Title: Quality Manual

Abstract: This document describes quality policy and management responsibility of Topsearch Printed Circuits (QJ) Ltd., scope of ISO/TS16949: 2009 Quality Management System and its contents that are reasonably reduced, correlation between introduction of related procedures in Quality Management System and description of the quality management system process.

Effective Date: 2010.03.31

Issue Registration:

Dept.	Title	Issue type	Subscription	Date	NO.	Remark	Dept.	Title	Issue type	Subscription	Date	NO.	emark
ACC	ACC Manager	E☒H ☐					MIS	Manager	E☒H ☐				
MKT	MKT Manager	E☒H ☒			1		FQC	Assistant Manager	E☒H ☒			10	
OPER	Manager	E☒H ☐					IPQC	Assistant Manager	E☒H ☒			11	
PROD	Manager	E☒H ☒			2		HR	Assistant Manager	E☒H ☐				
PE	Manager	E☒H ☒			3		R&D	Assistant Manager	E☒H ☒			12	
QA	Manager	E☒H ☒			4		H&S	Manager	E☒H ☒			13	
PPC	Manager	E☒H ☒			5		MAIN	Assistant Manager	E☒H ☒			14	
ME	Manager	E☒H ☒			6		EPD	Assistant Manager	E☒H ☒			15	
PMC	Assistant Manager	E☒H ☒			7		Certification Institute	Principal	E☐H ☒			16	
P&S	Assistant Manager	E☒H ☒			8								
TR	Assistant Manager	E☒H ☒			9								

Number of Revision Change:
(Leave the following form for the document control room to fill in):

1	
2	
3	
4	
5	

Original Copy Stamp Position

Copy Stamp Position

Registration of Document Cancellation: _____ Cancellation Date:_____

Application		Review (Department Manager)		QA Manager	

Revision Records:

Revision Date	Revision	Details of Revision	Initiator
2008-08-01	00	From ISO9001: 2000 to TS16949: 2002	ZG GUO
2009-10-01	01	From TS16949: 2002 to TS16949: 2000	SF LI
2010-03-31	02	1. Revise 1.2 scope of PCB manufactured in our company; 2. Update the origination chart 2.1.	SF LI

Editor：

Subscription： _____ **Title：QA Manager**

SF LI

Approved by：

Subscription： _____ **Title：MKT Director**

Eric Liu

Subscription： _____ **Title：Financial Director**

ZG FANG

Subscription： _____ **Title：OPER Manager**

WD GAO

Issue Approval：

Subscription： _____ **Title：Assistant Engineer—QA (DOC)**

YM YANG

CONTENTS

1.Preface

1.1 Purpose

This manual aims at describing the organization's quality policy and management system, and make them completely meet the requirement of international standard ISO/TS16949: 2009.

1.2 Scope

This manual is applicable to the Topsearch Printed Circuits (QJ) Ltd., which mainly engages in the production and sale of PCB. This manual will also include part of functional departments of Topsearch Printed Circuits (Shenzhen) Ltd., which will be divided into two classes, that is, part function in Shenzhen and full function in Shenzhen in the organization chart. Details about function distribution see 2.1.1, a list about their work content and work place of the responsible department or team.

QJ Plant location:

Topsearch Printed Circuits (QJ) Ltd., Baitu industrial area, Qujiang District, Shaoguan city, Guangdong province, China

Tel: (0751) 6483600 Fax: (0751) 6483603

Shenzhen Plant location:

Xinghua industrial building first period 6 blocks and Topsearch Building, Industrial Street, Shekou, Shenzhen, China

Tel: (86-755) 26693186 Fax: (86-755) 26691859

1.3 Standard Selection and Professional Style

The organization would not participate in the product design and development, therefore the section7.3 in the ISO/TS16949: 2009 standard about the product design and development would not be applicable to our company. Outsource process: managed and controlled as the "Purchase Process" and "Inspection and Test Process". (Related automobile product is excluded)

1.4 Reference Document

- ISO/TS16949: 2009 Quality Management System Requirement
- ISO19011 Quality and (or) Environment Management System Review Instruction
- ISO10012-1: 1992 Measurement Equipment Quality Assurance Requirement Section 1: Measurement Equipment Gauging Confirmation System
- ISO10012-2: 1997 Measurement Equipment Quality Assurance Requirement Section 2: Measurement Process Control Instruction IATF (instruction for ISO/TS16949: 2009)

2. Organization Profile

Both Topsearch Printed Circuits (QJ) Ltd. and Topsearch Printed Circuits (Shenzhen) Ltd., whose organization structure are complemented, belong to Topsearch Industrial (Stock Hold) Ltd.

The company, which previously was the Topsearch Industrial Ltd., was established in Hong Kong in 1985 and mainly engaged in the production and sales of PCB. The monthly production at that time reached 80,000 square feet and began to increase production lines in Shekou Shenzhen in the next year. The total number of the workers was around 500 and the monthly output was 10,000 square feet at that time.

In 1991, Topsearch Industrial Ltd. moved its workshop from HK to Shekou while still remained the Executive, Marketing, Purchasing and Shipping office in HK, and after that, the monthly output reached 180,000 square feet. The producing efficiency is greatly improved as the result of reasonable distribution of resources. After then, the organization achieved huge development.

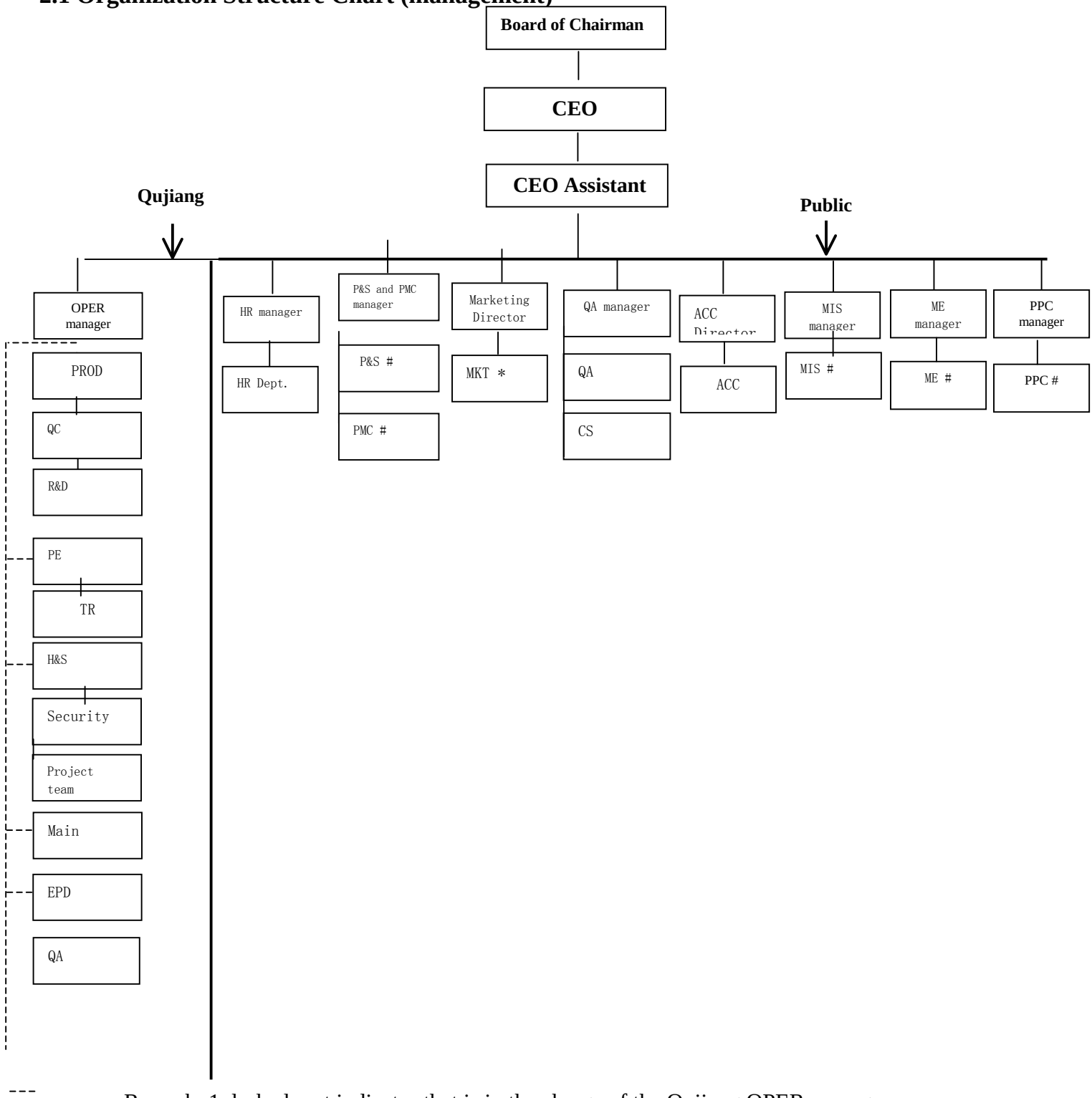
The organization is formally named as Topsearch Printed Circuits (Shenzhen) Ltd. in July 1996. Now the organization has possessed about 4000 workers and the monthly output has reached 1,500,000 square feet and its factory layout reached 5,000,000 square feet.

As the consideration of cost and competition, the organization finally decided to invest in building factory in Qujiang Shaoguan in July 2004. The organization began its production in April 2005 and called it as Topsearch Printed Circuit (QJ) Ltd.. At the end of 2008, the organization's monthly production reached 1,500,000 square feet.

With the development of organization scale and the improvement of technology, the organization's market share is gradually increased. Currently the organization's sale net is all over the world and its marketing offices locate in Britain, USA, Singapore, Thailand and Taiwan and so on. The principle customers are well-known personal computer, communicating equipment and electronic appliance corporation.

In order to adapt to the world trend, the organization is committed to produce high technology and high value PCB and make a permanent relationship with the client and supplier in the premise of protecting and improving the environment.

2.1 Organization Structure Chart (management)



Remark: 1.dashed part indicates that is in the charge of the Qujiang OPER manager.
2. * indicates the department's full function is in the shekou factory,
# indicates the department's main function is in the shekou factory.
3. Each department's responsibility see attached page.

2.1.1 Each Department or Team's Main Work Item and Their Work Location

Department		Work Item or Responsibility Scope	Process Mode	.Shenzhen plant	Qujiang plant	Remark
OPER Manager	1、PROD	Manufacturing and production management	SOP		✔	
	2、QC	IPQC inspection	SOP		✔	
		FQC inspection	SOP		✔	
		Test-frame manufacture	SOP	✔		
		Test-frame usage, maintenance and store	SOP		✔	
		Management for IMS,ENTEK and packing	SOP		✔	
PE Manager	3、PE	Production operation control	SOP		✔	
		Chemical lab management	SOP		✔	
		Equipment planning	SOP		✔	
		Equipment approval and equipment layout evaluation	SOP		✔	
R&D Manager	4、R&D	Reliability analysis	SOP		✔	
EPD	5、EPD	Management of environment and waste water pool	SOP		✔	
PPC	6、PPC	Plan arrangement	SOP		✔	
		Delivery date evaluation	SOP	✔		
		Follow the plan	SOP		✔	
HR Manager	7、HR	Human resource management	SOP		✔	
TR Manager	8、TR	Training management	SOP		✔	
MAIN Assistant Manager	9、 MAIN	Equipment maintenance	SOP		✔	
QA Manager	10、QA	Supplier evaluation	SOP	✔	✔	
		Management audit	MOP		✔	
		Quality management system planning	MOP		✔	
		Quality management system interior audit	SOP		✔	
		（IPQA）physics lab management, production procedure audit(IPQA)	SOP		✔	
		Incoming material inspection, engineer inspection, final audit	SOP		✔	
		MRB management	SOP		✔	
		Follow the GRA and customer complaint	COP		✔	
	11、 CS	Customer satisfaction evaluation	COP		✔	
		Dealing of GRA and customer complaint	COP		✔	
ME manager	12、ME	Contract audit and establishment of relative manufacture instruction	COP	✔		
		Manufacture tool inspection and management	SOP	✔		
		Management for the release of manufacture tool	SOP		✔	

H&S manager	13 security, work project team	Factory environment and maintenance	SOP		✔	
		Worker safety	SOP		✔	
	14、material security control	Material security control	SOP		✔	
Financial director	15. ACC	Finance management	SOP		✔	
PMC manager	16. P&S	Purchase management	SOP	✔		
		Product delivery	COP	✔		
		Purchased material audit	SOP	✔		
	17. MC	Material planning	SOP	✔		
		Warehouse management	SOP		✔	
MIS manage ment	18. MIS	Electronics document and record control	SOP		✔	
		Information resource management	SOP		✔	
Marketing director	19. Marketing	Customer supported material control	COP	✔		
		Dealing of offer and order process	COP	✔		

2.1.2 Management Responsibility

Board of Chairman

- Pass information to each organization about the importance to meet customer's requirement and to abide to the law and regulation.
- Establish the quality policy.
- Make sure the establishment of quality target.
- Hold management audit conference.
- Make sure the obtainment of resource for the company operation development.
- Make sure the establishment and implement of quality management. system and continually improve its effectiveness.
- Give review about organization performance and adjust the policy the meet the new requirement.
- Make sure the responsibility and authority in the organization is well regulated and transmitted.

CEO

- Direct the board of chairman to implement the responsibility
- Direct each functional management in following the organization policy, make sure the organization develop steadily and healthy.
- Direct each functional management in establishing suitable communication procedure, communicate about the effectiveness of quality management system.
- Direct each functional management in auditing the product realization process and support process, make sure the process effectiveness.
- Make sure a scheme to stimulate the worker to finish the quality target, establish a process for continual improvement and establishment of creative environment.
- Participate in the management judge, audit the overall organization performance and lead the organization development.
- Participate in the establishment and review of continual improvement objective.

Assistant CEO

- Assist the CEO finish the duty.
- Give report about the daily operation status to the CEO regularly.

OPER Manager

- Coordinate the planning, production, quality and maintenance activity, make sure the

organization policy and procedure implemented effectively.

- In charge of each department's daily work in Qujiang factory.
- Provide satisfactory product, objective cost and delivery date to the customer with each functional department.
- Establish and implement the organization policy to reach the organization quality policy
- Participate in the establishment and review of continual improvement objective.

QA Manager

- Summon the management judge conference and keep the management judge record
- Assist with senior management making quality policy.
- Establish and maintain the quality management system which is in accordance with ISO/TS16949 requirement.
- Take measure to reduce the nonconformity of product, working procedure and quality system.
- When necessary, hold on the production line and solve the nonconformity.
- Make sure contact and communication with the customer regularly and collect and analyze the customer satisfactory data.
- Make sure each department understand customer quality standard and requirement

and therefore give suitable control.

- Coordinate with the OPER department and make sure the product delivered punctually without being affecting by quality problem.
- Organize customer visit activity.
- Participate in the establishment and implement of the organization policy in the management judgment conference to reach company quality policy and objective.

Financial Director

- Establish executive financial plan and interior control in accordance with company policy.
- Provide monthly report about production cost performance and financial control.
- Establish and implement organization policy in the management judge conference to reach organization quality policy.
- Participate in the establishment and review of continual improvement objective.

MIS Manager

- Establish and maintain the information system to increase accuracy and effectiveness in communicating, give report about the production activity status.
- Maintain work condition for all the computer station and network system.
- Establish and implement organization policy in the management judge conference to reach organization quality policy.

MKT Manager

- Provide the most satisfactory price, delivery date and qualified product to customer with OPER department and QA department.
- Serve as the bridge between customer and the organization, solve the customer complaint or technology requirement in attitude of mutual-trust and cooperation.
- Refer to and discuss customer requirement about new technology and quality.
- Establish and implement organization policy in the management judge conference to reach the organization quality policy.

H&S Manager

- Inspect the security and environment, make sure the production environment and security compliant to requirement and the production activity is operated as normal.
- Maintain and provide emergency coordination and measurement, make sure rapid and effective production recovery.
- Establish and implement organization policy in the management judge conference to reach organization quality policy.

- Participate in the establishment and review of business plan and continual improvement objective.

PMC Manager

- Make sure the production material is purchased as procedure.
- Maintain the supplier audit and approval.
- Provide effective logistic control for original material and finished goods.
- Establish and implement organization policy in the management judge conference to reach organization quality policy.
- Participate in the establishment and review of business plan and continual improvement objective.

HR Department

- Make sure the obtainment of human resource.
- Establish and implement organization policy in the management judge conference to reach organization quality policy.
- Participate in the establishment and review of business plan and continual improvement objective.

Training Department

- Provide worker with effective training, enable them to meet the job requirement.
- Establish and implement organization policy in the management judge conference to reach organization quality policy.
- Participate in the establishment and review of business plan and continual improvement objective.

Each Department Manager

- Make sure the achievement of quality target.
- Make full use of resources and make sure the accomplishment of the production task both in quantity and quality.
- Provide related systematic work report to the management judge conference regularly
- Implement related work effectively and designedly to meet the improvement requirement put forward in the management judge conference.
- Make sure all accepted resolution been carried out efficiently.
- Keep control of additional process, paid shipping and installment for nonconformity product until the problem been corrected.
- Make sure the effective operation of quality management system ISO/TS16949.

2.2 Organization Instruction Chart (Functional Department)

Rank	Engineer and Process Operation System	Supporting Department System	ACC System	MIS System
1	Manager	Manager	Manager	Manager
2	Senior engineer/supervisor	Supervisor	Director/ assistant accountant	Supervisor/senior technology consulter/senior consulter
3	Secretary/engineer /director	Secretary/director/engineer		Team leader/system analyst/IT specialist /business consultant/ consultant/assistant

	Assistant engineer /assistant director	Assistant engineer/ Assistant director		Analysis programmer/software quality engineer/interior ERP executive/engineer/assistant engineer/customer service director
4	Clerk (secretary, technician, analyst, trainor)	Clerk (secretary, shipping secretary, trainor, planner, warehouseman, receptionist, dormitory administrator, driver, personel assistant, security assistant, factory doctor)	Cashier, secretar	Technician/ assistant technician/trainer
5	Foreman	Foreman, security minitor, cleanor monitor		
	Machine man	Technician		
	Worker	Worker, safe guard, cleanor		

Remark: If there are two ranks in the position, add “assistant” before the title if this job is to assist the original job such as assistant engineer, assistant supervisor, etc.

Those department which adopt “production, engineer and quality operation system” for position arrangement include:

- ME
- PROD, PE, QC
- QA, CS
- PPC
- R&D
- MAIN

Those department which adopt support department system for position arrangement include:

- H&S
- HR
- TR
- MKT
- PMC

Those department which adopt financial department system for position arrangement include:

- ACC

Those department which adopt the MIS department system for position arrangement include:

- MIS

2.2.1 Post Responsibility of Each Functional Department

- **Engineer and Process Operation System**

1. Senior Engineer

- Assist the manager work, responsible for the department technical work
- Monitor, audit and update production procedure control system, improve the

craftwork technology gradually
- Report problem unsolved to the superior timely

2. Supervisor
- Assist the manager, give monitor, audit, adjust to control system in the production procedure, maintain the production structure and make sure the smoothly production operation
- Report problem unsolved to superior timely

3. Secretary
- Assist manager in dealing daily file work
- Assist the management in dealing both interior and exterior communication and analyze the department administration data.

4. Engineer
- Establish OI for relative production procedure, set up quality assurance system and guide and supervise to ensure effective operation.
- Make sure steady operation of craftwork in production procedure and give report about problem unsolved to the superior timely

5. Directors
- According to production instruction, organize and arrange the manufacture reasonably, give control for human and material resource, supervise production line, make sure the production procedure operate smoothly both in quality and quantity.
- Report unsolved problem to superior timely

6. Assistant Engineer
- Assist the engineer -- establish OI for related production procedure, set up, guide and supervise quality assurance system, make sure the production procedure operate smoothly
- Report problem unsolved to superior timely

7. Assistant Director
- Assist the director's job-- according to the production instruction, organize and arrange related production reasonably; give control for human and material resource, supervise the production line, make sure the production procedure operate smoothly both in quality and quantity.
- Report problem unsolved to the superior timely

8. Clerk (secretary, technician, analyst, planner, warehouseman, trainer)
- According to related operation instruction requirement, implement job about inspection , data collecting and file sorting, solve those simple control problem
- Report unsolved problem to the superior timely

9. Foremen and Machine Man
- Assist the director, organize and arrange the machine operation, inspect the production quality and speed make sure the production activity operate smoothly both in quality and quantity and keep record at the same time
- Report problem unsolved to the superior timely

10. Worker
- Perform the daily work according to related OI instruction and the superior arrangement. Inform the superior immediately if something emergency happens.

- **Support Department System**

1.Supervisor
- Assist the manager, monitor, audit and update the department control system to improve job effectiveness and management service standard
- Report problem unsolved to superior timely

2. Secretary
- Assist the manager perform daily file work

- Assist the management dealing interior and exterior communication and analyze department administration data

3. Director

- Establish quality assurance system for production procedure, guide and inspect the production procedure to make sure it operates smoothly
- Report problem unsolved to superior timely

4. Engineer

- Establish quality assurance system for the production procedure, guide and supervise the production procedure and make sure it operate smoothly
- Report problem unsolved to superior timely

5. Assistant Engineer

- Assist the engineer: establish quality assurance system for the production procedure, guide and supervise the production procedure and make sure it operate smoothly
- Report problem unsolved to superior timely

6. Assistant Director

- Establish quality assurance system for the production procedure, guide and supervise the production procedure and make sure it operate smoothly
- Report problem unsolved to superior timely

7. Clerk (secretary, shipping secretary, trainor, planer, warehouseman, receptionist, dormitryadministror, driver, personnel assistant, security assistant, factory doctor)

- Perform the daily work according to related Operation Instruction in the production procedure, keep related record.
- Report problem unsolved to superior timely

8. Foreman, Security Monitor and Cleaner Monitor

- Assists the director organize and arrange job, keep related record.
- Report unsolved problem to superior timely

9.Technician

- Complete technical job according to superior's arrangement
- Report problem unsolved to superior timely

10.Worker, Safe Guarder and Cleaner

- Perform daily work according to related OI and superior arrangement
- Inform the superior immediately when something emergency happen

- **ACC System**

1. Director/Assistant Accountant

- Dealing with cost and salary report
- Check credence
- Make financial report
- Guide the shop floor worker and allot work for them

2. Accountant

- Make different credence
- Check the account for due fund
- Manage the fixed assets
- Make relative report
- Other accounting business

3. Cashier and Secretary

- Make and check different type of credence
- Assist to make report
- Input the credence into the computer

- **MIS System**

1. Assistant

- Assist the management dealing with interior and exterior communication and analyze department administration data.
- Assist the manager or assistant manager or assist dealing with department daily affair.

- **System Management Team**

1.Assistant Manager

- Responsible for controlling organization interior system, select suitable outward IT product, resolution scheme, technology and service for the organization according to the organization requirement;
- Responsible for the arrangement of organization interior system integration and exterior product application project;
- Give advice about the new solution and new technology for the MIS manager;
- Arrange the usage of general application software and interior worker training for customer;
- Responsible for the arrangement of organization IT assets management policy and cross-zone IT asset allocation or balance;
- Responsible for the arrangement of information security policy and its supervision performance.

2. Supervisor /Team Leader/Senior Technology Consultant

- Lead the team in administrating the service area, system area and application area
- Lead the team in administrating the organization interior and exterior internet
- Make sure organization system is reliable, safe and confidential
- Administrate the engineer daily affair
- Provide training for new customer
- Responsible for the provision of customer service
- Assist the assistant manager complete project and administrate the project detail

3. IT Specialist (Hong Kong)

- Manage and maintain the Hong Kong and oversea system
- Provide Hong Kong, Macao and oversea with customer service

4. Engineer/Assistant Engineer

- Deal with customer requirement
- Inspect the internet service operation
- Perform relative plan for team leader
- Inspect print office system environment
- Trace the new IT development
- Administrate the IT assets
- Maintain the IT assets management system
- Assets arrangement, assets change control and data analysis

5.Information Security Engineer

- Maintain the information security management system, relative document and record
- Information security inspection and audit
- Data backup and recovery
- Dealing with the information security affair

6.Technician/Assistant Technician

- Solve problem for customer system and outline equipment
- Receive training provided by the system engineer
- Assist the engineer implement project

7. Outsource Customer Service

- Offer telephone service for exterior customer
- Assign customer support task for technician
- Investigate outside service quality, give customer feedback to the direct superior

8.Technician (Outsource)

- Give technology support and malfunction treatment for customer computer

- Receive interior technology training

• IT Audit Team

1. IT Audit Team Leader

- Guide IT audit
- Assist the IT audit engineer in analyzing problem
- Establish interior IT audit plan

2. Audit Project Engineer

- Implement IT audit
- Give report about the IT audit to the team leader
- Give training of IT audit awareness for interior staff

• System Develop Team/System Implementation Team：

1. Assistant Manager

- Arrange the development and implement of organization interior system
- Help establish a professional team, perform organization relative decision and arrange department work
- Second development and daily maintenance for the outside customer PCS ERP system
- Give advise about new system and new technology to the MIS manager
- Assist consultancy system department manager in establishing scheme for the promotion of important system

2. Supervisor

- Promote and monitor the application of organization interior system
- Monitor development trend for software technology
- Make sure everything develop as schedule

3. Team leader

- Promote and monitor the application for the organization interior system
- Establish project base structure
- Supervise the project process
- Make sure everything develop as planned

4. System Analyst

- Establish project base structure
- Give allotment and develop for the project

• Design for Database and Interface

1. Analysis Programmer

- Design for database and interface
- Implement the detail in the system
- Implement unit test

2. Interior ERP Operator

- Responsible for the system training and operation
- Follow the system performance

3. Software Quality Assurance Team Leader

- Make sure the integrity of all delivered work
- Make sure every delivered work been followed by a representative
- Make sure the integrity of delivered work in content and conformance in form
- Ensuring the quality of all software, commerce and quality development

4. Software Quality Engineer

- Test software
- Edit the form for delivered product

5. Business Consultant

- Monitor the variation of commercial environment for specialized industry
- Establish enterprise mold for specialized industrial
- Provide strategy and plan for specialized industrial
- Analyze the core procedure for the business affair
- Analyze the business procedure for specialized industrial

6. Operation Engineer

- Promote the improvement of system procedure
- Integrate different system requirement, make sure the system operate effectively to support the the organization operation
- Follow the system application process, solve existing problem and continually improve the system
- Collect system base data with the operation department, ensure rapid, accurate and integrated system data

2.2.2 General Responsibility and Authority

- Staff responsibility and authority have been regulated both in the quality manual and department procedure
- All staff in the organization possess authority

◊ Confirm and record problem for product, production procedure and quality system

◊ Find solution for problem through existing communication method

- All staff in the organization bear responsibility

◊ Give report and take appropriate action in dealing with relative problem according to designated responsibility in relative department procedure, company procedure and operation instruction

◊ Make sure the whole organization property–including equipment, tool, machine and material - receive appropriate maintenance within work scope

- For executive or administration requirement, the senior can grant his or her authority only described in the organization structure chart to the junior
- In certain circumstance, the superior shall take responsible for the job of his or her interior regulated in the organization chart when his or her interior is absent.

2.2.3 Cross Functional Team

To cooperate with organization development and make sure organization projects outcome meet different requirements, the project will require specialist with different ability. Therefore, it is necessary to establish a Cross Functional Team to complete these projects. Detail about its form method, responsibility and record control see Cross Functional Team procedure TSQJTCP021

2.2.4 Resources Allocation

During the process in maintaining quality management system and continually improving effectiveness, the organization shall allocate resource reasonably, make sure the best outcome in the labor allocation, organization management, organization performance and job evaluation, therefore to satisfy customer requirement.

ACC manager in charge of the following departments:

◊ ACC

- Establish financial and cost policy
- Dealing company accounts
- Analyze company financial status

PMC manager in charge of the following departments:

◊ PMC

- Make sure the production material is purchased according to the procedure

- Responsible for the approval of the new material
- Maintain the supplier ovulation list
- Arrange and ensure the material meet production requirement
- Administrate the warehouse according to regulation, make sure the normal supply of material
- Give monthly report about continual improvement objective regularly to the QA Manager

MKT manager in charge of the following departments:

◊ MKT

The organization has established oversea affair offices and entrust oversea sale representatives overseas whose role is defined as supplier to assist our organization to deal with oversea sale affair. This offices and sales representative mainly specialized in dealing with customer service, customer contact and customer information collecting. (Approval and audit for oversea sales office and sales representatives refer to the purchase manual TSQJCP06). Customer purchase orders was in the charge of the marketing department in our organization whose job also include price offering consultant service.

OPER manager in charge of the following departments:

◊ PROD (include process inspection)

- Establish and carry out production procedure management system, make sure high quality and effectiveness in the production
- Coordinate the planned and production activity, make sure the production and management objective meet the requirement
- Implement process inspection according to plan and dispose of nonconformity product
- Arrange labor and equipment effectively, make sure the production ongoing according to plan
- Keep improving product yield rate, reduce material consumption and production cost
- Establish and maintain necessary control system, make sure the whole Manufactured product meet the customer requiremetn.
- Give quarterly report about continual improvement objective performance to the QA manager regularly.

◊ QC

- Give final inspection for product, make sure the product meet the customer requirement
- Give report about department objective performance to the QA manager regularly.

PE manager in charge of the following departments:

◊ PE (including chemical lab)

- Responsible for the equipment layout and evaluation
- Establish and update the production procedure regulation and operation instruction, make sure its operation effectively
- Dealing with problem existing in the production procedure timely and effectively
- Administrate the chemical lab according to regulation
- Evaluate and update the working procedure capability
- Complete the chemical laboratory project and dealing with the rejected project according the planned requirement.
- Give evaluation for new PR in the first lot production and those overdue material
- Give quarterly report about continual improvement objective performance to the

QA manager regularly

PPC manager in charge of the following departments:

- Audit the delivery date in purchase order
- Follow the production plan
- Arrange necessary production tool
- Give quarterly report about the continual improvement objective performance to the QA manager regularly

R&D manager in charge of the following departments:

◊ R&D department

- Assist deal with customer complaint about reliability
- Establish accordant short-term and medium or long term preventive and corrective action plan to those customers complaining about the reliability
- Assist the marketing department in dealing with both existing and new customer order about technology support reliability
- Promote the feedback of research outcome, customer compliant and new purchase order about the reliability among the continual improvement and control in PROD, PE, QA and ME
- Give feedback about the latest and important reliability quality problem to the superior management timely

TR manager in charge of the following departments:

◊ Training Department

- Analyze each job's training requirement, establish training plan and provide suitable professional training regularly
- Improve and keep the related training record
- Give quarterly report about the continual improvement objective performance to the QA manager regularly

MAIN manager in charge of the following departments:

◊ Maintenance Department

- Establish and carry out management maintenance system to reduce equipment malfunction rate, make sure the normal operation and supply of factory utility and give control and ovulation for the working environment
- Maintain malfunction equipment timely to ensure normal operation as soon as possible
- Install new equipment and restore the equipment timely
- Give quarterly report about the continual improvement objective performance to the QA manager regularly

HR manager in charge of the following departments:

◊ Human resource department

- Apply enough appropriate labors to meet the organization's requirement
- Administrate the human resource according to relative national labor law and regulation
- Keep record about the personnel file
- Give quarterly report about the continual improvement objective performance to the QA manager regularly when necessary

ME manager in charge of the following departments:

◊ Manufacture Engineer Department

- Make sure customer requirement receive adequate audit
- Prepare and update the manufacture in structure and production tool according to plan

- Responsible for the update of product UL
- Give quarterly report about continual improvement objective performance to the QA manager regularly

QA in charge of the following departments:

◊ Quality Assurance Department
- Establish and maintain quality management system which is in accordance with TS16949: 2009 requirement
- Inspect the incoming material and evaluate the supplier
- Give final audit for the product, make sure the product meet the customer requirement
- Establish and maintain the laboratory system
- Responsible for the document and data control
- Give review and summary for the department quarterly report about continual improvement objective performance

◊ Quality and Customer Service Department
- Responsible for the customer satisfaction evaluation
- Responsible for the customer complaint
- Give quarterly report about continual improvement to QA manager

MIS manager in charge of the following departments:

◊ Management Information System
- Maintain the organization information system

H&S
- Establish and carry out organization policy about health and security
- Plan and coordinate the activity about health and security
- Keep contact with related government about health and security
- Maintain the factory premise, make sure the environment in the factory is clean and tidy

EPD
- Responsible for environment management system maintain in the ISO14001
- Responsible for the management of wastewater pool.

2.3 Organization Assignment Division Chart

Clause Type /Responsible Department			Top management	Management representative	Customer representative	PROD	PE	ME	R&S	MAIN	PPC	QA	CS	QC	H&S	HR	TR	Customer Project management	MKT	ACC	PMC	MIS	EPD
Chapter four	Quality management system	4.1quality management system process and its related requirement	C	A	C	C	C	C	C	C	C	B	C	C	C	C	C	C	C	C	C	C	C
		4.2document requirement	C	C	C	C	C	C	C	C	C	A	C	C	C	C	C	C	C	C	C	C	C
Chapter five	Management Responsibility	5.1 quality policy and commitment	A	B	C	C	C	C	C	C	C	B	C	C	C	C	C	C	C	C	C	C	C
		5.2customer focus	C	A	C	C	C	B	B	C	C	B	A	C	C	B	B	C	B	C	C	C	B
		5.3planning	C	A	C	C	C	C	C	C	C	B	C	C	C	C	C	C	C	C	C	C	C

	y	5.4responsibility,authority and communication	A	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B
		5.5management audit	A	B	C	C	C	C	C	C	C	B	C	C	C	C	C	C	C	C	C	C	C
		5.6business plan	B	A	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	B	C	C	C
Chapter six	Resource Management	6.1 resource provision	A	B	C	B	B	C	C	C	C	B	C	B	B	B	B	C	C	C	C	C	C
		6.2 human resource	C	C	C	B	B	B	B	C	C	B	C	B	C	A	B	B	C	C	C	C	B
		6.3 infrastructure	C	C	C	A	B	B	C	B	C	B	C	B	B	C	C	C	C	C	C	B	C
		6.4work environment	C	C	C	A	B	B	C	B	C	B	C	A	B	C	C	C	C	C	C	C	C
Chapter seven	Product Realization	7.1 product realization plan	C	C	C	B	B	A	B	C	C	B	C	C	C	C	C	C	C	D	C	C	B
		7.2 customer related process	C	C	C	B	B	A	B	C	B	B	B	B	C	B	B	B	B	D	B	C	B
		7.3design and development	C	C	C	B	B	A	B	C	C	B	C	C	D	C	C	C	C	D	C	D	B
		7.4 Purchase	C	C	C	C	C	C	B	C	C	B	C	C	D	C	C	C	C	C	A	C	B
		7.5production and service provision	C	C	C	A	B	B	B	B	B	B	C	B	C	C	C	B	C	D	B	C	B
		7.6monitor and measurement equipment control	C	C	C	B	C	B	C	C	B	A	C	B	D	C	C	C	C	D	C	C	C
Chapter eight	Measurement, analysis and improvement	8.1 general rule	C	C	C	C	C	C	C	D	C	A	B	C	C	C	C	C	C	D	C	D	C
		8.2monitor and measurement	B	B	B	A	C	B	C	B	B	B	C	A	B	B	B	B	B	C	B	C	C
		8.3 Unqualified product control	C	C	C	A	B	C	C	D	C	B	B	B	D	D	D	C	C	D	C	D	C
		8.4data analysis	C	C	C	C	B	C	B	C	C	A	C	C	C	C	C	C	C	C	C	C	B
		8.5improvement	C	C	C	B	C	B	B	C	C	A	B	B	C	C	C	C	C	C	C	C	B

Remark: A is responsible department which need to implement plan for responsible clause and provide related regulation and operation instruction

B is assistant department, which need to provide relative regulation and operation Instruction according to plan department regulation

C is relative department, which need to perform related operation in the clause without requirement for providing regulations and criterion

D is not related to the clause.

3. Quality Manual Control

3.1 Issue

The document control room issue quality manual with method of copy or e-mail according to the first page list. If document control receives approval from QA manager, they can issue other controlled copy.

3.2 Quality Manual Control Policy

Quality manual is the basic and most important document in the quality system, whether it is successful or not depends on all members' understanding and application of the contents in ISO/TS16949: 2009. Therefore, it is necessary to control the edit and revision of the quality manual strictly, to make sure:

- Contents should be in accordance with the ISO/TS16949 standard and meet customer's requirement;
- Definition of the related job is clear;
- Suitable management, control and statistic tool is used in doing related job;
- Analyze the actual element and adopt reliable method in designing working program and review the result to check whether the result reach to the objective;
- Adopt process method to keep continual control for process connection, process combination and process correlation in process system;
- All staff in the organization can understand the quality system policy and the responsibility.

In this manual and procedure document, Qujiang Plant and Shenzhen Plant is short for Topsearch Printed Circuits (Qujiang) Ltd. and Topsearch Printed Circuits (Shenzhen) Ltd. Besides, the release and revision of the quality manual require strict control.

QA manager should make sure related department or organization receive latest revision of quality manual through the release of the quality manual of document control room. Meanwhile, the document control room should callback the old revision except the one give for customer's reference. If the copy of quality manual is needed, he or she must receive the approval of the QA manager. Each copy of the quality manual should give a seal and mark NO. on the cover. The controlled copy will adopt yellow A4 paper for distinguishing.

When the manual gets revised, the changed revision will be recorded in the headline revision registration, revision number shall adopt two numbers and the first edition will be 00.

4. Quality Management System

The plan, implement and maintain of organization quality management system and continual improvement of effectiveness is to make sure the organization product and service in accordance with regulation, which include:

- Recognize the required process of quality management system and its application in the organization
- Define the process sequence and mutual effect
- Define necessary criteria or method to keep effective operation and control in the process
- Make sure to receive necessary resources and information to support process operation and process inspection
- Supervise, measure and analyze the process
- Continually improve the quality management system effectiveness through the application of quality policy, quality target, audit result, data analysis, corrective action measurement and management audit
- The organization is responsible for the control of the outward process to make sure it meet customer requirement.

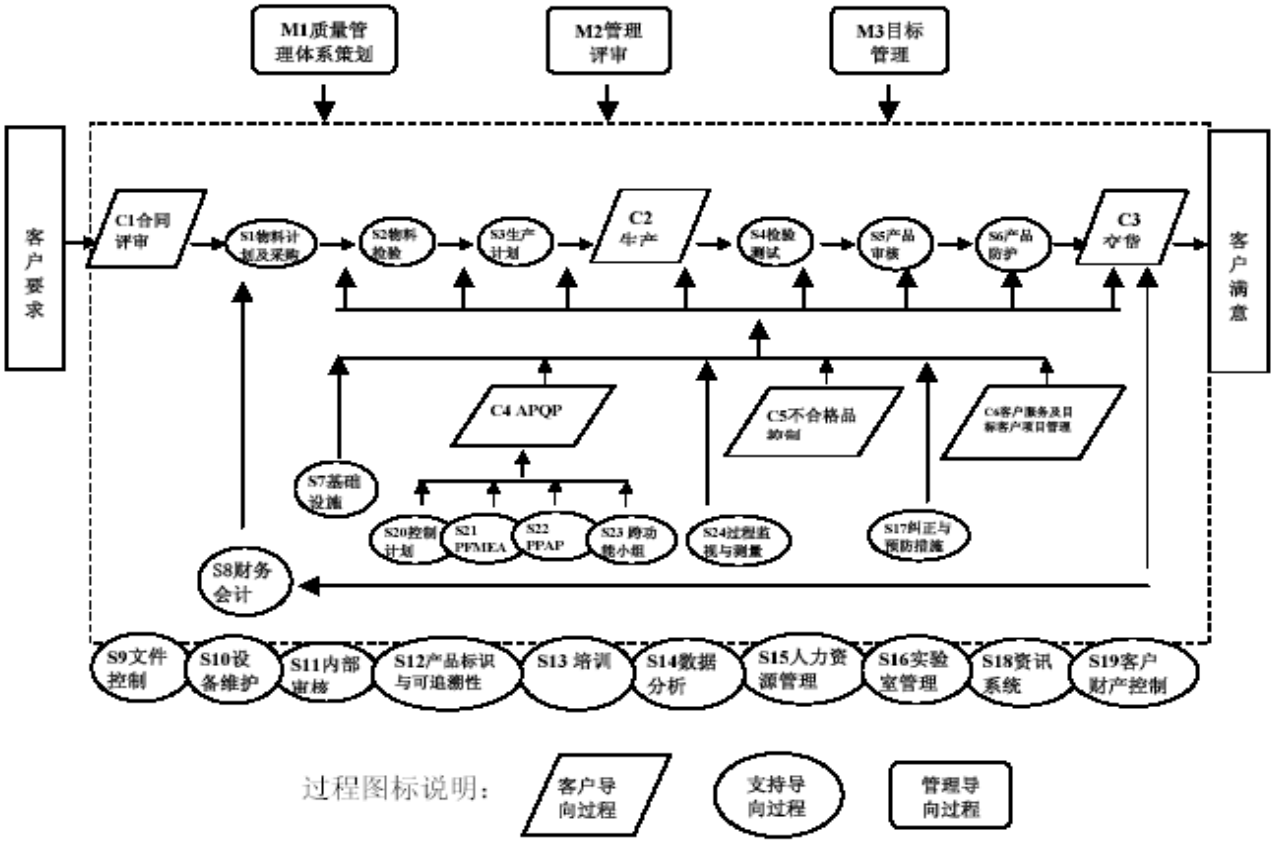
4.1 Quality Management System Process and Its Correlation

4.1-1 Process Classification

Process refers to a serial of activity of providing product or service for customer including both the interior and exterior organization. Process starts form input and end with output. Generally we divide the process into 3 types, that is COP, SOP, MOP.

- COP: we define customer focus process as COP.
- SOP: the process to support the realization of COP.
- MOP: quality system plan, quality target monitor and management audit process.

4.1-2 Chart on the Quality Management System Process and Correlation：



4.1-3 Correlation of Quality Management System Process：

质量管理体系策划（M1） 管理评审（M2） 目标管理（M3） → ↓			客户导向过程（C）					
			C1	C2	C3	C4	C5	C6
			合同评审	生产	交货	APQP	不合格品控制	客户服务及目标客户项目管理
支持导向过程（S）	S1	物料计划及采购	X	X		X		
	S2	物料检验		X	X	X	X	X
	S3	生产计划		X	X			X
	S4	检验测试		X	X	X	X	X
	S5	产品审核		X	X		X	X
	S6	产品防护		X	X		X	X
	S7	基础设施		X	X	X		
	S8	财务会计			X		X	X
	S9	文件控制	X	X	X	X	X	X
	S10	设备维护		X				
	S11	内部审核	X	X	X	X	X	X
	S12	产品标识与可追溯性		X	X	X	X	X
	S13	培训	X	X	X	X	X	X
	S14	数据分析	X	X	X	X	X	X
	S15	人力资源管理	X	X	X	X	X	X
	S16	实验室管理	X	X			X	
	S17	纠正与预防措施	X	X	X	X	X	X
	S18	资讯系统	X	X	X	X	X	X
	S19	客户财产控制	X	X	X	X		
	S20	控制计划	X	X	X	X	X	
	S21	PFMEA	X	X		X	X	
	S22	PPAP	X	X	X	X	X	X
	S23	跨功能小组	X	X		X		
	S24	过程监视与测量	X	X	X	X	X	X
			合同评审	生产	交货	APQP	不合格品控制	客户服务及目标客户项目管理
			C1	C2	C3	C4	C5	C6

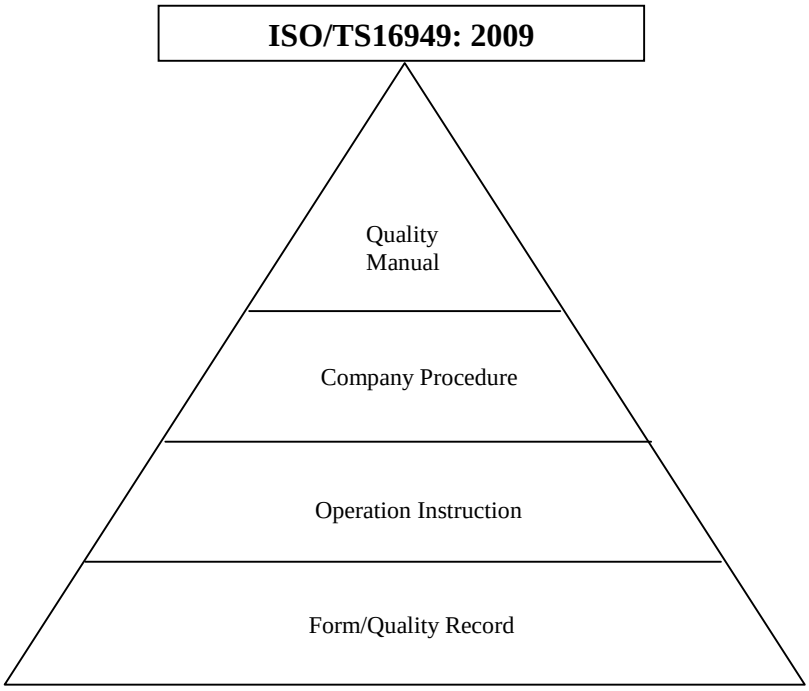
4.2 Document Requirement

4.2-1 General Rule

Company's quality management system document includes：

- Quality policy and quality target that have formed into document;
- Quality manual;
- Procedure formed into document, which is required by the Standard;
- Document that can make sure the process operate effectively and keep in control;
- Record required by Standard.

4.2-2 Classification and Structure of Company's Quality System Procedure Document



Document Classification	Function
Quality Manual	Describe the organization quality policy and management responsibility, the scope of quality management system ISO/TS16949 and the deleted content, the cite of related procedure in the quality management system and correlation of quality management system process
Company Procedure	Describe detail about organization operation or activity, which is in accordance with quality manual and their related responsible department.
Operation Instruction	List the detail to perform the operation
Form	Keep useful data for the record of each operation or activity
Record	Keep record about the performance of each operation and activity

4.2-3 Document Control

Detail about the organization document control see document and data control manual TSQJTCP5.

Relative process see document control S9. the document control should abide to the following criteria:

The organization shall set up a documental procedure for the control of document and data, according to the required document and data in the quality management system (include appropriate outside document like standard and customer supported drawing) , give control for the following aspect:

- Receive authority approval before the issue of document to make sure the document is adequate and appropriate
- Audit and update the document when necessary, and give second approval
- Ensure the identification for the change of document revision and current revision status
- Make sure easy access to relative revision document when necessary
- Make sure the document is stored orderly and can be recognized easily
- Make sure those outside document necessary for the plan and operation of quality management system is identified and received issue control
- Prevent those obsolete document from being used inexpertly, give appropriate identification for those obsolete document which being retained for certain reasons
- If possible, the revision, update and temporary change of document and data should be compiled by the original department, and this department is also responsible for inspecting whether the content in the old revision is contradictory with the new one
- Set up a process to make sure the rapid audit, release and implement of customer engineer standard, criterion and change according to customer provided schedule. The rapid audit should be finished as soon as possible and keep control within two weeks.

4.2-4 Records Control

Details about the organization record control see the document and data control manual TSQJTCP005, the relative process is in document control S9. The record control shall abide to the following criteria:

The organization shall systemize the document for the identification of record, storage, retrieve and keep control for the shelf life and disposition.

The quality record which include customer provided quality record shall be retained to prove that the designated requirement and quality management system is operated effectively.

The quality record should be kept orderly and easily retrieved in appropriate environment to prevent from being damaged undermined and lost, the storage life should be listed clearly, they should be available for customer or customer representative at the specified period if the contract specifies it.

4.3 Related Document

Document NO.	Document Title
TSQJTCP005	Document and Data Control Manual

5. Management Responsibility

5.1 Quality Policy and Commitment

Topsearch Printed Circuits (Qujiang) Ltd.

Company Quality Policy

Our quality policy: provide the most satisfactory product and service for all the customers.

Commitments:

1. Through communicating with customer and relative party, enable that customer's requirements and related laws and regulations are precisely understood and implemented.
2. Implement the entire job to make all customers satisfied.
3. Establish and implement the quality target.
4. Perform survey on customer satisfaction and continually improve customer satisfaction;
5. Keep on improving the delivery service to reach punctual delivery;
6. Keep on reducing the cost to increase company competitiveness;
7. Promote the defect prevention action in the whole process;
8. Keep on exploring marketing orientation and make suitable strategy for the company development;
9. Provide safe and efficient work environment;
10. Provide sequent, systematic and appropriate training for all staff;
11. Implement management audit regularly to make sure suitability, adequacy and effectiveness of quality management system;
12. Establish and review the continual improvement items and keep on improving them.

Peter Cheok
Company Chairman and CEO

The quality policy and commitment shall receive the approval and subscription of chairman and CEO of the organization before their release and promotion. Each department manager shall be responsible for the promotion of the quality policy content throughout his/her subordinate.

5.2 Customer Focus

The top management aims at increasing customer satisfaction, and make sure that customer's requirement is satisfied.

For the details, see the Contract Review Manual TSQJTCP004 and Service Manual TSQJTCP019. Relative process is in the Contract Review C1 and Customer Service and Target Customer Project Management C6.

5.3 Plan

5.3-1 Quality Target

Organization quality target: product scrap rate, finished goods first time through rate, punctual delivery rate and customer satisfaction.

Detailed measurement data about the quality target is in the objective management manual TSQJTCP026, relative process is in objective management M3.

The organization shall measure whether our organization have reached the quality policy, quality target and commitment or not through management audit, operation plan and objective supervision.

5.3-2 Plan for the Quality Management System

The organization shall complete integrated plan and change regulation for quality management system through this manual and relative procedure document. Detail see the management function manual TSQJTCP002. The related process is in Quality Management System Plan M1.

5.4 Responsibility, Authority and Communication

5.4-1 General Rule

Each department in the organization shall help to implement and maintain the quality management whose function have been mentioned in the relative chapter in the manual.

The worker should report to the administer who own the responsibility and authority of corrective measurement about the nonconformity product or process; personnel responsible for the quality in each department shall take corrective action and hold on the production activity. When something abnormal happen, all the worker have the right to hold on the questioned product. Worker in guaranteeing the product quality shall be arranged for the production line in the whole shift.

5.4-2 Management Representative

The QA manager is designated as the management representative of the quality management system ISO/TS16949: 2009,his or her responsibility and authority include: make sure the establishment, implement and maintain of required process in the quality management system, give report about the performance situation, performance achievement and required improvement of the quality management system to the top management, make sure to increase the awareness of meeting the customer requirement in the whole organization, and keep contact with the outside party about the quality management system affair when necessary.

5.4-3 Customer Representative

The QA manager is designated as the customer representative of the quality system ISO/TS16949 to make sure the customer requirement is satisfied, the responsibility and authority of the customer representative is to make sure: selection for special characteristic, the establishment of quality target and relative training, corrective action and prevented measurement ,the product design and development.

5.4-4 Internal Communication

The organization has established available communication method both internally and externally to ensure easy contact through information and dialogue(both oral and written),such as the systemized document ,the establishment of Cross Functional Team, training , management conference, e-mail,telephone,report and so on, therefore to enable effective communication in the quality management system. Communication method shall exist in each process.

5.5 Management Review

Details about the organization management audit see the management responsibility manual TSQJTCP002. The management audit shall abide to the following rule: the management audit should be completed by the organization top management. Hold conference twice for the management audit annually at least to make sure continual suitability, sufficiency and effectiveness for the quality management system.

The input and output will be clearly defined in the management audit, and the management audit record will be retained.

5.6 Business Plan

Detail about the organization operation plan sees the management responsibility manual TSQJTCP002, the related process is in the management audit M2. The operation plan shall abide to the following rule:

Operation plan is a document, which describe the overall organization operation plan. This document is not supported to open to the public and its content include:

1. Marketing Strategy	5.Quality Target and Inner Quality Review
2. Sale Price and Sales	6.Customer Satisfaction Plan
3. Human Resources Development	7.Health, Security and Environment Project
4.Research and Development Schedule	

The above content should contain both short term (1-2 years) and long term schedule (above 3 years), which should be established from the point of the view of competitor product and marketing orientation and consider both the customer current and future expectation.

The organization shall implement the operation plan, defined its scope and necessary collected information, frequency and method for the collection according to the management function manual TSQJTCP002.

5.7 Relevant Document

Document NO.	Document Title
TSQJTCP002	Management Responsibility Manual
TSQJTCP004	Contract Review Manual
TSQJTCP0019	Service Manual
TSQJTCP0026	Target Management Manual

6. Human Resources Management

6.1 Resource Provision

Organization shall define and provide following necessary resources:

- Implement and maintain quality management system and continually improve its effectiveness.
- Meet customer requirement and increase the customer satisfaction.

6.2 Human Resources

Details about the organization human resources see the Human Resource Management Manual TSQJTCP012 and Training Manual TSQJTCP018. The relevant process is in the Training S13

and Human Resources Management S15. The human resource management shall abide to the following rules:

The organization will base on appropriate education background, training, technical and experience to make sure the workers are capable for their jobs.

6.2-1 General Requirement for Competence, Awareness and Training

- Make sure the workers possesses necessary competence in producing required product;
- Make sure those worker who engage in the job which will affect the conformity of product requirement is capable for their job;
- Provide training and other measure to meet the requirement;
- Evaluate the effectiveness of the provided training and measurement regularly;
- Make sure the awareness of the relativity and importance of the engaging job through the whole worker and how to make contribution to the realization of the quality target;
- For those workers engaging in special area, assess their qualification base on the required education background, training and work experience;
- Keep record for the education background, training, technical skill and experience.

6.2-2 Product Design Skill

The organization should make sure those workers who is responsible for the design of the product is capable for the job and sufficiently in mastering the use of the tool and technique. Tool and technical should be clearly identified

6.2-3 Training

The organization will establish comprehensive training program, which defined the training requirement clearly and make sure those workers whose activities are affecting the conformity to the product requirement are qualified for their job. Those workers who are responsible for specific assigned task should possess required competence and pay special attention to meet customer requirement.

6.2-4 Post Training

The organization should provide on-the-job training for any new or modified job affecting conformity to product requirement, including contract and agency personnel. Personnel whose job can affect quality should be informed about the consequence to the customer of nonconformity to the quality requirement.

6.2-5 Employee Motivation and Authorization

The organization will establish a process to motivate the employee to achieve quality target, conduct continual improvement and create an environment for promoting innovation. The process shall include the promotion of quality and technological awareness throughout the organization. And our company will also adopt appropriate method to evaluate worker's correlation and significance to their jobs.

6.3 Infrastructure

Details about the organization infrastruction see the production provision control manual TSQJTCP009 and the information system management manual TSQJTCP016. The relevant process is in production C2, infrastrcution S7, the equipment maintain S10 and the information system S18. The infrastructure provision should abide to the following rule:

6.3-1 General Rule

The organization shall determine, provide and maintain the infrastruction needed to achieve the conformity to the product requirement, infrastructure include, as applicable:

- Building, workspace and associated utility

- Process equipment (both hardware and software)
- Supporting services (such as transport, communication and information system

6.3-2 Plant, Establishment and Equipment Planning

Company will adopt multidisciplinary approach to establish plant, utility and equipment plan; the plant layout should optimize the material travel, handling, accumulate the value for the floor space utilization and facilitate the synchronous material flow. The organization shall develop and implement effective method for the evaluation and monitor of the current performance.

6.3-3 Emergency Plan

The organization should prepare appropriate contingency plan to satisfy customer requirement in the event of an emergency such as utility interruptions, labor shortages, key equipment failure and field returns.

6.4 Work Environment

For details about the confirmation and management of the organization work environment, please refer to the Production Supply Control Manual TSQJTCP009, and the relevant process is in the Infrastructure S7. the determine and management should abide to the following rule:

The organization should determine and manage the work environment to achieve conformity to product requirement.

The organization should emphasize the product safety and means to minimize potential risk to the employee, especially in the design and development process and the manufacturing process activity.

The organization should maintain its premise in a state of order, cleanliness' and maintain consistent with the product and manufacturing process need.

6.5 Relevant Document

Document NO.	Document Title
TSQJTCP009	Production Provision Control Manual
TSQJTCP012	Human Resource Management Manual
TSQJTCP016	Information System Management Manual
TSQJTCP018	Training Manual

7. Product Realization

7.1 Product Realization Plan

Details about the organization product realization plan see the Advanced Product Quality Planning Manual TSQJTCP010, the Document and Data Control Manual TSQJTCP5, the Product and Process Inspection and Measurements Manual TSQJTCP010 and the Cross Functional Team Manual TSQJTCP021. The related process is in contract audit C1, APQP C4, incoming material inspection S2, inspection test S4, product audit S5, document control S9, plan control S20, PEMEA S21, PPAP S22, cross functional team S23 and the process inspection and measurement. The product realization plan should abide to the following rules:

7.1-1 General Rule in Product Realization Plan

Company will establish a process needed in product realization. When plan the product realization, the organization shall determine the following contents, as appropriate:

- Product quality targets and requirements
- Determine the process, document, resource and requirement for specific product
- Required product verification, validation, monitoring, measurement, inspection and test activity and criteria for product acceptation
- Provide related record as evidence of realizing the process and product requirement

- The output of this planning shall be in a form suitable for the organization's method of operation

Details are in the Cross Functional Team Manual TSQJTCP021 and the Advanced Product Quality Planning Manual TSQJTCP025.

7.1-2 Product Realization Plan---Supplement

The product realization plan belongs to the quality plan and includes customers' requirements and citation of their technical specifications.

7.1-3 Acceptance Criteria

The acceptance criteria shall be defined in related section of product realization by our company, and when required, it will be approved by customer. For attribute data sampling, the acceptance level shall be zero defect. Details see Product and Process Monitoring and Measurement Manual TSQJTCP010.

7.1-4 Confidentiality

The organization shall control those documents and data provided by customer, and ensure the confidentiality of the customer-contracted product and project under development as well as related product information. Details are in Document and Data Control Manual TSQJTCP005.

7.1-5 Change Control

The organization shall develop a process to control and response to changes that affect product realization. The effects of every change include those changes caused by any supplier shall be assessed and the verification and validation activity shall be defined, to ensure the consistency with the customer requirement. Change shall be validated before implementation.

For proprietary design, impact on shape, conformity and function (include performance and durability) shall be reviewed with customer so that all effects can be properly evaluated.

When required by the customer, additional verification/identification requirements like those for new product introduction, shall be met, details are in the contract review manual TSQJTCP004.

7.2 Customer-related Process

Details about the customer-related process please refer to the Contract Review Manual TSQJTCP004, Document and Data Control Manual TSQJTCP005, Cross Functional Team Manual TSQJTCP021, Advanced Product Quality Planning Manual TSQJTCP025. The related process is in Contract Review C1, APQP C4, Document Control S9, Cross Functional Team S23. Process related customer shall abide to the following rules:

7.2-1 Determination of Requirement Related to Product

The organization shall determine:

- Requirement specified by customer, including the requirement for delivery and post-delivery activity.
- Requirement not stated by customer but necessary for specific or intended use, where known.
- Statutory and regulatory requirement applicable to the product.
- Any additional requirement consider necessary for the organization.

Details are in the Contract Review Manual TSQJTCP004.

7.2-2 Customer-designated Special Characteristics

The organization shall demonstrate the conformity to customer requirement for designation and control of the special characteristic. Details are in the Document and Data Control Manual TSQJTCP005, Cross Functional Team Manual TSQJTCP021 and the Advanced Product Quality Planning Manual TSQJTCP025.

7.2-3 Related Product Requirement Audit

Before the acceptance of contract or order, the organization shall audit related product requirement to ensure:

- Product requirement is defined.
- The customer requirement is clearly defined and documented, the agreement for customer requirement including the oral notice is required before order acceptance.
- Compare to the former expression, any nonconformity in the contract or order shall be solved.
- The organization is capable of satisfying the requirement defined in the contract, order, and statutory and regulatory requirement related to the product.
- According to the TS16949 standard, the organization shall meet all customer-designated requirements. This requirement is only applicable to customer engaging in automobile manufacture.

When the contract is revised, the organization shall make sure the awareness of the changed information throughout relative department, the record about the contract review shall be properly retained.

Details are in the Contract Review Manual TSQJTCP004.

7.2-4 Audit for Product Related Requirement --Supplemental

Waiving the formal requirement review shall require customer authority.

Details are in the Contract Review Manual TSQJTCP004.

7.2-5 Organization Manufacture Feasibility

During the contract audit process, the organization shall investigate, confirm and form document about the feasibility in manufacturing proposed product, including risk analysis. APQP, FMEA is applicable for the process.

Details are in the Contract Review Manual TSQJTCP004.

7.2-6 Customer Communication

Relative organization shall confirm and implement effective arrangement for customer communication about following content:

- Product information
- Consultancy, dealing for contract and order including revision
- Customer feedback including customer complaint

The organization shall be capable of communicating necessary information including data with customer in a customer specified language and format.

Details are in the Contract Review Manual TSQJTCP04.

7.3 Design and Development (only involves design and development of manufacturing process)

Details about the design and development of the company manufacturing process are in Document and Data Control Manual TSQJTCP005, Purchase Manual TSQJTCP006, Cross Functional Department Manual TSQJTCP021, Production Part Approval and Update Manual TSQJTCP022, Product Control Plan Manual TSQJTCP024 and Advanced Product Quality Planning TSQJTCP025, the relative processes are C4 APQP, material planning and purchasing S1, document control S9, plan control S20, PFMEA S21, PPAP S22,cross functional team S23. The design and development in the manufacturing process shall abide to the following rules:

7.3-1 Multi-demonstration Method

The organization shall adopt multi-demonstration method to prepare for product realization, including:

- Development, final validation and monitor for special characteristic
- Develop and audit of FMEAs, including adopt measures for decreasing potential risk.
- Development and audit of control plan.

Details are in Cross-functional Department Manual TSQJTCP021.

7.3-2 Manufacturing Process Design Input

The organization will identify requirement of manufacturing process design input to form a document and give audit to it, including:

- Product Design Output Data
- Target for the productivity, process capability and cost
- Applicable statutory and regulatory requirement
- Customer requirement (if any)
- Previous development experience

Details are in the Advanced Product Quality Plan Manual TSQJTCP25.

7.3-3 Special Characteristics

The organization shall determine the special characteristics of product and process and:

- List out the whole special characteristics in control plan.
- The special characteristics shall be consistent with customer's specified definition and symbol.
- Give mark for special characteristic through using special characteristic mark or equivalent organization mark or specification on the process control document including drawing, FMEAs, control plan or work instruction and those process affecting special characteristics.

Details are in Document and Data Control Manual TSQJTCP005, Cross Function Team Manual TSQJTCP021, Production Part Approval and Update Manual TSQJTCP022, Advanced Product Quality Planning Manual TSQJTCP025.

7.3-4 Manufacture Process Design Output

The manufacture design output shall be expressed in a form that can verify and validate the manufacture design input requirement and shall contain:

- Specification and drawing
- Manufacturing process flow chart/layout
- Manufacturing process FMEAs
- Control plan
- Work instruction
- Process approval acceptance criteria
- Data for quality, reliability, maintainability and measurability
- Result for error-proofing activity, as appropriate
- Method of timely detection and feedback for nonconformity product or manufacture process.

Details are in Advanced Product Quality Planning Manual TSQJTCP025.

7.3-5 Review the Design and Development of Manufacturing Process

Systematic review shall be performed according to the arranged plan to ensure:

- Evaluate the ability of outcome of manufacture process design and develop in meeting requirement.
- Identify any problems and propose necessary actions.

Participator in the review conference including representatives who are related to the manufacturing process design and develop, keep record about the review result and any necessary action.

Details are in Advanced Product Quality Planning Manual TSQJTCP025.

7.3-6 Verification for Design and Develop of Manufacturing Process

Verification about the design and develop of manufacture process shall be performed in accordance with planed arrangement, record about the result of the verification and any necessary action shall be maintained.

Details are in Advanced Product Quality Planning Manual TSQJTCP025.

7.3-7 Validation for Design and Develop of Manufacturing Process

Implement validation for the design and develop in the manufacture process according to plan. Finish the validation before the product delivery, keep record about the validation outcome and any necessary measurement and implement the validation as customer requirement if required.

Details are in Advanced Product Quality Planning Manual TSQJTCP025.

7.3-8 Sample Plan

The organization shall have a sample plan and control plan when customer required. Sample production shall, wherever possible, adopt the same supplier, tooling and manufacturing process with standard production.

Any performance-testing activity shall be monitored for timely completion and conformity to requirement.

The organization shall responsible for the outsource service including providing technical leadership when the service is outsourced.

Details are in the Product Control Plan Manual TSQJTCP024.

7.3-9 Product Approval Process

The organization shall establish a customer recognized approval procedure for the product and manufacture process, this approval process is also applicable for the supplier.

Details are in Product Part Approval and Update Manual TSQJTCP022 and Purchase Manual TSQJTCP006.

7.3-10 Control of Design and Development Changes

The manufacture process design and development changes shall be identified by the organization. It shall be reviewed, verified and validated as appropriate and approved before implementation. The review for manufacture process design and development changes include evaluating the influence of the change for the product makeup and product delivered. As well as keep record of the review result of change and any necessary action.

Details are in the Advanced Product Quality Planning Manual TSQJTCP025.

7.4 Purchase

7.4.1 Purchase Process

Details about the organization purchase process see purchase manual TSQJTCP006, the relative process in material plan and purchase S1,the purchase process shall abide to the following rule:

7.4.1-1 General Rule

Only purchase resources form admissive supplier to ensure the purchased product meet the specified purchase requirement

The control method and degree for the supplier and purchased product shall depend on the effect of purchased product upon the later product realization and finished goods.

Evaluate and select suppliers base on their ability in providing product that is in accordance with organization requirement. The organization shall establish criteria for the selection, evaluation and second evaluation.

Oversea office and oversea market representatives are suppliers for developing market. Therefore the organization shall assure their qualification in similar way. Record about the audit and any necessary measure caused by the audit shall be maintained.

7.4.1-2 Statutory and Regulatory Conformity

All purchasing product or material shall conform to applicable statutory and regulatory conformity.

7.4.1-3 Development for Supplier Quality Management System

It is our responsibility and objective to promote standard quality management system ISO/TS16949 throughout the suppliers. The first object in the organization is to make sure the supplier quality management system is in accordance with the ISO/TS 16949:2009 in certain period. Unless special requirement form customer, the organization supplier shall receive third party ISO/TS 16949:2009 approval which have been approved before.

7.4.1-4 Customer-Approval Resource

Where specified by contract (e.g. Customer engineering drawing, specification), the organization shall purchase product, material or service from customer approved resources. The use of the customer-designated source including tool/gauge supplier, doesn't relieve the organization's responsibility in ensuring the quality of purchased products.

7.4.2 Purchase Information

Details about purchase information are in the Purchase Manual TSQJTCP006. The relative process is in material plan and purchase S1. The purchase information shall abide to the following rule:

The purchasing information shall describe the product be purchased, including, where appropriate:

- Requirement for approval of product, procedures, processes and equipment
- Requirement for employee qualification
- Quality management system requirement

The organization shall ensure the adequacy and suitability of purchase requirement prior to the communication with supplier.

7.4.3 Verification for the Purchased Product

Details about the verification of the purchased product are in the Purchase Manual TSQJTCP006, Product and Process Inspection and Measurement Manual TSQJTCP010 and

Accountant Manual TSQJTCP011, the relative process is in material plan and purchase S1, material inspection S2 and financial accountant S8.the verification of purchased product shall abide to the following rules:

7.4.3-1 General Rule

- The organization shall define and implement verification and any other necessary activity to ensure the purchased product meet the specified purchase requirement.
- The organization shall arrange the verification and regulate the method for product release in the purchase information if the organization or client intends to perform verification in the supplier or original manufacture premise. The customer verification action shall not reduce our responsibility.

7.4.3-2 Incoming Product Quality

The organization shall have a process to ensure the purchased product quality utilizing one or more of following methods:

- Collect and evaluate statistic data
- Inspect or test purchased product such as sampling test base on performance
- Implement second-party or third-party assessment or audit at the supplier's premise with acceptable delivered product quality record
- Component evaluation in a designated laboratory
- Other methods in accordance with customer

7.4.3-3 Monitor the Supplier

Supplier performance shall be monitored through the following index:

- Delivered product quality
- Customer production interruption including external goods return
- Delivered performance as plan including additional delivery cost
- Customer notice about the abnormal situation on quality and delivery

The organization shall stimulate the supplier performance in monitoring manufacture process through supplier evaluation.

7.5 Production and Service Provision

Details about the process of production and service provision see product realization plan manual TSQJTCP003, production provision control manual TSQJTCP009 and product control plan manual TSQJTCP024. The relative process is in material plan and purchase S1, production plan S3, product prevention S6, infrastructure S7, equipment maintain S10, control plan S20 and production C2. Production and service provision shall abide to the following rules:

7.5.1 Production and Service Provision Control

7.5.1-1 General Rule

The organization shall plan and carry out production and service provision in controlled condition as applicable, including:

- Define every production procedure and service project and achieve information that describe the product characteristic
- The availability of work instruction, as necessary
- The use of suitable equipment and work environment for the operation of production procedure or service project activity
- The maintain of equipment for steady production
- The availability of monitor and measurement equipment

- Implementation of monitor and measurement for appropriate product parameter and production parameter
- The establishment of procedure to assure the production procedure and equipment
- The implementation of product release, delivery and post delivery activity

Details are in Production Provision Control Manual TSQJTCP009.

7.5.1-2 Control Plan

The organization shall:

- Establish control plan for the provided product at the system, subsystem, component and material level, including production process for bulk material and part component.
- Have a control plan for the manufacture process FMEA output both in phototype and production period.

The control plan shall:

- List the method for manufacture process control.
- Include the monitor method for the control over the customer and organization defined special characteristic.
- Include customer-required information, if any.
- Initial the specified reaction plan when the process become unstable or not statistically capable.

The second audit shall be performed and control plan shall be updated if any change affecting product, manufacture process, measurement, logistics, supplier resource and FMEA existing.

Details are in the Product Control Plan Manual TSQJTCP024.

7.5.1-3 Work Instruction

The organization shall provide documental work instruction for the process operator whose job shall affect product quality. Those work instructions which come from quality plan, product control plan and product realization process and shall be available in the workplace.

Details are in the Production Provision Control Manual TSQJTCP009.

7.5.1-4 Verification for Job Preparation

The organization shall complete verification for job preparation whenever it is performed (e.g.: an initial run of job, the material change, the job change).The work instruction shall be placed in the workspace for easy access to the worker. Use appropriate statistical method for the verification when applicable.

Details are in the Production Provision Control Manual TSQJTCP009.

7.5.1-5 Preventive and Predictable Maintenance

The organization shall identify key process equipment, provide enough resource for the maintenance of machine or equipment, establish an effective integrated preventive maintenance system, this system shall include:

- Planned maintenance activity.
- Packing and preservation of equipment, tooling and gauging.
- Availability of the component part of key manufacture equipment.
- Documenting, evaluating and improving the maintenance objective.

The organization shall utilize predictive maintenance method to continually improve the effectiveness and efficiency of the production equipment.

Details are in the Production Provision Control Manual TSQJTCP009.

7.5.1-6 Production Tooling Management

The organization shall provide necessary resource for the design of tooling and gauging, the manufacturing and verification activity, establish and implement the management system for the production tooling, including:

- Equipment and member for maintenance and repair.
- Restock and repair.
- Tooling preparation.
- Tool-change program for perishable tooling.
- Tooling design modification documentation including engineering change level.
- Repair for the tooling and revise for document.
- Labor for the tooling state, e.g.: in use, repair or scrap.

The organization shall monitor these activities system if any of the above projects is outsourced.

Details are in the Production Provision Control Manual TSQJTCP009.

7.5.1-7 Production Plan

The organization shall have a production plan system for timely meeting customer requirement, details about the process and assignment for the system see production realization plan manual TSQJTCP003.

7.5.1-8 Service Information Feedback

The organization shall have a process for service communication among department of manufacture, engineer and design and so on. Details see the service manual TSQJTCP019

7.5.1-9 Service Contract with Customer

The organization shall verify the effectiveness of the following project when make a deal with customer about service contract: any service centre in the organization; any specialized tooling and gauging; training for the service member.

Details are in the Service Manual TSQJTCP019.

7.5.2 Validation for the Production and Service Provision Process

Implement validation for the whole process in production and service provision, including the specified rule in the audit process, equipment approval, confirmation of worker qualification, the adoption of special method and procedure, requirement for record as applicable.

The organization shall confirm the special characteristic through cross-functional team, the special characteristic shall be defined in the product control plan, the relative operation instruction and the FMEA report.

Details are in the Production Provision Control Manual TSQJTCP009 and Production Part Approval and Update Manual TSQJTCP022.

7.5.3 Identification and Traceability

Details about the identification and traceability of organization product are in the Product Identification and Traceability Control Manual TSQJTCP008, the relative process is in product identification and traceability S12, process monitor and measurement S24.

Product identification and traceability shall abide to the following rules:

The organization shall use appropriate method to identify product in whole process of product realization to enable product identification and traceability in every production process.

The organization shall use the most appropriate method to represent product inspection or test state, to identify the product state according to the monitor and measurement requirement, this shall include:

- Inspection and test performed before.
- Inspection or test result preformed before

This project is a part of the product control plan to ensure that only inspected or tested Products are transported to the following process flow. The product placed position can not be used to represent the product inspected or tested status unless there is obvious or clear mark. The method of representing the inspected or test state can be freely designed if there is suitable mark and documental procedure). If customer required, the organization shall conform to the additional validation requirement.

Control and record about the product unique identification on occasion required for traceability.

7.5.4 Customer Property

Details about the control of customer property are in Customer Property Control Manual TSQJTCP007, the relative process is in customer property control S19, and the control of customer property shall abide to the following rules:

7.5.4-1 General Rules

The organization shall identify, verify, protect and safeguards customer provided property including intellectual property and returnable packing product. The organization shall receive, stock and use the customer property systematically; any loss, damage or wear of customer property shall be recorded and reported to the customer.

The validation of organization shall not indicate the customers are free from providing conformity product.

7.5.4-2 Customer-owned production tool

Customer-owned tooling and equipment shall be permanently and clearly mark The mark labor shall note about the customer name and customer NO.

7.5.5 Product Preservation

Details about the product preservation see the product preservation control plan manual TSQJTCP015, the relative process is in production C2, delivery C3, nonconformity product control C5, product preservation S6, product identification and traceability S12) the product preservation control shall abide to the following rule:

7.5.5-1 General Rule

The organization shall administrate the activity of transport, stock, packaging, preserve and delivery with documental system

7.5.5-2 Storage and Inventory

The organization shall have a applicable inventory management system to optimize the inventory turn over time and assure stock rotation such as “first in first out (FITO). The organization shall inspect the inventory product in regular interval to ensuring the product quality. Obsolete product shall be controlled as nonconformity product.

7.6 Monitor and Measurement Equipment Control

Details about organization monitor and measurement equipment control are in Laboratory Management Manual TSQJTCP023, the relative process is in the control plan S20, laboratory management S16.the control of monitor and measurement equipment shall abide to the following rules:

7.6.1 General Rule

The organization shall give control, calibrate and maintain apparatus for product inspection, measurement and test. The tolerance and stability of the apparatus shall be perceived and in order to assure the apparatus's accuracy in providing analysis date, it shall be checked before taking into use and rechecked regularly. The extend and frequency of the inspection shall be recorded for the control evidence. To assure the apparatus function in inspection and test, the related technical data shall be available freely for customers or customer representatives' reference according to specified requirement.

7.6.2 Measurement System Analysis

Statistical research shall be conducted for analyzing the variation present in the result of each type of measurement and test equipment system. This requirement shall applicable to the measurement system referred in the control plan. The analytical method and acceptance criteria shall conform to those customer reference manuals on measurement system analysis. Other analytical method and acceptance criteria shall be used if approved by customer.

7.6.3 Calibration/Verification Records

The organization shall keep record of calibration/verification activity clearly for all gauge, measuring and test equipment including the employee-owned or customer-owned equipment, the content of the record shall include:

- Equipment identification, including the measurement standard against which the equipment is calibrated.
- The revision following engineer change.
- Any out-of-specification reading during the process of calibration/verification.
- Assessment for impact of out-of-specification condition.
- Statement conforms to specification after calibration/verification.
- Notification to the customer if suspected product or material has been shipped.

7.6.4 Laboratory Requirements

a. Internal Laboratory:

The organization shall have a defined scope for the laboratory facility(both the reliability laboratory and the chemical laboratory),this scope include the capability to perform the required inspection, test and calibration services. This laboratory scope shall be included in the quality management system documentation. The laboratory shall specify and implement the following technical requirements:

- Adequacy of laboratory procedure
- Competence of laboratory personnel
- Product test
- Capability to perform these service correctly, traceable to the relative process standard (such as ASTM, EM)
- Review of relative record

b. External Laboratory:

The organization shall also have a defined scope for outside/commercial/independent laboratory facility for inspection, test and calibration services, this shall include the capability for the required inspection, test and calibration service, and either:

- There shall be evidence to prove that the external laboratory is acceptable for the customer, or
- Laboratory accredited to GB/T15481 or national equivalent

- When a qualified organization is not available for a given piece of equipment, the equipment manufacturer may perform calibration services. In such case, the organization shall ensure that the requirement for the internal laboratory should be met.

7.7 Related Document

Document NO.	Document Title
TSQJTCP003	Product Realization Plan Manual
TSQJTCP004	Contract Review Manual
TSQJTCP005	Document and Data Control Manual
TSQJTCP006	Purchase Manual
TSQJTCP007	Customer Property Control Manual
TSQJTCP008	Product Identification and Traceability Manual
TSQJTCP009	Production Provision Control Manual
TSQJTCP010	Product and Process Monitor and Measurement Manual
TSQJTCP011	Accountant Manual
TSQJTCP015	Product Preservation Control Manual
TSQJTCP016	Management Information System Manual
TSQJTCP019	Service Manual
TSQJTCP021	Cross Department Team Manual
TSQJTCP022	Production Part Approval and Update Manual
TSQJTCP023	Laboratory Management Manual
TSQJTCP024	Product Control Plan Manual
TSQJTCP025	Advanced Product Quality Plan Manual

8. Measurement, Analysis and Improvement

8.1 General Rule

The organization shall plan and implement the monitor, measurement, analysis and improvement process to meet the requirement of:

- Conformity to product requirement
- Conformity to the quality management system
- Effectiveness of continually improvement in quality management system

This shall include determination of applicable method, including statistical techniques and extend of their use.

8.1.1 Validation of Statistical Tools

The organization shall define applicable statistical tools for every process in the advanced quality plan and also contain it in the control plan.

Details are in the Advanced Product Quality Plan Manual TSQJTCP025 and Product Control Plan Manual TSQJTCP024.

8.1.2 Basic Statistical Concept Knowledge

The organization shall input knowledge about basic statistical concept through out all worker whose job is relative to product quality and promote the use of statistical method. Details in the training manual TSQJTCP018 and data analysis manual TSQJTCP020

8.2 Monitor and Measurement

8.2.1 Customer Satisfaction

Details about customer satisfaction see service manual TSQJTCP019 and human resource management manual TSQJTCP012, the relative process is in customer service and objective customer project management C6 and human resource management S15. The monitor of customer satisfaction shall abide to the following rules:

8.2.1-1 General Rule

The organization shall establish and maintain documental system to make sure and report whether the customer service is consistent with designated requirement or not as a measurement for the quality management system performance. The organization shall also monitor information about customer satisfaction and identify method to achieve and use this information.

8.2.1-2 Customer Satisfaction-Supplemental

The organization shall monitor the customer satisfaction through continually evaluation on product realization process performance. The performance indicators shall be based on objective data, included but not to be limited to:

- Quality performance on delivered product
- Customer production interruption, including external goods return
- Delivered performance as plan (include incidents of premium freight)
- Customer notification relate to quality and delivery releases
- Customer praise, etc.

The organization shall evaluate the extent of customer satisfaction for the product quality and process efficiency requirement through monitor manufacture process performance.

8.2.1-3 The organization shall be aware of employee satisfaction and implement corresponding improvement and motivation policy through communication conference among each department.

8.2.2 Internal Audit

Details about the organization internal audit are in the Internal Audit Manual TSQJTCP017 and Product and Process Inspection and Measurement Manual TSQJTCP010, the relative process is in product audit S5, internal audit S11, process monitor and measurement S24. The internal audit shall abide to the following rules:

8.2.2-1 General Rule

The organization shall plan and implement internal quality audit to make sure the quality activity and its outcome is consistent with the arranged plan and measure the efficiency of the quality system.

The internal audit schedule shall be arranged according to its details importance, the auditor shall not audit its own work and the audit content and format shall be defined as required detail.

The audit result shall be recorded and release to responsible department, the responsible department shall complete improvement action for those nonconformity projects.

The efficiency of the improvement action shall be traced, defined and recorded after audit

The internal audit result shall be discussed in the management audit. The audit direction shall refer to ISO19011: 2002 ,details in the internal audit manual TSQJTCP017

8.2.2-2 Quality Management System Audit

The organization shall review the quality management system regularly to verify its consistency and effectiveness with ISO/TS16949 and any additional requirement.

Details are in the Internal Audit Manual TSQJTCP017.

8.2.2-3 Manufacture Process Audit

The organization shall audit each manufacture process regularly to check its efficiency in the manufacture process.

Details are in the Internal Audit Manual TSQJTCP017.

8.2.2-4 Product Audit

The organization shall audit products at appropriate stages of production and delivery regularly to verify conformity to product requirement.

Details are in Product and Process Inspection and Measurement Manual TSQJTCP010.

8.2.2-5 Internal Audit Plan

Internal audit plan shall be revised annually, the audit scope shall contain all the shift and shall be scheduled according to an annual plan. When internal/external nonconformity or customer complaints occur, the audit frequency shall be appropriately increased. Details are in the Internal Audit Manual TSQJTCP017 and product and process monitor and measurement manual TSQJTCP010.

8.2.2-6 Internal Auditor Qualification

The organization shall select qualified member for the internal audit and their qualification condition and responsibility and authority shall be specifically defined. Details are in the Internal Quality Audit Manual TSQJTCP017 and Product and Process Inspection and Measurement Manual TSQJTCP010.

8.2.3 Process Inspection and Measurement

Details about the organization process monitor and measurement in the product and process monitor and measurement manual TSQJTCP010.the process monitor and measurement shall abide to the following rules:

8.2.3-1 General Rule

The organization shall take appropriate methods in monitoring and, when applicable, measure the relative quality management system. These methods shall demonstrate the ability of processes to achieve planed results. When the planned result is not achieved, correction or corrective action shall be taken, as appropriate.

8.2.3-2 Inspection and Measurement for Manufacture Process

The organization shall complete process studies for all new manufacture process(including assembly and sequencing) to verify the process capability and provide extra input for the process control. The result of the process studies shall be documented with specification, where applicable, for means of production, measurement and test, and maintenance instruction. These documents shall include objectives for manufacture process capability, reliability, maintainability and availability as well as acceptance criteria.

The organization shall maintain manufacture process capability and performance through reference to the product part approval procedure. To achieve this objective, the organization shall ensure that the product control plan and process flow chart are implemented, including adherent to the specified:

- Measurement technical
- Sampling plan
- Acceptance criteria
- Reaction plan when acceptance criteria are not met

Significant process events such as tool change or machine repair shall be recorded.

When the stability of process parameter or product parameter reaches certain high level, the organization shall review the product control plan.

The organization shall initial an applicable reaction plan for the product control plan project in characteristic that is either not capable or unstable. These actions shall include the containment of product or 100% inspection. The organization shall implement improvement action plan until the project become stable. The scheduled completed date and responsible department for the corrective action shall be clearly listed.

The improvement plan shall be review with and approved by the customer when the customer required.

The product control plan shall be noted for the increase or decrease of product stability as customer required, related content shall be recorded in the manufacture process control procedure.

8.2.4 Inspection and Measurement of Product

Details about the inspection and measurement of product are in the Product and Process Inspection and Measurement Manual TSQJTCP010. The relative process is in the material inspection S2, inspection test S4 and product audit S5. The monitor and measurement of product shall abide to the following rules:

8.2.4-1 General Rule

The organization shall inspect and test the product to make sure whether the product reaches the designated requirement or not, for individual sampling project, 0 stand for accepted and 1 stand for rejected. Criteria for other sampling method shall be clearly defined and authorized by the customer (if customer require in the TS16949)

8.2.4-2 Outlay full inspection and function testing

The organization shall perform outlay inspection and function testing for each product according to appropriate standard for customer engineer material and function and the specification in the control plan as customer request. The result shall be recorded for the customer review.

8.2.4-3 Appearances Items

For organization manufacturing parts designated by the customer as “appearance items”, The organization shall provide : applicable resources including lighting for valuation; standard sample with designated color, texture, gloss, metallic brilliance, structure, distinctness of image (DOI); maintenance and control for appearance standard sample and evaluation equipment; Verification for the competence and qualification of personnel on appearance evaluation.

8.3 Control of Nonconforming Product

Details about the control of nonconforming product are in the Purchase Manual TSQJTCP006, Nonconforming Product Control Manual TSQJTCP013. The related process is in material plan and purchase S1, material inspection S2, inspection test S4, product audit S5, financial accountant S8, nonconforming product control C5. The control of nonconforming product shall abide to the following rules:

8.3.1 General Rule

The organization shall establish documental procedure to ensure the identification and control of nonconforming product, prevent it from unintended use and delivery, define the responsibility and authority about the control and treatment of nonconforming product. The organization shall identify, record, analyze, insulate and discard nonconforming product and give note to related department. Suspected product shall be accepted as nonconforming product.

Nonconforming product shall be identified clearly, e.g.: the establishment of MRB

department treatment for nonconforming product.

- Through rework or repair to eliminate the detected nonconformity.
- By authorizing its use, release and acceptance of nonconforming product under concession by a relative authority and where applicable, by customer.
- By taking action to protect from unintended use or application.

Rank evaluation would not be performed as only one rank for the product in the organization.

The organization shall report to the customer or customer representative if the repair for nonconforming product is not according to specified way.

Records of the nature of nonconformities and any repair including concessions obtained, shall be maintained.

When the nonconformity product is corrected it shall be re-verified according to the quality plan (control plan).if nonconformity product is detected after delivery or adoption, same measurement with dealing with influence or potential influence of nonconforming product shall be taken.

8.3.2 Control of Non-Conforming Product—Supplemental

Product with unidentified or suspected status shall be classified as nonconformity Product.

8.3.3 Control of Rework Product

Instruction for rework, including re-inspection requirement shall be accessible to and utilized by the appropriate personnel.

8.3.4 Customer Notice

The organization shall inform the customer immediately and take corresponding measurement after nonconformity product has been shipped.

8.3.5 Customer Authority

The organization shall obtain the customer concession or deviation permission before continual production if the product or manufacture process is different with the approved one. Otherwise the product shall be accepted as nonconformity product.

The organization shall obtain approval before the delivery of product if the applied manufacturing process or material is different with the existing approved one.

The organization shall maintain a record of expiration date and quantity authorize. The product shall be identified on each shipping container. The organization shall also ensure the product is in compliance with original specification and requirement when the authorization expires.

The organization shall make a deal to the customer requirement with the suppliers before its submission to the customer, the above requirement is also applicable to purchased product.

8.4 Data Analysis

Details about the organization data analysis see data analysis manual TSQJTCP020, the relative process is in data analysis S14, PFMEA S21. Data analysis shall abide to the following rules:

8.4.1 General Rule

The organization shall determine, collect and analyze appropriate data to demonstrate the suitability and effectiveness of management system and evaluate how to continually improve the effectiveness in quality management system. This shall include data generated as a result of monitoring and measurement and from other relevant sources. Data analysis shall provide information related to:

- Customer satisfaction.
- Conformity to product requirements.
- Characteristics and trends of processes and products, including opportunities for preventive action.
- Supplier.

8.4.2 Analysis and Use of Data

Trends in quality and operational performance shall be compared with process toward objectives and compare the data of market index and competitor and lead to action to support the following:

- Determination of priority of prompt resolution of customer-related problems.
- Determination of principal customer-related trend and correlation related for status review, decision making and long term planning.
- An information system for timely reporting product usage information.

8.5 Improvement

8.5.1 Continual Improvement

Details about continual improvement are in the Management Responsibility Manual TSQJTCP002 and Target Management Manual TSQJTCP026. The relative process is in management review M2 and objective management M3. Continual improvement shall abide to the following rules:

8.5.1-1 General Rule

The organization shall have a process for continual improvement. It shall continually improve the effectiveness of quality management system through the use of quality policy, quality targets, audit result, data analysis, corrective and preventive measurement and management review.

8.5.1-2 Continual Improvement of the Organization

The organization shall have processes for objective management and management review for continual improvement.

8.5.1-3 Manufacture Process Improvement

Manufacturing process improvement shall continually focus upon control and reduction of variation in product characteristic and manufacture process parameter

8.5.2 Corrective Action

Details about corrective action see the corrective and preventive action manual TSQJTCP014. The relative process is in corrective and preventive action S17. The corrective action shall abide to the following rules:

8.5.2-1 General Rule

The organization shall take appropriate corrective action to eliminate the nonconformity defect and prevent it from happen again for nonconformity product. Corrective action shall be appropriate to the effect of nonconformity encountered.

A documental procedure shall be established to define requirement for:

- Reviewing nonconformities (including customer complaints);
- Determining the causes of nonconformities;
- Evaluating the need for action to ensure that nonconformities do not occur;
- Determining and implementing action needed;
- Records of results of action needed;
- Review the corrective action taken;

8.5.2-2 Problem Resolution

The organization shall solve problem with identified method when there is nonconformity occur both internally and externally. As for external nonconformity, the organization shall solve the problem with customer-designated method (note: customer refer to car manufacturer, this control shall be implemented only when the organization possess same type of customer).

The organization shall use error-proofing methods in their corrective and preventive action, therefore to cater to the severity of problem and endure the encounted risk.

8.5.2-3 Error-Proofing

The organization shall use error-proofing methods in their corrective action process.

8.5.2-4 Corrective Action Impact

Same preventive action shall be applied to similar manufacture process and product by reference to previous corrective and preventive action for reducing the potential problem.

8.5.2-5 Nonconformity Product Test/Analysis

The organization shall analyze the cause for the goods rejection by the customer and keep record of the analysis result. Appropriate corrective and preventive action shall be promoted after analysis to prevent recurrence.

8.5.3 Preventive Action

Details about the organization preventive action in the corrective and preventive action measure TSQJTCP014. Relative process is in the corrective and preventive action S17. Preventive action shall abide to the following rule:

The organization shall make sure that the preventive action for eliminating potential problem shall appropriate to effect of the potential problem. Preventive action shall satisfy the following requirement:

- Determining the potential nonconformity and their causes;
- Evaluating the need for action to prevent the occurrence of nonconformity;
- Determining and implementing action needed;
- Keep record about the result of action taken;
- Review the preventive action taken.

8.6 Related Document

Document NO.	Document Title
TSQJTCP002	Management Responsibility Manual
TSQJTCP006	Purchase Manual
TSQJTCP010	Product and Process Inspection and Measurement Manual
TSQJTCP013	Nonconformity Product Control Manual
TSQJTCP014	Corrective and Preventive Measurement Manual
TSQJTCP017	Internal Audit Manual
TSQJTCP018	Training Manual
TSQJTCP019	Service Control Manual
TSQJTCP020	Data Analysis Manual
TSQJTCP024	Product Control Plan Manual
TSQJTCP025	Advanced Product Quality Plan Manual
TSQJTCP026	Target Management Manual

9. Appendix: Corresponding Process, Main Procedure Document and ISO/TS16949 Standard Clause.

9-1 COP

Customer-oriented Process Topsearch		Chapter in ISO/TS	Standard Title
Contract Audit			
TSQJTCP004	Contract Review Manual	4.2.3.1 7.2 7.1.4	Engineer Specification Customer-Related Process Change Control
TSQJTCP007	Customer Property Control Manual	7.5.4	Customer Property
Production			
TSQJTCP025	Advanced Product Quality Plan Manual	7.1.1	Product Realization Plan
TSQJTCP021	Cross-Functional Team Manual	6.3.1 7.2.1.1 7.3.1.1	Factory Premise, Facility and Equipment Control Customer Specified Special Characteristic Multidisciplinary Certificate Release
TSQJTCP009	Production Provision Control Manual	6.3 6.4 7.5.1 7.5.2	Infrastructure Work Environment Production and Service Provision
Delivery			
TSQJTCP015	Product Prevention Control Manual	7.5.5	Product Prevention
Manufacture Process Design			
TSQJTCP025	Advanced Product Quality Plan Manual	7.1 7.3.2.2&7.3.3.2 7.3.2.3 7.3.4 7.3.5 7.3.6 7.3.7	Product Realization Plan Input and Output for the Manufacture Process Design Special Characteristic Design and Development Audit Design and Development Verification Design and Development Validation Change Control for Design and Development
Nonconformity Product Control			
TSQJTCP013	Nonconformity Product Control Manual	8.3	Nonconformity Product Control
Customer Service			
TSQJTCP019	Service Manual	7.2.3 7.5.1.7 7.5.1.8 8.2.1	Customer Communication Service Information Feedback Service Contract with Customer Customer Satisfaction

9-2 SOP

Customer-oriented Process in Topsearch		Chapter in ISO/TS	Standard Title
PMC			
TSQJTCP006	Purchase Manual	7.3.6.3 7.4.1 7.4.2 8.3.4	Product Approval Process Purchase Process Purchase Information Customer Authority
Material Inspection			
TSQJTCP010	Product and Process Inspection and Measurement Manual	7.4.3	Verification for Purchased Product
Production Plan			
TSQJTCP003	Product Realization Manual	7.5.1.6	Production Plan

Inspection Test			
TSQJTCP010	Product and Process Inspection and Measurement Manual	7.1.2 8.2.2.3 8.2.3 8.2.4	Acceptance Rules Product Rules Process Inspection and Measurement Product Inspection and Measurement

Product Audit			
TSQJTCP010	Product and Process Inspection and Measurement Manual	7.1.2 8.2.2.3 8.2.4	Acceptance criteria Product Audit Product Inspection and Measurement
TSQJTCP015	Product Preventive Control Manual	7.5.5	Product Prevention
Product Prevention			
TSQJTCP015	Product Preventive Control Manual	7.5.5	Product Prevention
Infrastructure			
TSQJTCP009	Production Provision Control Manual	6.3 6.4	Infrastructure Work Environment
Financial Accountancy			
TSQJTCP011	Accountancy Manual	7.5.5.1 8.2.1.1	Stock and Inventory Customer Satisfaction
Document Control			
TSQJTCP005	Document and data control manual	4.2.3 4.2.4 7.1.3	Document Control Record Control Confidential
Equipment Maintenance			
TSQJTCP009	Product Provision Control Manual	7.5.1.4	Preventive and Predictive Maintenance
Internal Audit			
TSQJTCP017	Internal Audit Manual	8.2.2	Internal Audit
Product Identification and Traceability			
TSQJTCP008	Product Identification and Traceability Manual	7.5.3	Identification and Traceability
Training			
TSQJTCP018	Training Manual	6.3.1 6.3.3 8.1.2	Human Resource General Rule Ability, Awareness and Training Basic Statistical Concept Knowledge
Data Analysis			
TSQJTCP020	Data Analysis	8.4	Data Analysis
	Human Resource Management		
TSQJTCP012	Human Resource Management Manual	6.1 6.2 6.2.2.4	Resource Provision Human Resource Employee Motivation and Authority
Laboratory Management			
TSQJCP023	Laboratory Management Manual	7.6 7.6.1 7.6.2 7.6.3	Monitor and Measurement Equipment Control Measurement System Analysis (MSA) Record for Calibration and Verification Laboratory Requirement
Correction and Prevention			
TSQJTCP014	Corrective and Preventive Measurement Manual	5.5.1.1 8.5.2 8.5.3	Quality Responsibility Corrective Measurement Preventative Measurement
Information Management System			
TSQJTCP016	Information Management System Manual	6.3	Infrastructure
Customer Property Control			
TSQJTCP007	Customer Property Control Manual	7.5.4	Customer Property
Control Plan			
TSQJTCP024	Product Control Plan Manual	7.3.2.3 7.3.6.2 7.5.1.1 8.1.1	Special Characteristic Sampling Plan Control Plan Statistical Tool Validation
PFMEA			
TSQJTCP020	Data Analysis Manual	7.3.3	Design and Development Output

PPAP			
TSQJTCP022	Production Part Approval and Update Manual	7.3.6.3	Product Approval Process
Cross Functional Team			
TSQJTCP021	Cross Functional Team manual	7.3.1.1 7.2.1.1	Multidisciplinary Method Special Customer-Designated Characteristic
Process Monitor and Measurement			
TSQJTCP010	Product and Process Monitor and Measurement Manual	7.1.2 7.4.3 8.2.2.3 8.2.3 8.2.4	Acceptance Criteria Verification for Purchased Product Product Audit Process Inspection and Measurement Product Inspection and Measurement

9-3 MOP

Customer-oriented Process in Topsearch		Chapter in ISO/TS	Standard Title
Quality Management System Plan			
TSQJTCP001	Quality Manual	4.2.2 5.1 5.2 5.3 5.4.1 5.4.2 5.5.1 5.5.2.1 5.5.3 5.6 7.3.4.1	Quality Manual Management Commitment Customer Focus Quality Policy Quality Target Frame Quality Management System Plan Responsibility and Authority Customer Representative Interior Communication Management Judge Monitor for design and Development Result
Management Judge			
TSQJTCP002	Management Responsibility Manual	5.5.1 5.5.2 5.6	Responsibility and Authority Management Representative Management Judge
Objective Management			
TSQJTCP026	Continual Improvement Manual	5.1.1 5.4.1 8.5.1	Process Efficiency Quality Target Continual Improvement