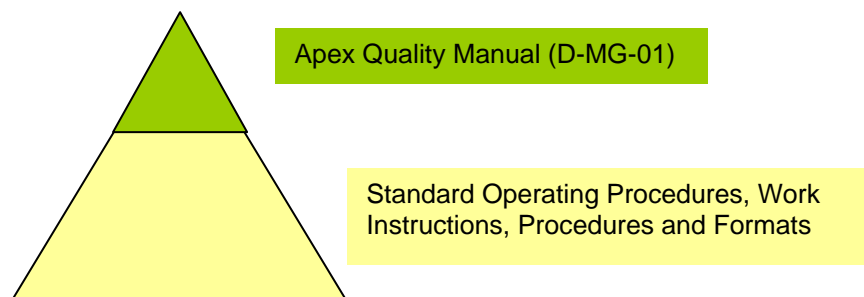


INTERACTION OF PROCESSES:





- 8.1.3 The operation and control criteria for various sub-processes are identified and are incorporated in the relevant procedures.
- 8.1.4 Top management ensures that necessary resources and information to support the operation and monitoring of the identified processes are provided. This is ensured through various interactions with the various functions and through management review meetings.
- 8.1.5 FINE-LINE CIRCUITS LIMITED has put in mechanism to monitor, measure and analyze these processes. Proper Measurement methods are used for assessing the efficacy of the processes (Refer to Monitoring and Measurement of Processes).
- 8.1.6 After the analysis is done, FINE-LINE CIRCUITS LIMITED identifies and implements actions necessary to achieve planned results and continual improvement of these processes (Refer to Corrective Actions and Preventive Actions Procedures).
- 8.1.7 Process objectives and quality objectives are defined from time to time, targets are set, performance is reviewed, improvement actions suggested as part of the quality management system (Refer to D-MG-02).
- 8.1.8 Outsourced activities are controlled by FINE-LINE CIRCUITS LIMITED entirely. The selection of sub contractors for outsourcing is handled using the Engineering processes defined (Refer to Purchasing for detailed procedure).
- 8.1.9 Documentation is structured in two levels. The apex level of the documentation is defined as Apex Quality Manual, which provides all necessary and relevant information relating to Quality Management System, established and implemented in the organization. The second level of the documentation provides detailed procedures along with SOPs (Standard Operating Procedures) and work instructions. The procedures are electronically linked, wherever applicable, with each other document / format for easy navigation. The documentation structure is diagrammatically represented as below:



- 8.1.10 All procedures and documents are issued under controlled conditions as detailed below.

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8.2 Document Control Procedure (as per ISO 9001: 2000 clause No. 4.2.3)

Documents are issued in controlled manner as per the documented procedure [\(D-MG-03\)](#). This procedure defines the methodology for preparation, review, approval, identification, revision, issue and distribution. This document also defines the procedure to be adopted for controlling of “Documents of external origin”. Refer to [\(D-MG-03\)](#) for details.

8.3 Record Control Procedures (as per ISO 9001: 2000 clause No. 4.2.4)

A documented procedure is defined to control the records [\(D-MG-04\)](#). These records are established and maintained to provide evidence of conformity to requirements and of the effective operation of the quality management system. This procedure scope covers control of records in terms of identification, storage, protection, retrieval, retention time and disposition. Refer to [\(D-MG-04\)](#) for details.

9 Management Responsibility (Clause 5 of ISO 9001:2000)

9.1 Management Commitment: (Clause 5.1 of ISO 9001:2000)

Evidence of top management’s commitment to QMS is shown through establishment and implementation of QMS. This QMS also provides scope for continually improving its effectiveness through Internal audits, developing and reviewing quality objectives, conducting management reviews, providing a process for improving the products and processes through corrective and preventive action.

9.1.1 The importance of meeting customer as well as statutory and regulatory requirements is communicated to the employees of the FINE-LINE CIRCUITS LIMITED through regular interactions, daily / weekly meetings, reviewing customer complaints and customer feedbacks and during management reviews. The statutory and regulatory requirements are built-in in the SOPs appropriately.

9.1.2 The top management has established quality policy and quality objectives which are defined in this apex quality manual elsewhere (Refer to [Quality Policy](#) and [Quality Objectives](#)).

9.1.3 The top management conducts management reviews once in 3 months to review the effectiveness of the Quality Management System through progress on Quality objectives, results of customer feedbacks, internal audit results, etc. (Refer to [Management Review process](#)).

9.1.4 The top management also ensures adequate resources are provided to meet customer and statutory requirements and also to continually improve the effectiveness of its system.



9.2 Customer Focus: (Clause 5.2 of ISO 9001:2000)

Customer focus is provided through determining customer requirements and meeting them. Customer requirements are identified through meeting and interacting with customers. During these interactions, the implied needs of the customers are also captured and understood. Customer feedbacks, complaints and customer satisfaction results are discussed with employees at different forums inside the FINE-LINE CIRCUITS LIMITED to enhance customer satisfaction through customer focus. The measurement of meeting customer requirements is done through reviewing customer complaints (Refer to customer complaint & feedback process) and through regular "Customer satisfaction survey. (Refer to Customer Satisfaction Survey Process).

9.3 Quality Policy: (Clause 5.3 of ISO 9001:2000)

9.3.1 Quality Policy of the FINE-LINE CIRCUITS LIMITED is established and implemented which is appropriate for the FINE-LINE CIRCUITS LIMITED. This policy also provides framework for defining quality objectives.

9.3.2 The continual improvement of the effectiveness of the QMS is addressed through defining Quality objectives, monitoring the compliance of SOPs, and monitoring of process performance. The improvements are driven through Corrective action and Preventive action procedures.

9.3.3 Quality Policy is reviewed during management reviews for continuing suitability based on achieving the quality objectives and the effectiveness of the QMS. The FINE-LINE CIRCUITS LIMITED 's quality policy is:

QUALITY POLICY

FINE-LINE CIRCUITS COMMITS ITSELF TO MANUFACTURE AND DELIVER DEFECT FREE PCBs TO MANUFACTURING INDUSTRIES BY CONTINUALLY UPGRADING THE PROCESSES, PRODUCTS, SERVICES WITH A CONSTANT CUSTOMER FOCUS TO ACHIEVE CUSTOMER SATISFACTION

9.3.4 Quality Policy is communicated for understanding of the employees through meetings, interactions, reviews, displaying the policy at various locations, etc.

9.4 Planning: (Clause 5.4 of ISO 9001:2000)

9.4.1 The Planning comprises Quality Policy, Quality Objectives derived from the Quality Policy and supporting Quality Management System as a means to ensure that the Quality policy and objectives are achieved.



9.5 Quality Objectives: (Clause 5.4.1 of ISO 9001:2000)

9.5.1 Quality Objectives of the FINE-LINE CIRCUITS LIMITED are established on annual basis and are documented in the Quality Objectives Document. These Organizational quality objectives are deployed to departmental levels as departmental / functional objectives in the same document. The Quality Objectives have to be measurable and consistent with the Quality Policy.

9.5.2 Quality objectives along with quality policy are reviewed in Management reviews. Status reporting of objectives by functions / departments is done on a monthly / quarterly basis, as applicable.

9.6 Quality Management System Planning: (Clause 5.4.2 of ISO 9001:2000)

9.6.1 This is done through implementation of the established QMS by the top management. The basic establishment and implementation of QMS itself is the major part of QMS Planning exercise. This planning is carried out in order to meet Quality Management System related requirements, customer, statutory & regulatory requirements and to achieve quality objectives. The Management Representative in the organization identifies quality initiatives needed for improvement on a regular basis.

9.6.2 The integrity of the QMS is maintained through proper Change Control procedure (Refer to D-MG-03 Document Control Procedure for details). System related changes would be implemented after review by the business head and MR and duly approved by the top management. Product related changes will be implemented only after approval of functional / departmental head and the top management, wherever required.

9.7 Responsibility, Authority and Communication: (Clause 5.5 of ISO 9001:2000)

9.7.1 Responsibility and Authority: (Clause 5.5.1 of ISO 9001:2000)

9.7.1.1 The roles, responsibilities and authorities of management and staff of the FINE-LINE CIRCUITS LIMITED are defined in the individual job description. Please refer to the format of the Job description for details R-HR-01. The defined job description is made available to all employees so that awareness is created amongst all employees regarding their role, responsibilities and authorities.

9.7.1.2 The overall primary and secondary responsibilities are identified in the matrix given below for the various processes employed in the FINE-LINE CIRCUITS LIMITED:



Business Process ISO Requirement	Management	Management Representative	Engineering	Marketing	Purchase	Production	Maintenance	Stores	Human Resource	Quality Assurance
Quality Policy	P	S	S	S	S	S	S	S	S	S
Quality Objectives	P	P	P	P	P	P	P	P	P	P
Document Control	S	P	P	P	P	P	P	P	P	P
Record Control	S	P	P	P	P	P	P	P	P	P
Management Review	P	P	S	S	S	S	S	S	S	S
Roles, Responsibilities & Authority	P	P	S	S	S	S	S	S	P	S
Recruitment Competence, Awareness & Training	P	S	S	S	S	S	S	S	P	S
Work Environment	P	S	S	S	S	S	S	S	P	S
Infrastructure	P	S	S	S	S	S	S	S	S	S
Customer Related Process	P	P	S	P	S	S				
Purchasing	P		S	S	P	S		S	S	S
Production & Service Provision			S	S	S	P	S	S		S
Identification & Traceability			S		P	P		P		P
Preservation of product			S		P	P		P		P
Control of monitoring & measuring devices						P	P	P		P
Customer Satisfaction	P	P	P	P	S	S	S	S	S	S
Internal Audit	P	P	P	P	P	P	P	P	P	P
Monitoring & Measurement of processes	P	P	P	P	P	P	P	P	P	P
Monitoring & Measurement of product			P			P				P
Control of non-conforming product	P	P	P	P	P	P	S	P	P	P
Analysis of data	P	P	P	P	P	P	P	P	P	P
Continual Improvement	P	P	P	P	P	P	P	P	P	P
Corrective Action	P	P	P	P	P	P	P	P	P	P
Preventive Action	P	P	P	P	P	P	P	P	P	P

P Prime Responsibility

S Support Responsibility

9.7.2 Management Representative: (Clause 5.5.2 of ISO 9001:2000)

9.7.2.1 Management Representative (MR) is appointed to establish, implement, maintain and continually improve ISO 9001:2000 system in the Organization.



9.7.2.2 MR's responsibilities and authorities are defined as below:

The Management Representative has to fulfill the following responsibilities besides his current responsibilities.

- He has the responsibility to evolve quality system in the organization with the support and involvement of all concerned.
- He has authority to ensure that the quality systems are established, implemented and maintained through out the organization.
- Also, he has the necessary authority to organize internal audits, to analyze and report the status and effectiveness of the quality management system in the management review.
- He has the responsibility to suggest the improvements in quality management system from time to time & report the same to the top management.
- He has necessary authority to organize follow up or conduct special audits to verify the implementation of corrective action and its effectiveness.
- He has the responsibility to promote awareness of customer requirements through out the organization.
- He is also authorized to have liaison with external certification agencies on the matters relating to quality management system certification.

For the above responsibility, he will report to the MD.

9.7.3 Internal Communication: (Clause 5.5.3 of ISO 9001:2000)

Internal Communication is established in the organization by the top management and MR. This communication happens during regular meetings, project reviews, performance reviews, management reviews, customer complaint / feedback reviews etc. By various interaction modes defined above communication takes place regarding the effectiveness of the QMS.

The communication is exchanged inside the organization through E-mail, Internal memo or telephone.

Visual displays are also used as a means of communicating inside the organization.

9.8 Management Review process

9.8.1 Management Reviews are done once in **three months** basis to review the organization's QMS to ensure its continuing suitability, adequacy and effectiveness. For detailed procedure refer to [D-MG-05](#). Management review assesses the opportunities for improvement and the need for changes to the QMS, including the quality policy and quality objectives.

9.8.2 Management review has an agenda points for review as review inputs. Review inputs include the following:

- Results of audits



- Customer feedback
- Process performance and product conformity
- Status of preventive and corrective actions
- Follow-up actions from previous management reviews
- Changes that could affect the QMS and
- Recommendations for improvement

However, a detailed agenda points are given in the format defined [\(R-MG-07\)](#)

9.8.3 Review outputs include any decisions and actions related to

- Improvement of the effectiveness of QMS and its processes
- Improvement of product related to customer requirements and
- Resource needs.

9.8.4 Management review records [\(R-MG-08\)](#) with clearly defined action point review are maintained.

10 Resource Management (Clause 6 of ISO 9001:2000):

10.1 Provision of Resources: (Clause 6.1 of ISO 9001:2000)

10.1.1 Required resources are determined whenever there is a need identified or as identified at various interactions held with responsible personnel in the organization or as an outcome of decision of management review.

10.1.2 The determined resources are provided for implementing and maintaining QMS and to improve continually its effectiveness and to enhance customer satisfaction.

10.2 Human Resources: (Clause 6.2 of ISO 9001:2000)

10.2.1 The determination of any human resource requirement is done at the departmental level depending on the work allocation for marketing, Engineering, Procurement, production or service provision requirements and also for monitoring, measurement, analysis and improvement requirements.

10.2.2 Personnel with required competency are assigned the work to ensure product and service quality. Job profiling is done for each individual against the Job Description defined for the role. Refer to [R-HR-02](#) for the format of the Employee Profile Form

10.2.3 Recruitment is done based on the job descriptions defined. For details of recruitment process refer to [D-HR-01](#).

10.2.4 Training need identification is done based on the job description, current job profile and other developmental needs etc.



10.2.5 Training need identified is reviewed by the top management for approval. Training plan is made based on which training is provided. For details refer to [D-HR-03](#).

10.2.6 Training records are updated and maintained.

10.2.7 Training effectiveness is measured through developing action plan, as required. For details refer to [D-HR-05](#)

10.3 Infrastructure: (Clause 6.3 of ISO 9001:2000)

10.3.1 Determination of Infrastructure and work environment is done at the time of any new product production or service provision requirements.

10.3.2 The Organization also identifies, provides all related infrastructure in terms of process equipments, building, workspace & associated utilities, other hard wares & software and other support services needed to achieve customer satisfaction and meet regulatory and statutory requirements.

10.3.3 Infrastructure needed to achieve service delivery quality is determined on regular basis.

10.3.4 The FINE-LINE CIRCUITS LIMITED has identified responsibilities for maintenance of infrastructure in terms of maintenance of buildings and structures & maintenance of utilities and process equipments and instruments like computers & servers. Annual maintenance contracts are used to maintain such identified ones.

10.4 Work Environment: (Clause 6.4 of ISO 9001:2000)

10.4.1 The conditions or parameters of work environment needed to be specially maintained (if any) are documented, wherever needed, in standard operating procedures.

11 Product Realization (Clause 7 of ISO 9001:2000):

11.1 Planning of Product Realization (Clause 7.1 of ISO 9001:2000)

11.1.1 Product realization is planned and realized through various business processes, in consistency with the defined processes in the Quality Management system documentation.

11.1.2 Quality objectives and requirements for the products are determined for the existing products provided as per quality requirements. New products whenever introduced, objectives and requirements will be determined and made as quality requirements of the products or processes. These objectives will also bear reference to the customer requirements determined. This is also linked to quality objectives defined for the organization or departmental objectives.



11.1.3 Top management has established processes and provided resources specific to the product. The top management will identify and provide necessary resources at the time of any new product introduction or change in the current products or processes.

11.1.4 Verification, validation, monitoring, inspection and test activities specific to the product and the criteria for product acceptance are determined and incorporated in various procedures.

11.1.5 Records needed to provide evidence that the realization processes and resulting product meet requirements are determined and maintained. They are referenced in the SOPs.

11.1.6 The outputs of the planned and determined activities are made into forms of procedures, formats etc. for realization and are implemented and maintained. They are referenced in the appropriate SOPs.

11.2 Customer-related Processes (Clause 7.2 of ISO 9001:2000)

11.2.1 The Marketing Executive / Marketing Head interact with the customers on a regular basis to understand the customer requirements.

11.2.2 Customer requirements are identified through meeting and interacting with customers. During these above interactions, the implied needs (not stated requirements) of the customers are also captured, understood and determined.

11.2.3 The Marketing Executive / Marketing Head study the requirements and understand the needs. Statutory and regulatory requirements, if applicable, are also identified during this stage. They make proposals based on the feasibility, which is discussed within the organization. This feasibility / proposal also clarifies the capability of the organization.

11.2.4 These proposals are then sent to customers for approval for cost, time frame and other technical details.

11.2.5 The capability of the organization to meet the customer's contractual requirements will be verified for the following situation

- a) For the new product / service
- b) Additional features needed for the existing products / services
- c) Change needed in the standardized delivery time.

11.2.6 Any unresolved or ambiguous requirements are discussed with the client or customer and are resolved.



11.2.7 Clients and customers are communicated through emails, telephone, fax, meetings and postal or appropriate mode. The customer communication includes product related information (brochures), enquiries, contracts, amendments, customer feedbacks and customer complaints.

11.2.8 Refer to Pre-order process [D-MKT-01](#) for details of the process.

11.2.9 On receipt of approvals the work is taken up for execution with proper allotment of resources.

11.2.10 Any amendment to the existing contract is reviewed and communicated both ways (with client and inside the organization).

11.2.11 Records of request, reviews, proposals and approvals and amendments are maintained.

11.2.12 For details of Post-order process refer to [D-MKT-02](#)

11.3 Design and Development (Clause 7.3 of ISO 9001:2000)

11.3.1 Design & Development ([Clause 7.3](#)) is not applicable at this point in time. By excluding this, the organization's ability or responsibility, to provide product that meets customer and applicable regulatory requirements, will not be affected. The design of the PCBs is not currently being done at Fine Line Circuits Ltd. & High-Tech Multilayer Unit. The design is provided by the customer & hence Design & Development ([Clause 7.3](#)) is not applicable. The system will be established and implemented as and when requirement arises.

11.4 Purchasing (Clause 7.4 of ISO 9001:2000)

11.4.1 All items which affect the quality of product delivered to the customer / client are procured through defined purchase procedures.

11.4.2 Services related to infrastructure maintenance (AMCs of computers, servers), upkeep of work environment (Air conditioners), Security, building maintenance is also purchased through common purchase procedures.

11.4.3 Vendors those who provide services are evaluated for supply of those services and approved for such supplies. The vendors' information is obtained through Vendor Registration Process ([D-PUR-02](#)). Evaluation records are maintained.

11.4.4 Outsourced services are also covered under the purchase procedures defined. The outsourced services and their relevant procedures are as referred below.

- Photo plotting is an outsourced activity. For details refer to the [D-ENG-07](#) Process

11.4.5 Vendors are selected through collecting quotations, technical literatures etc. Based on technical and commercial comparisons suitable vendor is selected



and approved. For detailed vendor evaluation and selection procedure refer [D-PUR-01](#).

11.4.6 Purchase orders are placed on approved and selected vendors. Purchase order is released with information of specification of the item to be procured, quantity, expected date of delivery, and any other relevant information. Refer to Purchase Order Process ([D-PUR-04](#)) for details. In case of service contracts to be signed with a vendor the process followed is detailed in Service Contract Process ([D-PUR-06](#)).

11.4.7 Vendor re-evaluation (rating) is done once in quarter as appropriate for the defined procurements. For detailed vendor rating procedure refer [D-PUR-07](#).

11.4.8 Whenever any customer wants to verify / inspect the products at the supplier's premise, he will be given the permission to do so by FINE-LINE CIRCUITS LIMITED. The same information will also be mentioned in the purchase order released for such materials / services. FINE-LINE CIRCUITS LIMITED does not absolve the responsibility of using appropriate material even in case of customer-inspected and approved products.

11.5 Verification of Purchased Products (clause 7.4.3 of ISO 9001:2000):

11.5.1 Items when they are received will be verified as per the requirements defined in Purchase Order or Purchase Specification.

11.5.2 Inspection records are maintained appropriately for the items inspected in Goods Receipt Note (GRN) / installation reports, as applicable. Refer procedure [D-PUR-05](#) for details of verification of purchased products and services.

11.6 Production and Service Provision (Clause 7.5 of ISO 9001:2000)

11.6.1 Suitable infrastructure is provided for the various products and services offered by the organization.

11.6.2 Adequate human resource, machinery, equipment, test tools and support resources are identified and provided. Any inadequate resources noticed for operation and control of these processes will be escalated to the top management, as required.

11.6.3 Standard Operating Procedures / Work instructions / formats are available. This access is given to all personnel who need to refer to controlled procedures for process execution, so that quality of the process and output are maintained.

11.6.4 The process parameters and product / service characteristics are monitored and measured at defined frequency to ensure that the processes are carried out under controlled conditions.



11.6.5 Products are released to any next stage only when they are cleared for acceptance from the previous stage as detailed in the SOPs.

11.6.6 Products are inspected and released only when they conform to all specified requirements.

11.6.7 The authority for release of products and services and documents / records from various stages are identified and documented.

11.6.8 Monitoring and test tools are identified and provided for the production / operation purposes.

11.7 Validation of Processes for Production and Service Provision: (Clause 7.5.2 of ISO 9001:2000)

11.7.1 All the processes are qualified by way of following the first article inspection process. Before any process is started the FA report has to be approved and only then can the production start. In case of any deviations which are observed the same have to be approved by the approval authority.

11.7.2 The details of the process is given in the First Article Inspection Process as detailed in [D-QA-05 First Article Inspection Process](#).

11.8 Identification and Traceability: (Clause 7.5.3 of ISO 9001:2000)

11.8.1 Each product which has to be produced in the organization is assigned a unique file No. This number changes whenever any changes happen in the design or any other aspect of the process. This no. is used to identify the various products at any point in time. This number is indicated in the Job Traveller. The status of the product is mentioned on the job traveler, which moves along with the job.

11.8.2 The date code is put on each PCB or on each array to identify the manufacturing date of the particular batch. This ensures that the traceability for the PCB manufactured is maintained.

11.8.3 This method ensures the implementation of identification and traceability of the product throughout its life cycle.

11.9 Customer Property (Clause 7.5.4 of ISO 9001:2000)

11.9.1 Any property given by the customer for use by the organizational in order to meet his requirements is termed as customer property. The same is identified by the respective departments and the process for maintaining it is clearly defined so that any change / modification in the same is communicated to all, any newer versions are provided at all points of use without delay and any damage or loss is reported to the customer promptly.



11.9.2 Refer to Customer Property Process ([D-MKT-02](#)) for details of the process.

11.10 Preservation of Product (Clause 7.5.5 of ISO 9001:2000)

11.10.1 Preservation of the product throughout the life cycle of the same is defined in the respective SOPs.

11.11 Control of Monitoring and Measuring Devices

11.11.1 The purpose of this procedure is to establish a system for control of monitoring and measuring devices in order to demonstrate the conformance of the product to the specified requirement and to ensure that the equipment used is consistent with the required measurement capability.

11.11.2 All such equipment is identified and proper calibration techniques are employed as per the process given in [D-MNT-02](#).

12 Measurement, Analysis and Improvement: (Clause 8 of ISO9001: 2000)

12.0.1 The Organization plans and implements the monitoring, measurement, analysis and improvement processes related to demonstrating conformity of the product.

12.0.2 The monitoring, measurement, analysis and improvement processes related to conformity of the QMS (internal audit, management review, document control, record control, corrective action and preventive action and certification audit findings etc.) are planned and implemented.

12.0.3 Continual improvement on the effectiveness of QMS (number of corrective and preventive actions taken, closing of internal quality audit non-conformities, completion of action points as per management review meeting records etc.) is monitored, measured, analyzed and improved.

12.1 Customer satisfaction: (Clause 8.2.1 of ISO 9001:2000)

12.1.1 Customer satisfaction is measured and reviewed on a continuous basis. "Customer satisfaction survey" is conducted once a year. These are regularly reviewed and action plans are prepared & implemented to improve the customer satisfaction. Records of survey, analysis and action plans are maintained. Refer to ([D-MKT-04](#)) for details of the procedure.

12.2 Internal Audit: (Clause 8.2.2 of ISO 9001:2000)

12.2.1 Management Representative is responsible for planning, Scheduling and conducting regular internal audits.

12.2.2 Minimum two audits are conducted per year. Any additional audit required will be decided by MR depending on the follow-up audit or any other criticality.



12.2.3 MR reports the findings of the audit to the top management during management review meeting. The internal audit is done to determine whether the QMS is conforming to planned arrangements, including ISO requirements and to determine whether the QMS is effectively implemented and maintained.

12.2.4 List of qualified internal auditor's team will be made and maintained. Procedure for qualifying internal auditor is defined in procedure [D-MG-02](#).

12.2.5 Qualified internal auditors will conduct the audit as per audit schedule. They will record the audit observations and non-conformities in defined formats. The non-conformities will be vacated by auditees and signed off by the auditors and MR.

12.2.6 MR will decide follow-up or additional audits in consultation with the top management. Follow-up activities include the verification of the actions taken and the reporting of verification of results.

12.2.7 Internal audit findings and records are maintained. Please refer to Procedure [D-MG-07](#) for the Internal audit.

12.3 Monitoring and Measurement of Processes: (Clause 8.2.3 of ISO 9001:2000)

12.3.1 The following processes will be monitored for their performance. These are made as part of Organizational Objectives and departmental objectives. They will be monitored and reviewed during the Management Review meetings. The respective department head will make monthly MIS on their departmental process performances and get reviewed by the management.

- Marketing
- Engineering
- Purchase
- MPC
- PPC
- Production
- Quality Assurance
- Stores
- Exports
- Maintenance
- HR

12.3.2 Suitable methods for monitoring and measurement of the processes are identified, including any statistical techniques and the extent of their use. Refer to ([D-MG-08](#)) Monitoring and Measurement of processes for details of the process.



12.4 Monitoring and Measurement of Product: (Clause 8.2.4 of ISO 9001:2000)

12.4.1 Inspection / verification requirements are defined in respective SOPs appropriately for acceptance criteria. They will be processed after such verification / inspection as defined at appropriate stages and records of such inspection and verification are maintained as evidence.

12.4.2 All testing, inspection and verification activities will be completed before the service delivery is effected.

12.4.3 Test, verification results are recorded and maintained as evidence of product acceptance.

12.4.4 Only the approved authority will release the product after verification of all relevant testing and verifications are completed as per plan and the product meets the defined requirements.

12.5 Control of Non-conforming product: (Clause 8.3 of ISO 9001:2000)

12.5.1 The purpose of this documented procedure is to describe the activities to be carried out in dealing with control of non-conforming products / services.

12.5.2 This procedure is applicable for non-conformities observed in

Production
Quality Assurance

12.5.3 Please refer to the detailed procedure for control of non-conforming process ([D-QA-06](#)).

12.6 Customer Complaint Handling Process

12.6.1 The purpose of this documented procedure is to describe the activities to be carried out in dealing with customer complaints.

12.6.2 This procedure is applicable for complaints received for any department of FINE-LINE CIRCUITS LIMITED.

12.6.3 Any member of the marketing department receives the Customer complaint. A Customer Complaint register is maintained at the departmental level to keep track of the complaints and the actions taken or to be taken for resolving the same. Suitable disposition action and corrective action are to be taken to ensure that recurrence of the same does not happen. Refer to [D-QA-07](#) for details of the procedure.

12.7 Analysis of Data: (Clause 8.4 of ISO 9001:2000)

12.7.1 The need for the application of statistical technique is identified based on the following guidelines.



- a. Data relating to response to customer.
E.g. Delivery performances
- b. Data relating to performance of Supplier
E.g. Supplier performance rating.
- c. Data relating to non-conformities in products or services.
E.g. Customer complaints, Errors and Defects analysis

12.7.2 The Organization collects and analyses appropriate data to demonstrate the suitability and effectiveness of the QMS and to evaluate where continual improvement of the QMS is made.

12.7.3 The basic data could be from any of the following areas. In addition to that appropriate data can be chosen for identifying the area for improvement.

- Customer satisfaction
- Non-Conformity of product and process
- Characteristics and trends of products and processes
- Suppliers Rating

12.8 Improvement: (Clause 8.5 of ISO 9001:2000)

12.8.1 Continual Improvement (Clause 8.5.1 of ISO 9001:2000)

FINE-LINE CIRCUITS LIMITED on a regular basis continually improves the effectiveness of the Quality management System through the use of the quality policy, quality objectives, audit results, analysis of data, corrective and preventive actions and management review.

12.8.2 Corrective Action: (Clause 8.5.2 of ISO 9001:2000)

12.8.2.1 Corrective action is taken for preventing re-occurrence of non-conformities in products / processes. It focuses on eliminating the symptoms and root causes. Refer to [D-MG-06](#) for detailed procedure.

12.8.2.2 Corrective actions are initiated from any of the following areas.

- a) Vendor / sub-contractor assessment
- b) Customer Complaints
- c) Chronic quality problems
- d) Product / Process NCR' s
- e) Not meeting objectives



12.8.2.3 Records related to investigations and effectiveness verification is maintained.

12.8.3 Preventive Action: (Clause 8.5.3 of ISO 9001:2000)

12.8.3.1 Preventive action is implemented for preventing occurrence of potential non-conformities in products and processes. Refer to [D-MG-10](#) for detailed procedure.

12.8.3.2 Records related to investigations and effectiveness verification is maintained.

12.8.3.3 Preventive actions are initiated from any of the following areas.

- a) Product / Process characteristics
- b) Customer satisfaction survey
- c) Analysis of various data

12.8.3.4 Relevant records of improvement are maintained.