



ASSOCIATION CONNECTING
ELECTRONICS INDUSTRIES®

IPC-1720A

Assembly Qualification Profile

Developed by the OEM council of the IPC, IPC -1720A categorized an electronic assembly manufacturer's capabilities and supplies the OEM customer with detailed, substantive information.

IPC-1720A

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A standard developed by IPC

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The material in this standard was developed by the OEM Council of the Institute for Interconnecting and Packaging Electronic Circuits.

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FOREWORD

It is not intended that this Assembly Qualification Profile (AQP) satisfies all the requirements of the customer, however, conscientious maintenance of this document and or registration to ISO 9000 requirements should satisfy the major concerns. Thus, audits should be simpler, required less frequently, and facilitate less paper work as customers and suppliers work closer to meeting each other's needs.

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HOW TO USE THE AQP

Although the AQP is for a single site or location, information about the overall company is helpful in establishing the relationship of the existing site to the total company and to other sites or divisions. The first page of section 1 is intended to convey the overall company description and is reflected in the optional financial review detailed in section 8. The remainder of the AQP is devoted to information about a single site (see section 9 for examples).

Although intended to be site specific, the AQP may be used to convey total corporate capability. When this practice is preferred, section 1.2 (intended for site description) is modified to reflect total corporate capability, as are all other sections of the AQP.

The Electronic Assembly Manufacturer should keep all sections current. In the initial contact between the manufacturer and a new customer, an abbreviated AQP will suffice (site description from Sections 1 and 2). Access to AQP in electronic media is suggested in order to facilitate the appropriate manufacturer/user information interchange. The remaining sections of the AQP provide details of the site assembly capability and the quality principles that have been incorporated into the systems used to manufacture products. The information is of use to the assembly company in assessing where the organization stands on implementing quality and technology; the same data helps the customer in determining how well the manufacturers' capability matches the customer need.

ACKNOWLEDGMENTS

The IPC is indebted to the members of the OEM council who participated in the development of this document. A note of thanks is also expressed to the members of the Electronic Manufacturing Services Industry (EMSI) for their review and critique and construction recommendations in finalizing the principles developed for the AQP.

Although the IPC is grateful for all the involvement and individual contributions made in completing the AQP, a special acknowledgment is extended to the following individuals. It was their dedication and foresight that made this publication possible.

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Wilcox Electric

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Ronic Assoc. Inc.

Mario Suarez-Solis
Encore Computer Corp.

SECTION 1.1

COMPANY DESCRIPTION

DATE COMPLETED

GENERAL INFORMATION

LEGAL NAME Altron Inc.		
PHYSICAL ADDRESS 6700 Bunker Lake Blvd NW		
CITY Anoka	STATE Minnesota	ZIP 55303
PROVINCE	COUNTRY USA	
TELEPHONE NUMBER 763-427-7735	FAX NUMBER 763-427-3773	TELEX NUMBER
E-MAIL ADDRESS Sales@altronmfg.com	MODEM NUMBER	DATE FOUNDED 1974 <input type="checkbox"/> PUBLIC <input checked="" type="checkbox"/> PRIVATE
INTERNET URL www.altronmfg.com	FTP SITE	

MANAGEMENT

PRESIDENT Alan C. Phillips
CHIEF OPERATING OFFICER
VICE PRESIDENT OF MANUFACTURING
VICE PRESIDENT OF QUALITY Wendy Baker
VICE PRESIDENT OF MARKETING/SALES Ralph Peterson, Sales Manager
VICE PRESIDENT OF CUSTOMER SERVICE
VICE PRESIDENT OF PURCHASING Dave Griffin, Purchasing Manager

CORPORATE DESCRIPTION	NUMBER OF CORPORATE EMPLOYEES	NUMBER OF SITE EMPLOYEES	COMMENTS
DESIGN AND DEVELOPMENT	0	0	We have partners and outsource
ENGINEERING	9	9	
MANUFACTURING CONTROL	3	3	Industrial/ Man. Engineers
MANUFACTURING	DIRECT	95	
	INDIRECT	4	
QUALITY CONTROL	QUALITY ENGINEERS	1	
	INTERNAL AUDITORS	2	
	GENERAL MANAGEMENT	1	
ADMINISTRATION	20	20	
TOTAL	135	135	* additional in quality

SECTION 1.2

SITE DESCRIPTION

(TO BE COMPLETED FOR EACH SITE)

ATTACH APPROPRIATE CHARTS (OPTIONAL)

DATE COMPLETED
6/24/08

MANUFACTURING FACILITY			
COMPANY NAME	Altron Inc		
PHYSICAL ADDRESS	6700 Bunker Lake Blvd Nw		
CITY	Anoka	STATE	Minnesota
PROVINCE		COUNTRY	USA
TELEPHONE NUMBER	763-427-7735	FAX NUMBER	763-427-3773
E-MAIL NUMBER	sales@altronmfg.com	MODEM NUMBER	YEARS IN BUSINESS 34
PRINCIPLE PRODUCTS/SERVICES/SPECIALTIES	BUSINESS CHARACTERIZATION (HIGH VOLUME, QUICK TURN-AROUND, ETC.)		
Electronic PCB/ box build	Low-medium volume high Mix, quick turn and high quality		

FACILITY MANAGEMENT	TITLE	REPORTS TO (Function/Job Title)
OVERALL OPERATION RESPONSIBILITY FOR THIS SITE Alan C. Phillips	President	Self
MANUFACTURING Alan C. Phillips	President	Self
TECHNICAL/ENGINEERING Ken Saari	Test Manager	President
MATERIALS/PRODUCTION CONTROL Alan C. Phillips	President	Self
PURCHASING Dave Griffin	Purchasing Manager	President
QUALITY Wendy Baker	VP of Quality	President
SALES REPRESENTATIVE Ralph Peterson	Sales Manager	President
WASTE MANAGEMENT John Monson	Manufacturing Engineer	President

BUILDINGS	SYSTEMS (INDICATE % COVERAGE)									
	AGE	AREA (Sq. Ft.)	Construction (Wood/Brick)	Power Conditioning	Heating	Ventilation	Air Conditioning	Sprinklers	Waste Treatment	Other
Office	21	14,500	Brick	100	100	100	100	100	0	
Manufacturing	21	45,000	Brick	100	100	100	100	100	0	
Storage	21	7,500	Brick	0	100	100	100	100	0	
Planned additions	N/A									

SAFETY AND REGULATORY AGENCY REQUIREMENTS			
Are fire extinguishers functional and accessible to employees?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	What is the distance to the nearest fire station? (in minutes)
Do you conform to local/federal environment protection agency requirements?	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	Date of last OSHA visit Date of last EPA visit
Are you currently operating under a waiver or in violation of local government requirements?	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	Other Agency Audits, UL, ISO 9000, CSA Approval and Number
Do you have a safety program? Describe	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO	Hazardous Waste Number Trade Waste Account Number

PLANT PERSONNEL (TOTAL EMPLOYEES)										
Permanent	Contract	Office	Technical/Engineering	Production	Full-Time QA	Part-Time QA	Union	Non-Union	Union Name	Contract Expires (Date)
135		20	9	88	16	2	0	135		N/A

SECTION 2.1

PRODUCT TYPE

DATE COMPLETED
6/25/08

This section is intended to provide overview information on the product types being fabricated by the manufacturer.

Site Capability Snapshot (Please Check all that apply)

Designators			Remarks
A	Electronic Assembly Type	<input checked="" type="checkbox"/> 1A <input checked="" type="checkbox"/> 1B <input checked="" type="checkbox"/> 1C <input checked="" type="checkbox"/> 1X <input checked="" type="checkbox"/> 2B <input checked="" type="checkbox"/> 2C <input checked="" type="checkbox"/> 2X <input checked="" type="checkbox"/> 2Y <input type="checkbox"/> 2Z <input type="checkbox"/> Other:	
B	Board Construction Type	<input checked="" type="checkbox"/> Rigid Printed Board <input checked="" type="checkbox"/> Flex Printed Board <input checked="" type="checkbox"/> Rigid Flex Board <input checked="" type="checkbox"/> Rigid Back Plane <input type="checkbox"/> Molded Board <input type="checkbox"/> MCM-C Ceramic Modules & Hybrids <input type="checkbox"/> MCM-L Laminated Modules <input type="checkbox"/> MCM-D Deposited Dielectric <input type="checkbox"/> Other:	
C	Board Size Diagonal	<input checked="" type="checkbox"/> <250 [10.00] <input checked="" type="checkbox"/> 250 [10.00] <input checked="" type="checkbox"/> 350 [14.00] <input checked="" type="checkbox"/> 450 [17.50] <input checked="" type="checkbox"/> 350 [14.00] <input checked="" type="checkbox"/> 650 [25.50] <input checked="" type="checkbox"/> 750 [29.50] <input checked="" type="checkbox"/> 850 [33.50] <input checked="" type="checkbox"/> >850 [33.50] <input type="checkbox"/> Other:	

D	Maximum Thru Hole Work Area	<input type="checkbox"/> <300 CM ² <[50 IN ²] <input type="checkbox"/> 300 CM ² [50 IN ²] <input type="checkbox"/> 600 CM ² [100 IN ²] <input type="checkbox"/> 1000 CM ² [160 IN ²] <input type="checkbox"/> 1500 CM ² [203 IN ²] <input type="checkbox"/> 2100 CM ² [330 IN ²] <input type="checkbox"/> 2800 CM ² [430 IN ²] <input type="checkbox"/> 3600 CM ² [550 IN ²] <input type="checkbox"/> 3600 CM ² [550 IN ²] <input checked="" type="checkbox"/> Other: 24 " wide Maximum	
E	Maximum SMT Work Area	<input type="checkbox"/> <300 CM ² <[150 IN ²] <input type="checkbox"/> 300 CM ² [50 IN ²] <input type="checkbox"/> 600 CM ² [100 IN ²] <input type="checkbox"/> 1000 CM ² [160 IN ²] <input type="checkbox"/> 1500 CM ² [230 IN ²] <input type="checkbox"/> 1000 CM ² [160 IN ²] <input checked="" type="checkbox"/> 2800 CM ² [430 IN ²] <input type="checkbox"/> 3600 CM ² [550 IN ²] <input type="checkbox"/> >3600 CM ² [550 IN ²] <input checked="" type="checkbox"/> Other: 360 in 2	
F	Distance Wiring Terminals & Connectors	<input checked="" type="checkbox"/> Solid Wire <input checked="" type="checkbox"/> Standard Wire <input checked="" type="checkbox"/> Shielded Wire <input checked="" type="checkbox"/> Coax Wire <input checked="" type="checkbox"/> Terminal Bifurcated & Turret <input checked="" type="checkbox"/> Clip & Pin Terminals <input checked="" type="checkbox"/> Crimped Terminals <input checked="" type="checkbox"/> Board Connectors <input checked="" type="checkbox"/> Backplane Connectors <input type="checkbox"/> Other:	
G	Cable & Harness (Multiple Wire)	<input type="checkbox"/> Hi Power Eq. or Lgr. 10 Gauge <input checked="" type="checkbox"/> Lower Power Thinner than 10 Gauge <input checked="" type="checkbox"/> Electrical Cable (Wire) <input type="checkbox"/> Optical Cable (Glass) <input checked="" type="checkbox"/> Electrical Harness <input checked="" type="checkbox"/> Optical Harness <input checked="" type="checkbox"/> Ribbon Cable Harness <input checked="" type="checkbox"/> Combination Harness <input type="checkbox"/> Other:	

H	Mechanical Assembly Operations	<input checked="" type="checkbox"/> Electronic Hardware <input checked="" type="checkbox"/> Mechanical Hardware <input checked="" type="checkbox"/> Shielding Hardware <input checked="" type="checkbox"/> Thermal Conductive Hardware <input checked="" type="checkbox"/> Front Panel Hardware <input checked="" type="checkbox"/> Jumper Wires <input type="checkbox"/> Molded Cable <input checked="" type="checkbox"/> Final System Assembly (Box Build) <input type="checkbox"/> Other:	
J	Completed End Product	<input checked="" type="checkbox"/> Consumer Products <input checked="" type="checkbox"/> General Purpose Computers <input checked="" type="checkbox"/> Telecommunications Products <input checked="" type="checkbox"/> Commercial Aircraft Products <input checked="" type="checkbox"/> Industrial & Automotive Products <input checked="" type="checkbox"/> High Performance Military <input type="checkbox"/> Outer Space (LEO & GEO) <input checked="" type="checkbox"/> Military Avionics <input type="checkbox"/> Automotive (Under the Hood) <input checked="" type="checkbox"/> Other: Medical	

*For product type description, see Glossary, Section 10.1

SECTION 2.2 PROCESSES

DATE COMPLETED

This section is intended to provide overview information on the assembly processes used by the manufacturer.

Site Capability Snapshot (Please Check all that apply)

Designators			Remarks
A	Through Hole Insertion	X Two Leaded-Axial X Two Leaded Radial X Multiple Leaded ≤6-Radial X Single-In-Line Packages (SIPS) X Dual In-Line Pkgs. (DIPS) ≤24 PION X Dual In-Line Pkgs. >24 PION X Pin Grid Arrays (PGA's) X Component Sockets X Card Edge/Two Piece Connectors <input type="checkbox"/> Other:	
B	Surface Mount Placement	X Chip Resistors/Cap. (Reel) <input type="checkbox"/> Bulk Chip Resistors/Cap. X Tantalum Capacitor X Metal Faced Components (MELFS) X Sm. Outline Diodes (SODS) X Sm. Outline Transistors (SOTS) X Sm. Outline IC's (SOIC's) X Variable Resistor Trim Pots X Surface Mount Sockets/Test Pts. Connect <input type="checkbox"/> Other:	Would send out to be put on tape and reel
C	High Pin Count	<input type="checkbox"/> Chip-on-Tape (Molded ring) >0.4 mm pitch <input type="checkbox"/> Chip-on-Tape (Molded ring) ≤0.3mm pitch X Quad Flat Pack (QFP) ≤0.4mm pitch X Quad Flat Pack (QFP) ≤0.3mm pitch X Shrink Quad Flat Pack (SQFP) X Thin Small Outline Pkg. (TSOP) X Ball/Post Grid Array >1.0mm pitch X Ball/Post Grid Array ≤1.0mm pitch X Land Grid Array Any Pitch <input type="checkbox"/> Other:	

D	Bare Chip Attachment	<input type="checkbox"/> Thermal Wire Bonding <input type="checkbox"/> Ball Bonding <input type="checkbox"/> Ultrasonic Wiring Bonding <input type="checkbox"/> Beam Lead Chip Bonding <input type="checkbox"/> Generic Tape Automated Bonding <input type="checkbox"/> Custom Tape Automated Bonding <input type="checkbox"/> Flip Chip on Ceramic or Glass Based <input type="checkbox"/> Flip Chip on Rigid Printed Boards <input type="checkbox"/> Flip Chip on Flex Circuit Boards <input type="checkbox"/> Other:	
E	Attachment Techniques	<input checked="" type="checkbox"/> Hand Soldering Hot Bar Soldering <input checked="" type="checkbox"/> Focused Hot Air Soldering <input checked="" type="checkbox"/> Wave Soldering <input type="checkbox"/> IR Reflow Soldering <input type="checkbox"/> Vapor Phase Soldering <input checked="" type="checkbox"/> Hot Air Convection Soldering <input type="checkbox"/> Laser Soldering <input type="checkbox"/> Conductive Adhesive Attachment <input type="checkbox"/> Other:	
F	Cleaning & Cleanliness Testing	<input checked="" type="checkbox"/> No Clean/Never Clean System <input checked="" type="checkbox"/> Aqueous Cleaning In-line Sys. <input type="checkbox"/> Aqueous Cleaning Static Soak <input checked="" type="checkbox"/> Modified Solvent Clean. In-line <input type="checkbox"/> Modified Solvent Clean. Static Soak <input checked="" type="checkbox"/> Ultrasonic Agitation Cleaning <input checked="" type="checkbox"/> Ionic Salt/Residue Test Organic Contaminate Impreg. Test <input type="checkbox"/> Surface Insul. Resist. (SIR) Test <input type="checkbox"/> Other:	
G	Coating & Encapsulation	<input type="checkbox"/> Bare Die-Glob Top <input type="checkbox"/> Bare Die-Total Assembly <input checked="" type="checkbox"/> Assembly (1 or 2 sides) Epoxy Coating <input checked="" type="checkbox"/> Assembly (1 or 2 sides) Polyurethane Coating <input checked="" type="checkbox"/> Assembly (1 or 2 sides) Acrylic Coating <input type="checkbox"/> Assembly (1 or 2 sides) Vacuum Dep Coating <input type="checkbox"/> Encapsulation Exterior Access (Test) <input type="checkbox"/> Encap. Ex-access (Tuning) <input type="checkbox"/> Encap. Entire Assembly (Thin Coat)	

H	Inspection	<input type="checkbox"/> Other: <input checked="" type="checkbox"/> In-coming <input checked="" type="checkbox"/> In-Process <input checked="" type="checkbox"/> Final Inspection <input checked="" type="checkbox"/> 100% Inspection <input checked="" type="checkbox"/> Audit Inspection <input checked="" type="checkbox"/> Manual <input type="checkbox"/> Semi-Automatic <input checked="" type="checkbox"/> Automatic <input type="checkbox"/> Other:	
J	Testing & Repair	<input type="checkbox"/> Test Equipment Design <input type="checkbox"/> Test Equipment Fabrication <input checked="" type="checkbox"/> Test Development <input checked="" type="checkbox"/> Failure Analysis <input checked="" type="checkbox"/> Repair Depot <input checked="" type="checkbox"/> Rework Depot <input type="checkbox"/> Other:	

SECTION 2.3 TESTING

DATE COMPLETED

This section is intended to provide detailed informati on on the test, equipment and testing capability of the manufacturer.

Site Capability Snapshot (Please Check all that apply)

Designators			Remarks
A	Test Type	<input checked="" type="checkbox"/> Automatic Test Generation <input checked="" type="checkbox"/> X-Ray Joint Evaluation <input checked="" type="checkbox"/> Cleanliness Testing <input checked="" type="checkbox"/> Auto in-circuit Electronic Assembly <input type="checkbox"/> Electro-magnetic Interference <input checked="" type="checkbox"/> Auto Function Electronic Assembly <input checked="" type="checkbox"/> System Level Test Electrical <input checked="" type="checkbox"/> System Level Test Function <input type="checkbox"/> System Level Test Environmental <input type="checkbox"/> Other:	
B	Test Fixture Type	<input checked="" type="checkbox"/> No Fixture <input checked="" type="checkbox"/> One-sided Probe Generic Electrical <input checked="" type="checkbox"/> Cam Shell Test-Generic Electrical <input checked="" type="checkbox"/> Custom Fixture Electrical <input checked="" type="checkbox"/> Dedicated Test Bed Electrical <input checked="" type="checkbox"/> Humidity Test <input checked="" type="checkbox"/> Temperature Test <input type="checkbox"/> Vibration Test <input type="checkbox"/> Shock Test <input type="checkbox"/> Other:	
C	Probe Point Pitch	<input type="checkbox"/> >1.0 [.040] <input type="checkbox"/> 1.0 [.040] <input checked="" type="checkbox"/> 0.8 [.032] <input checked="" type="checkbox"/> 0.65 [.025] <input checked="" type="checkbox"/> 0.50 [.020] <input checked="" type="checkbox"/> 0.40 [.016] <input checked="" type="checkbox"/> 0.30 [.012] <input type="checkbox"/> 0.20 [.008] <input type="checkbox"/> <.20 [.008] <input type="checkbox"/> Other:	
D	No. of Probe Points	<input checked="" type="checkbox"/> <200 <input checked="" type="checkbox"/> 200	

		<p><input checked="" type="checkbox"/> 500</p> <p><input checked="" type="checkbox"/> 1000</p> <p><input checked="" type="checkbox"/> 1500</p> <p><input checked="" type="checkbox"/> 2000</p> <p><input checked="" type="checkbox"/> 2500</p> <p><input type="checkbox"/> 3000</p> <p><input type="checkbox"/> >3000</p> <p><input type="checkbox"/> Other:</p>	
E	No. of Test Vectors	<p><input checked="" type="checkbox"/> <500</p> <p><input checked="" type="checkbox"/> 500</p> <p><input checked="" type="checkbox"/> 1000</p> <p><input checked="" type="checkbox"/> 2000</p> <p><input type="checkbox"/> 3000</p> <p><input type="checkbox"/> 4000</p> <p><input type="checkbox"/> 5000</p> <p><input type="checkbox"/> 6000</p> <p><input type="checkbox"/> >6000</p> <p><input type="checkbox"/> Other:</p>	
F	Environmental Stress Screening	<p><input checked="" type="checkbox"/> Burn-in at Temperature</p> <p><input checked="" type="checkbox"/> Burn-in with Temperature Cycling</p> <p><input checked="" type="checkbox"/> Burn-in Hi Temperature Cycles</p> <p><input checked="" type="checkbox"/> Burn-in with Temperature Cycles</p> <p><input checked="" type="checkbox"/> Burn-in with Temperature Cycles Hi-humidity</p> <p><input checked="" type="checkbox"/> Power Cycling On-Off</p> <p><input type="checkbox"/> Vibrations Testing</p> <p><input type="checkbox"/> Shock Test</p> <p><input type="checkbox"/> Salt Spray Testing</p> <p><input type="checkbox"/> Other:</p>	

SECTION 2.4

PRODUCT COMPLEXITY

DATE COMPLETED

This section is intended to provide overview information on the product complexity being fabricated by the manufacturer. Based on component density.

Site Capability Snapshot (Maximum Component Density*)

*PERCENT COMPONENT AND LAND AREA/AVAILABLE BOARD AREA

(Please Check all that apply)

Designators			Remarks
A	Type 1A	X <30 X 30 X 40 X 50 X 60 X 70 X 80 X 90 X >90 <input type="checkbox"/> Other:	
B	Type 1B	X <30 X 30 X 40 X 50 X 60 X 70 X 80 X 90 X >90 <input type="checkbox"/> Other:	
C	Type 1C	X <30 X 30 X 40 X 50 X 60 X 70 X 80 X 90 X >90	

D	Type 1X	<input type="checkbox"/> Other: X <30 X 30 X 40 X 50 X 60 X 70 X 80 X 90 X >90	
E	Type 2B	<input type="checkbox"/> Other: X <30 X 30 X 40 X 50 X 60 X 70 X 80 X 90 X >90	
F	Type 2C	<input type="checkbox"/> Other: X <30 X 30 X 40 X 50 X 60 X 70 X 80 X 90 X >90	
G	Type 2X	<input type="checkbox"/> Other: X <30 X 30 X 40 X 50 X 60 X 70 X 80 X 90 X >90	

		<input type="checkbox"/> Other:	
H	Type 2Y	X <30 X 30 X 40 X 50 X 60 X 70 X 80 X 90 X >90	
J	Type 2Z	<input type="checkbox"/> Other: <input type="checkbox"/> <30 <input type="checkbox"/> 30 <input type="checkbox"/> 40 <input type="checkbox"/> 50 <input type="checkbox"/> 60 <input type="checkbox"/> 70 <input type="checkbox"/> 80 <input type="checkbox"/> 90 <input type="checkbox"/> >90 <input type="checkbox"/> Other:	

SECTION 2.5

PRODUCT VOLUME

DATE COMPLETED

This section is intended to provide overview information on the volume of product being fabricated by the manufacturer.

Site Capability Snapshot (Please Check all that apply)

Designators			Remarks
A	Volume of Electrical Assembly	<input checked="" type="checkbox"/> Prototype <input checked="" type="checkbox"/> Low (Under 100) <input checked="" type="checkbox"/> Low-Medium (To 1,000) <input checked="" type="checkbox"/> Medium (To 5,000) <input checked="" type="checkbox"/> Medium (To 10,000) <input checked="" type="checkbox"/> Medium-High (To 20,000) <input checked="" type="checkbox"/> High (To 50,000) <input checked="" type="checkbox"/> High To 500,000 <input type="checkbox"/> Other:	
B	Volume of Discrete Wiring	<input checked="" type="checkbox"/> Prototype <input checked="" type="checkbox"/> Low (Under 100) <input checked="" type="checkbox"/> Low-Medium (To 1,000) <input checked="" type="checkbox"/> Medium (To 5,000) <input checked="" type="checkbox"/> Medium (To 10,000) <input checked="" type="checkbox"/> Medium-High (To 20,000) <input checked="" type="checkbox"/> High (To 50,000) <input checked="" type="checkbox"/> High To 500,000 <input type="checkbox"/> Other:	
C	Volume Cable/Harness	<input checked="" type="checkbox"/> Prototype <input checked="" type="checkbox"/> Low (Under 100) <input checked="" type="checkbox"/> Low-Medium (To 1,000) <input checked="" type="checkbox"/> Medium (To 5,000) <input checked="" type="checkbox"/> Medium (To 10,000) <input checked="" type="checkbox"/> Medium-High (To 20,000) <input checked="" type="checkbox"/> High (To 50,000) <input checked="" type="checkbox"/> High To 500,000 <input type="checkbox"/> Other:	
D	Volume Mechanical	<input checked="" type="checkbox"/> Prototype <input checked="" type="checkbox"/> Low (Under 100) <input checked="" type="checkbox"/> Low-Medium (To 1,000) <input checked="" type="checkbox"/> Medium (To 5,000) <input checked="" type="checkbox"/> Medium (To 10,000)	

		<p>X Medium-High (To 20,000)</p> <p>X High (To 50,000)</p> <p>X High To 500,000)</p> <p><input type="checkbox"/>Other:</p>	
E	Volume Full System	<p>X Prototype</p> <p>X Low (Under 100)</p> <p>X Low-Medium (To 1,000)</p> <p>X Medium (To 5,000)</p> <p>X Medium (To 10,000)</p> <p>X Medium-High (To 20,000)</p> <p>X High (To 50,000)</p> <p>X High (To 500,000)</p> <p><input type="checkbox"/>Other:</p>	

SECTION 2.6

QUALITY DEVELOPMENT

DATE COMPLETED

This section is intended to provide overview information on the quality systems in place in the manufacturing facility.

Site Capability Snapshot (Please Check all that apply)

Designators			Remarks
A	Strategic Plan	<input checked="" type="checkbox"/> Functional Steering Committee Formed <input type="checkbox"/> TQM Plan & Philosophy Established & Published <input checked="" type="checkbox"/> Documented Quality Progress Review <input checked="" type="checkbox"/> Implementation & Review of Project Team Recommendations <input checked="" type="checkbox"/> TQM Communicated Throughout Organization <input checked="" type="checkbox"/> Controlled New Process Start-up <input checked="" type="checkbox"/> Management Participates in TQM Audits <input type="checkbox"/> Employee Recognition Program <input checked="" type="checkbox"/> Total TQM Plan/Involvement Customer Training <input type="checkbox"/> Other:	
B	Employee Involvement	<input checked="" type="checkbox"/> Certified Training Available <input checked="" type="checkbox"/> Training of Employee Base <input checked="" type="checkbox"/> TQM Team Trained <input type="checkbox"/> Design of Experiment Training and Use <input checked="" type="checkbox"/> New Process Implementation Training <input checked="" type="checkbox"/> Support Personnel Training <input type="checkbox"/> Advanced Statistical Training <input type="checkbox"/> Quality Functional Deployment <input checked="" type="checkbox"/> Ongoing Improvement Program for Employees <input type="checkbox"/> Other:	
C	Quality Manual	<input type="checkbox"/> Quality Manual Started <input checked="" type="checkbox"/> Generic Quality manual for Facility <input type="checkbox"/> 10% of Manufacturing Depts. have Process Specifications <input type="checkbox"/> 25% of Manufacturing Depts. have Process Specifications <input type="checkbox"/> 50% of Manufacturing Depts. have Process Specifications <input type="checkbox"/> Non-manufacturing Manuals Developed <input type="checkbox"/> 25% of all Departments have Quality Manuals <input type="checkbox"/> 50% of all Departments have Quality Manuals <input checked="" type="checkbox"/> All Manufacturing and Support Depts. have Controlled Quality Manual <input type="checkbox"/> Other:	
D	Instructions	<input type="checkbox"/> Work Instructions Started <input type="checkbox"/> Quality Instructions Started	

		<input type="checkbox"/> 10% Work Instructions Completed <input type="checkbox"/> 10% Quality Instructions Completed <input type="checkbox"/> 25% Work Instructions Completed, Controlled <input type="checkbox"/> 25% Quality Instructions Completed, Controlled <input type="checkbox"/> 50% Work Instructions Completed, Controlled <input type="checkbox"/> 50% Quality Instructions Completed, Controlled <input checked="" type="checkbox"/> Quality and Work Instructions Completed, Controlled <input type="checkbox"/> Other:	
E	SPC Implementation IPC-PC-90	<input type="checkbox"/> Plan Exists <input type="checkbox"/> Training Started <input checked="" type="checkbox"/> Process Data Collected & Analyzed <input type="checkbox"/> All employees Trained <input type="checkbox"/> First Process Stable & Capable <input type="checkbox"/> Several Major Processes Stable & Capable <input type="checkbox"/> Continued Improvement of Stable Processes <input type="checkbox"/> Additional Mfg Processes Under Control <input type="checkbox"/> All Processes Under Control <input type="checkbox"/> Other:	
F	Supplier Programs/Controls	<input checked="" type="checkbox"/> Supplier Rating Program <input checked="" type="checkbox"/> Monthly Analysis Program <input checked="" type="checkbox"/> Key Problems Identified <input checked="" type="checkbox"/> Supplier Reviews Performance Data Provided <input type="checkbox"/> TQM Acceptance by Suppliers <input type="checkbox"/> 10% of Suppliers Using SPC <input type="checkbox"/> 25% of Suppliers Using SPC <input type="checkbox"/> 50% of Suppliers Using SPC <input checked="" type="checkbox"/> All Key Suppliers Using Certified Parts Program <input type="checkbox"/> Other:	
G	Third Party IPC-QS-95	<input type="checkbox"/> Instrument Controls in Place <input type="checkbox"/> Measurement System in Control IPC-PC-90 <input type="checkbox"/> Document Controls in Place <input type="checkbox"/> Reduced Lot Sampling <input type="checkbox"/> 10% of Processes Under Audit Control <input type="checkbox"/> 50% or Greater of Processes Under Audit Control <input type="checkbox"/> ISO-9003 Certified <input type="checkbox"/> ISO-9002 Certified <input checked="" type="checkbox"/> ISO-9001 Certified <input type="checkbox"/> Other:	

SECTION 2.7 SERVICES

DATE COMPLETED

This section is intended to provide overview information on the customer services offered by the manufacturer in addition to the assembly manufacturing services.

Site Capability Snapshot (Please Check all that apply)

Designators			Remarks
A	Component Procurement	<input checked="" type="checkbox"/> Consignment <input checked="" type="checkbox"/> Passive Thru-Hole <input checked="" type="checkbox"/> Passive SMT <input checked="" type="checkbox"/> I/C SMT <input checked="" type="checkbox"/> I/C SMT <input checked="" type="checkbox"/> Hi-Pin Count (Peripheral) <input checked="" type="checkbox"/> Hi-Pin Count (Array) <input type="checkbox"/> Bare Die (CHIPS) <input checked="" type="checkbox"/> ASIC's <input type="checkbox"/> Other:	
B	Board Procurement	<input checked="" type="checkbox"/> Consignment <input checked="" type="checkbox"/> Single Sided <input checked="" type="checkbox"/> Double Sided <input checked="" type="checkbox"/> Multilayer (Rigid) <input checked="" type="checkbox"/> Multilayer (Rigid-Flex) <input checked="" type="checkbox"/> Metal Core Boards <input type="checkbox"/> CTE Boards <input type="checkbox"/> MCM's & Hybrids <input checked="" type="checkbox"/> PCMCIA's <input type="checkbox"/> Other:	
C	Design Services	<input checked="" type="checkbox"/> Outsource <input type="checkbox"/> Simulation <input type="checkbox"/> Circuit Analysis <input type="checkbox"/> Placement & Routing <input type="checkbox"/> Design Rule Implementation <input type="checkbox"/> Impedance Control <input type="checkbox"/> High Speed <input type="checkbox"/> MCM's (L) (C) or (D) <input type="checkbox"/> ASIC's <input type="checkbox"/> Other:	

SECTION 3.0
MASTER EQUIPMENT LISTING
FORM AQP 20

DATE COMPLETED

Please complete a Master Equipment List. You may use your own form or the AQP Form 20.

IDENTIFICATION	EQUIPMENT NAME/DESCRIPTION	MANUFACTURER TYPE/MODEL	EQUIPMENT LIMITS	ACCURACY	CALIBRATION FREQUENCY	REMARKS
Upon Request						

SECTION 4

DATE COMPLETED

TECHNOLOGY PROFILE SPECIFICS

4.1 ADMINISTRATION

4.1.1 CAPACITY PROFILE	EST %	COMMENTS
A) Total Capacity in units per month (based on best quarter)	65,000	
B) Presently running at ____ % of total unit capacity.	60	
C) Revenue from manufacturing services. Revenue from non-manufacturing activities.	100 %	
	Total 100%	
D) Work dedicated to consignment. Work dedicated to turnkey.	10% 90%	
	Total 100%	

4.1.2 PERCENTAGE OF DOLLAR VOLUME	EST %	COMMENTS
* 1) Type 1A electronic assembly	10	
2) Type 1B electronic assembly	5	
3) Type 1C electronic assembly	5	
4) Type 1X electronic assembly	0	
5) Type 2B electronic assembly	5	
6) Type 2C electronic assembly	20	
7) Type 2X electronic assembly	10	
8) Type 2Y electronic assembly	10	

9) Type 2Z electronic assembly	0	
10) Wire wrap assembly	0	
11) Cable/harness assembly	10	
12) Mechanical assembly	5	
13) Full system assembly	20	

* For description of product types, see glossary, Section 10.1

4.1.3 UNIT PRODUCTION PROFILE	UNITS PER MONTH
A) What do you consider, in number of units per month the definition of the following (units=units per month)?	
1) High Production	Over 10,000
2) Medium Production	5,000 – 10,000
3) Low Production	100 – 5,000
4) Prototype Production	1 to 100
B) What is your average lead-time (delivery) as defined in (A)?	2 to 4 weeks labor only
1) High Production	3 to 4 weeks
2) Medium Production	2 to 4 weeks
3) Low Production	2 to 3 weeks
4) Prototype Production	1 to 5 days
Quick turn - No. of days 5	

4.1.4 MARKETS SERVED	YES	NO	COMMENTS
A) Consumer Products	X	<input type="checkbox"/>	
B) General Purpose Computers	X	<input type="checkbox"/>	
C) Telecommunications Products	X	<input type="checkbox"/>	
D) Commercial Aircraft	X	<input type="checkbox"/>	
E) Industrial Products & Automotive	X	<input type="checkbox"/>	
F) High Performance Military	X	<input type="checkbox"/>	
G) Outer Space LEO & GEO	<input type="checkbox"/>	X	

H) Military Avionics	X	<input type="checkbox"/>	
J) Automotive (Under the Hood)	<input type="checkbox"/>	X	

4.1.5 APPROVAL & CERTIFICATION PROFILE	YES	NO	COMMENTS
What company approvals do you have?			
A) J-STD-001	X	<input type="checkbox"/>	
B) IPC-A-610	X	<input type="checkbox"/>	
C) MIL-STD-2000	<input type="checkbox"/>	X	
D) UL Approval	X	<input type="checkbox"/>	
E) UL Level 94V0	<input type="checkbox"/>	X	
F) UL Level 94V1	<input type="checkbox"/>	X	
G) UL Level 94V2	<input type="checkbox"/>	X	
H) Canadian Standards	X	<input type="checkbox"/>	
J) MIL-P-55110	<input type="checkbox"/>	X	
K) MIL-P-50884	<input type="checkbox"/>	X	
L) ISO-9003	<input type="checkbox"/>	<input type="checkbox"/>	
M) ISO-9002	X	<input type="checkbox"/>	
N) ISO-9001	<input type="checkbox"/>	X	
P) BABT	<input type="checkbox"/>	X	
Q) QC9000	<input type="checkbox"/>	X	
R) EEC	<input type="checkbox"/>	X	

S) Customer Evaluation	X	<input type="checkbox"/>	
T) Other	X		FDA, ITAR, ISO 13485:2003

4.1.6	CUSTOMER INTERFACE PROFILE	YES	NO	EQUIPMENT	COMMENTS
A)	Modem capability/BAUD rate	X	<input type="checkbox"/>		
B)	Ethernet capability	X	<input type="checkbox"/>		
C)	Data verification	X	<input type="checkbox"/>		
D)	Manufacturing data requirements:	X	<input type="checkbox"/>		
E)	Engineering change order process:	X	<input type="checkbox"/>		
F)	Method for job status reporting to customers:	X	<input type="checkbox"/>	Syteline	

4.1.7	ADMINISTRATIVE PROFILE	YES	NO	QUANTITY	DEGREES	COMMENTS
A)	Does the facility have a separate research and development dept.	<input type="checkbox"/>	X			
B)	Is there an (automated) on-line shop floor control/MRP system	X	<input type="checkbox"/>			
C)	Quantity of engineers dedicated to supporting the following areas			10 (TOTAL)		
1)	Materials	<input type="checkbox"/>	X			
2)	Manufacturing	X	<input type="checkbox"/>	7		
3)	Test	X		3		

4.2 PROCESS ORIENTATION

4.2.1	PLANT LAYOUT CHARACTERISTICS	YES	NO	COMMENTS
A)	In-line Assembly Process	X	<input type="checkbox"/>	
B)	Islands of Automation	X	<input type="checkbox"/>	
C)	Placement Equipment Technology			(TOTAL)

1) In-line	X	<input type="checkbox"/>	
2) Sequential	X	<input type="checkbox"/>	
3) Simultaneous	X	<input type="checkbox"/>	

4.2.2	PROCESS PRECISION SPECIFICS	YES	NO	DIAMETER IN MM	COMMENTS
	Please indicate the following standard tooling preferences for your mfg. eqpt.				
A)	Vision alignment targets	X	<input type="checkbox"/>		
	1) Solder coated	X	<input type="checkbox"/>		
	2) SMOBC	X			
B)	Protective coating	X	<input type="checkbox"/>		
C)	Placement equipment alignment	X	<input type="checkbox"/>		
	1) Tooling holes required	X	<input type="checkbox"/>		
D)	Electrical test tooling alignment holes	X	<input type="checkbox"/>		

4.2.3	NEW PROCESS QUALIFICATION	YES	NO	RESPONSIBLE PERSONNEL	COMMENTS
A)	Instruction manual for new process introduction	X	<input type="checkbox"/>		
B)	New process qualification procedure	X	<input type="checkbox"/>		
C)	Responsible personnel:	X	<input type="checkbox"/>		

4.3 PRODUCT DESCRIPTION

*Include average percentage defects/ assembly for units which utilize the following device types.

4.3.1.	THROUGH HOLE INSERTION	YES	NO	PERCENT	MAX/MIN PACKAGE SIZE	COMMENTS
A)	Axial Leads	X	<input type="checkbox"/>	65		
B)	Radial Leads	X	<input type="checkbox"/>	13		
C)	DIP	X	<input type="checkbox"/>	20		

D) Pin Grid Arrays	X	<input type="checkbox"/>	2		
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4.3.2	SURFACE MOUNT COMPONENTS	YES	NO	PERCENT	MAX./MIN PACKAGE SIZE	MAX PIN COUNT	MIN. PITCH
A)	Chip Capacitors/Resistors	X	<input type="checkbox"/>	75			
B)	Small Outline Diodes (SODs)	X	<input type="checkbox"/>	2			
C)	Small Outline Transistors (SOTs)	X	<input type="checkbox"/>	5			
D)	Small Outline IC's (SOICs)	X	<input type="checkbox"/>	5	Down to 12mil		
E)	Chip-on-tape (molded carrier ring)	<input type="checkbox"/>	X				
F)	COB	<input type="checkbox"/>	X				
G)	Quad Flat Packs (QFPs)	X	<input type="checkbox"/>	5	Down to 12mil		
H)	Thin Small Outline Package (TSOP)	X	<input type="checkbox"/>	4	Down to 12mil		
J)	Ball/Post Grid Array	X	<input type="checkbox"/>	4	Max 1500 BC 1mm Pitch		
K)	TAB	<input type="checkbox"/>	X				

4.3.3	PERCENTAGE OF UNITS PRODUCED IN YOUR MAIN BUSINESS CATEGORIES	YES	NO	PERCENT	PRODUCT DESCRIPTION	COMMENTS
A)	Electronic assembly type	X	<input type="checkbox"/>	28	Misc.	
B)	Board construction type	<input type="checkbox"/>	X			
C)	Board size, diagonal	<input type="checkbox"/>	X			
D)	SMT working area	X	<input type="checkbox"/>	25	Boards Only	
E)	THT working area	X	<input type="checkbox"/>	10	Boards Only	
F)	Discrete wire	X	<input type="checkbox"/>	2	Misc.	

G) Cable & Harness	X	<input type="checkbox"/>	5	GPS Tracking/Medical Devices	
H) Mechanical assemblies	X	<input type="checkbox"/>	5	GPS Tracking/Medical Devices	
J) Completed end product	X	<input type="checkbox"/>	25	GPS Tacking /medical Devices	

4.3.4	TOTAL BUSINESS DISTRIBUTION BY ASSEMBLY TYPES	YES	NO	PERCENT	COMMENTS
A)	1A	X	<input type="checkbox"/>	20	
B)	1B	X	<input type="checkbox"/>	10	
C)	1C	X	<input type="checkbox"/>	8	
D)	1X	<input type="checkbox"/>	X	0	
E)	2B	X	<input type="checkbox"/>	8	
F)	2C	X	<input type="checkbox"/>	35	
G)	2X	X	<input type="checkbox"/>	9	
H)	2Y	X	<input type="checkbox"/>	10	
J)	2Z	<input type="checkbox"/>	X	0	

4.3.5	TOTAL BUSINESS DISTRIBUTION BY BOARD ASSEMBLY TYPES	YES	NO	PERCENT	COMMENTS
A)	Rigid	X	<input type="checkbox"/>	85	
B)	Flex	X	<input type="checkbox"/>	10	
C)	Rigid/Flex	X	<input type="checkbox"/>	4	
D)	Molded Board	<input type="checkbox"/>	X		
E)	Rigid Backplane	<input type="checkbox"/>	X		
F)	Ceramic MCM's	<input type="checkbox"/>	X		
G)	Laminated MCM	<input type="checkbox"/>	X		

H) Deposited dielectric MCM	<input type="checkbox"/>	X		
J) Discrete Wire Boards	X	X	1	

4.3.6	TOTAL BUSINESS DISTRIBUTION (REMAINING AREAS)	YES	NO	PERCENT	COMMENTS
A)	Multi-wire Assemblies	<input type="checkbox"/>	X		
B)	Cables and Harness	X	<input type="checkbox"/>	8	
C)	Mechanical Assemblies	X	<input type="checkbox"/>	15	
D)	Full System Assembly	X	<input type="checkbox"/>	77	

4.4. TESTING CAPABILITY

4.4.1	ELECTRICAL TEST SMT CENTERLINE PITCH MINIMUM	YES	NO	COMMENTS
A)	0.63mm [.025]	X	<input type="checkbox"/>	
B)	0.5mm [.020]	<input type="checkbox"/>	X	
C)	0.4mm [.016]	<input type="checkbox"/>	X	
D)	0.3mm [.012]	<input type="checkbox"/>	X	
E)	0.25mm [.010]	<input type="checkbox"/>	X	
F)	Other	<input type="checkbox"/>	X	

4.4.2	PERFORM DOUBLE SIDED SIMULTANEOUS ELECTRICAL TESTING	YES	NO	EQUIPMENT	EQUIPMENT LIMITS
A)	Can you perform double sided simultaneous electrical testing?	X	<input type="checkbox"/>		

4.4.3	BOUNDRY SCAN TESTING CAPABILITY	YES	NO	EQUIPMENT	EQUIPMENT LIMITS
A)	Boundry scan testing capability?	X	<input type="checkbox"/>		

4.4.4	AUTOMATED OPTICAL INSPECTION USAGE?	YES	NO	EQUIPMENT	COMMENTS
	A) Post paste application	X	X	2-D	
	B) Pre-placement	<input type="checkbox"/>	X		
	C) Post placement	X		AOI	
	D) Post reflow	X	<input type="checkbox"/>	AOI	

4.4.5	FULL SYSTEM LEVEL TESTING	YES	NO	COMMENTS
	A) Full system level testing?	X	<input type="checkbox"/>	
	B) Can you develop these test systems in-house?	X	<input type="checkbox"/>	

4.4.6	DIRECT CAD DOWNLOAD TO TEST EQUIPMENT IN USE	YES	NO	COMMENTS
	A) Direct CAD download to test equipment in use?	<input type="checkbox"/>	X	

4.4.7	RELIABILITY TESTING	YES	NO	EQUIPMENT	COMMENTS
	A) Thermal (temperature/humidity)	X	<input type="checkbox"/>		
	B) Vibration	<input type="checkbox"/>	X		
	C) Shock	<input type="checkbox"/>	X		
	D) Salt spray	<input type="checkbox"/>	X		

4.5 MATERIALS MANAGEMENT

4.5.1	MATERIAL SYSTEMS	YES	NO	SYSTEM	COMMENTS
	A) MRP System	X	<input type="checkbox"/>		
	B) Electronic data interface (EDI)	<input type="checkbox"/>	X		

C) Kitting capability	X	<input type="checkbox"/>		
D) Turn-key system	X	<input type="checkbox"/>		

SECTION 5 QUALITY PROFILE

DATE COMPLETED

GENERAL INFORMATION	
COMPANY NAME Altron Inc.	
CONTACT Jim Merritt	
TELEPHONE NUMBER 763-231-3322	FAX NUMBER 763.-427-3773

This section of the Manufacturer's Qualification Profile is intended to describe the Total Quality Management (TQM) activity in place or being implemented at the manufacturing facility identified in the site description of this AQP.

To ease in the task of identifying the TQM program being planned or underway at the manufacturing site, the activities have been divided into twenty sections which, when completed, provide the total picture of the posture toward managing quality issues. Each section contains a number of questions with regard to the topic under review.

It is not the intent to have the questions be all encompassing, nor is every question applicable to all manufacturers. However, identification of the status, related to each questions, when considered as a whole will convey an impression of the progress that the company has achieved in adopting the principles of total quality management.

The twenty sections, in order of the occurrence are:

- | | | | |
|------|-----------------------------------|------|---|
| 5.1 | General Quality Programs | 5.11 | Internal Audits |
| 5.2 | Receiving Inspection | 5.12 | Statistical Process Control |
| 5.3 | Customer Satisfaction | 5.13 | Problem Solving |
| 5.4 | Computer Integrated Manufacturing | 5.14 | In-Process Control |
| 5.5 | Process Documentation | 5.15 | Material Handling |
| 5.6 | Quality Records | 5.16 | Non-Conforming Material Control |
| 5.7 | Skill, Training & Certification | 5.17 | Inspection and Test Plan |
| 5.8 | Subcontractor Control | 5.18 | Product Inspection/Final Audit |
| 5.9 | New Products/Technical Services | 5.19 | Tooling Inspection, Handling, & Storage |
| 5.10 | Calibration Control | 5.20 | Corrective Action |

Each section provides a status report related to each question. The question may not be applicable, no activity has started as yet, or the company may have developed an approach to the issues raised by the questions. An (X) is indicated in the appropriate column. If deployment/implementation has started, the status is reported as percent deployment; this is indicated in column 4. The percentage number closely approximates the status of deployment. If deployment exists, the percentage results that have been achieved is indicated in column 5. Results are based on expected goals. Not providing percent information in either the deployment or results column implies a lack of activity in the particular area.

The quality descriptions requested are completed on the following pages by checking (X) the appropriate column to reflect the status of the manufacturing facility TQM program. Additional information may be provided as comments shown below, or on individual sections, or additional sheets as necessary.

COMMENTS

5.1 GENERAL QUALITY PROGRAMS		STATUS				
		Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
DESCRIPTION OF PROGRAM						
1.	Are quality objectives and responsibilities clearly stated, widely distributed and understood through the company?			X	100	100
2.	Is there a quality function or well defined organization , which provides customer advocate guidance to the total organization and is this position fully supported by management?			X	100	100
3.	Does a quality measurement system exist with clearly defined metrics and is it utilized as a management tool?			X	100	100
4.	Are work instructions approved and controlled; and are they under revision control?			X	100	100
5.	Are the quality procedures and policies current and available at the point of application; and are they under revision control?			X	100	100
6.	Are benchmark and customer satisfaction studies done to determine best in class for all products, services, and administrative functions; and are goals set so that quality is a competitive weapon?			X	50	50
7.	Are Statistical Process Control (SPC) principles understood by all levels of management?	X				
8.	Are there programs with sufficient resources assigned to support corrective actions and prevention?			X	100	100
9.	Does management solicit and accept feedback from the work force?			X	100	100
10.	Is there management support of ongoing training (including quality training), and is it documented by an organizational training plan?			X	100	100
11.	Are there regular management reviews of elements of the quality improvement process, including feedback for corrective action, and are the results acted upon?			X	100	100
12.	Are the quality and reliability goals aggressive relative to customer expectations and targeted at continuous improvement?			X	100	100
13.	Are the people who are responsible for administering the quality assurance function technically informed?			X	100	100
14.	Does Management have a "defect prevention" attitude to achieve continuous quality improvement?			X	100	100

5.2 RECEIVING INSPECTION		STATUS				
		Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
DESCRIPTION OF PROGRAM						
1.	Are receiving inspection facilities and equipment adequately and properly maintained?			X	100	100
2.	Are receiving inspection procedures documented and followed?			X	100	100
3.	Are receiving inspection results used for corrective and preventive action?			X	100	100
4.	Are the procedures for storage and timely disposition of discrepant material in place and followed?			X	100	100

COMMENTS

5.3 CUSTOMER SATISFACTION		STATUS				
		Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
DESCRIPTION OF PROGRAM		Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
1.	Is there a measurement system in place to assess the customer's perception of complete performance?			X	100	100
2.	Is an independent (unbiased) customer survey routinely conducted?			X	100	100
3.	Is there an internal measurement system within the organization, which correlates to the level of customer satisfaction?			X	100	100
4.	Are there specific goals for achieving Total Customer Satisfaction, both internal and external?			X	100	100
5.	To what extent are customer satisfaction goals disseminated and understood by everyone in the organization?			X	100	100
6.	Does management regularly review and assess all operating systems to determine if barriers to customer satisfaction exist and are appropriate action plans then implemented?			X	100	100
7.	Is there a method in place to obtain future customer requirements?			X	100	100
8.	Are all findings of customer dissatisfaction reported back to the proper organization for analysis and corrective action?			X	100	100
9.	Are customer satisfaction requirements formally defined and documented, and are they based on customer input?			X	100	100
10.	Do all support organizations understand their role in achieving total customer satisfaction?			X	100	100

5.4 COMPUTER INTEGRATED MANUFACTURING		STATUS				
		Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
DESCRIPTION OF PROGRAM		Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
1.	Are systems integrated to allow electronic transfer of information between multiple systems to eliminate redundant data entry?			X	100	100
2.	Can customers electronically transfer CAD/CAM directly into manufacturing?			X	100	100
3.	Can customers electronically transfer order information directly into the business system?		X			
4.	Is data electronically shared between shop floor control and process control systems (i.e., CNC, SPC, Electrical Test, AOI, etc.)?			X	100	100
5.	Are planning systems (MRP, forecasting, capacity planning, financial planning, etc.) electronically integrated with operation systems (order processing, purchasing, inventory management, shop floor control, financial/cost control, etc.)?			X	100	100
6.	Is information available from system processes in real time (vs. batch processing)?			X	100	100
7.	Are processes and procedures documented and available on-line?		X			
8.	Do all functional departments have system access to key financial, manufacturing, sales, and operational data, as it relates to their functional objectives?			X	100	100

COMMENTS

5.5 PROCESS DOCUMENTATION		STATUS				
		Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
DESCRIPTION OF PROGRAM						
1.	Are manufacturing product, process, and configuration documents under issue control?			X	100	100
2.	Are "preliminary" and "special product" specifications controlled?			X	100	100
3.	Does the system ensure that the most current customer specifications are available to the manufacturing personnel?			X	100	100
4.	Does the system ensure that the most current material specifications are available to the procurement function?			X	100	100
5.	Are incoming orders reviewed for revisions and issue changes?			X	100	100
6.	Is conformance to customer specifications assured before an order is accepted?			X	100	100
7.	Is customer feedback provided when designs do not meet manufacturability requirements?			X	100	100
8.	Are critical characteristics classified relative to impact on product performance?			X	100	100
9.	Are customers informed of changes made to products controlled by customer drawings or specifications?			X	100	100
10.	Is there an effective internal deviation control procedure and, are customer requested deviations documented and followed?			X	100	100
11.	Do new product development procedures exist and are they followed in the design development process?	X				

5.6 QUALITY RECORDS		STATUS				
		Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
DESCRIPTION OF PROGRAM						
1.	Are records of inspection and process control maintained and available for review?			X	100	100
2.	Are records of equipment and equipment maintenance kept?			X	100	100
3.	Is the record and sample retention program defined?			X	100	100
4.	Are quality data used as a basis for corrective action?			X	100	100
5.	Are quality data used in reporting performance and trends to management?			X	100	100
6.	Are quality data used in supporting certifications of quality furnished to customers?			X	100	100
7.	Is field information used for corrective action?			X	100	100
8.	Does a cost of quality measurement system exist?	X				
9.	Are customer reported quality problems responded to, and resolved in the time period requested?			X	100	100
10.	Is quality information on production material rejects provided to sub-suppliers with required corrective action?			X	100	100
11.	Is quality data collected, summarized and analyzed using automated techniques?			X	100	100

COMMENTS

5.7 SKILLS, TRAINING, & CERTIFICATION		STATUS				
		Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
DESCRIPTION OF PROGRAM		Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
1.	Does management ensure that all personnel are trained in their role for achieving Total Customer Satisfaction?			X	100	100
2.	Do all personnel understand how their performance impacts internal and external customer satisfaction?			X	100	100
3.	Do all personnel who contact external customers reflect quality improvement programs?			X	100	100
4.	Do personnel participate in professional societies and growth programs?			X	100	100
5.	Are all personnel trained in sufficient detail to support key initiatives?			X	100	100
6.	Are the results of training evaluated and indicated program changes made?			X	100	100
7.	Does a policy exist which encourages the cross training and rotation of personnel, and is this policy used as the basis of job progression?			X	100	100
8.	Are performance standards participatively developed, and regularly applied for all personnel?			X	100	100
9.	Are Total Customer Satisfaction programs and resulting successes publicized to all personnel?			X	100	100
10.	Do goal setting and reward/incentive programs support the quality improvement process?		X			

5.8 SUBCONTRACTOR CONTROL		STATUS				
		Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
DESCRIPTION OF PROGRAM		Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
1.	Are requirements defined, communicated, and updated to ensure that the supplier understands expectations?			X	100	100
2.	Does a system exist which measures the performance of the supplier and communicates such information to the supplier? (i.e., supplier rating system)			X	100	100
3.	Have the organization's processes been characterized to identify the critical requirements for the suppliers products?			X	100	
4.	Have the capabilities of the supplier's processes been assessed and considered in the establishment of the requirements?	X				
5.	Have partnerships been established with suppliers, and is assistance provided to ensure that each supplier has the capability to consistently supply conforming products?			X	100	100
6.	Have quality and cycle time metrics and improvement goals been established participatively with the supplier?			X	100	100
7.	Has a system been established with the supplier for identification and verification of corrective action?			X	100	100
8.	Have the requirements for supplier materials been properly characterized and specified to ensure conformance of the product/service to the customer satisfaction requirements?			X	100	
9.	Is there a supplier certification program or equivalent procured material/ service continuous quality improvement program?			X	100	100
10.	Can all personnel who contract suppliers properly reflect appropriate quality improvement programs and status to them?			X	100	100

COMMENTS



5.9 NEW PRODUCTS/TECHNICAL SERVICES		STATUS				
		Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
DESCRIPTION OF PROGRAM		Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
1.	Do new product/technology/service development policies and procedures exist, and do they result in clearly defined project plans with appropriate measureables and approvals?			X	100	100
2.	Is quantitative benchmarking used to evaluate all new products/technologies/services in comparison to best-in-class offerings?		X			
3.	Does a roadmap exist to ensure continued development of leading edge, best-in-class products/technology/services?		X			
4.	Is the capability of each operation, which controls critical -to-function characteristics for new products, fully certified?		X			
5.	Are statistical tools used in the development of robust (high yield) new processes, products, and services?			X	100	100
6.	When new product/technology/service requires a new process, is it developed jointly and concurrently with the customer and/or suppliers?			X	100	100
7.	Are computer simulation and design tools used to the maximum extent practicable in the design of new products/technologies/services?	X				
8.	Are design reviews conducted on a scheduled basis, and do they properly address the process capability indices of critical -to-function characteristics, and of the product/service characteristics?			X	100	100
9.	Is the new product/technology/service, as produced by the process, verified to meet all customer satisfaction requirements?			X	100	100

5.10 CALIBRATION CONTROL		STATUS				
		Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
DESCRIPTION OF PROGRAM		Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
1.	Are calibration and preventative maintenance programs in place and documented?			X	100	100
2.	Are calibration and maintenance personnel trained?			X	100	100
3.	Is traceability to NIST maintained?			X	100	100
4.	Is quality measurement and control equipment current, effective, and sufficiently integrated with production equipment?			X	100	100
5.	Is the history of quality measurement and control equipment documented?			X	100	100
6.	Has repeatability of measuring devices and inspection or testing processes been established and monitored? Note: are gauge capability studies conducted and GR&R ratios acceptable (<10%)?		X			
7.	Are calibration and preventative maintenance cycles on schedule?			X	100	100
8.	Is the use of non-calibrated equipment for design and production purposes prohibited?			X	100	100
9.	Are tools and fixtures used as criteria or acceptability of product/work fully qualified and identified?			X	100	100

10.	Are calibration intervals defined in accordance with industry standards or manufacturer's recommendations and the calibration history of the equipment?			X	100	100
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COMMENTS						

5.11 INTERNAL AUDITS		STATUS				
		Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
DESCRIPTION OF PROGRAM		Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
1.	Are regular reviews of the product/process conducted and are goals/plans established to continually improve?			X	100	100
2.	Are the processes/products properly documented and controlled? Do they include appropriate customer requirements and are they executed in conformance to the documentation?			X	100	100
3.	Are the required quality checks built into the operations within the manufacturing, field installation, and service process, and is the resulting data maintained and promptly acted upon?			X	100	100
4.	Are there specific goals for achieving Total Customer Satisfaction, both internal and external?			X	100	100
5.	Does a process change control system exist, and are customers informed of changes made to products and processes with customer approval prior to the change, when required?			X	100	100
6.	Are the operators within the process provided with written work instructions and are they trained?			X	100	100
7.	Is the receipt, handling, storage, packaging and release of all material, including customer provided items, at all stages, specified and controlled to prevent damage or deterioration, and to address obsolete material?			X	100	100
8.	Is there a first in/first out (FIFO) system in place, and is it followed?			X	100	100

5.12 STATISTICAL PROCESS CONTROL		STATUS				
		Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
DESCRIPTION OF PROGRAM		Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
1.	Have the personnel who will be responsible for guiding the implementation of SPC been designated?		X			
2.	Are statistical techniques used to reduce variation in the engineering process before the start of production?			X	90	90
3.	Is the quality system dependent upon process rather than product controls?			X	100	100
4.	Is the capability of critical processes and machines measured and monitored with CPK's >1.5, and targeted with CP of 2.0?		X			
5.	Are incapable processes or machines targeted for improvement or replacement?		X			
6.	Is SPC implemented for all critical processes?		X			
7.	Are procedures that control the reaction to out-of-control situations adequate and effective?			X	100	100
8.	Are operators trained in the use of appropriate statistical techniques, and are they properly applying them?			X	100	100
9.	Are advanced problem solving techniques used by engineers to solve problems? (Design of		X			

	Experiments, planned experimentation, advanced diagnostic tools, etc.)					
10.	Are control charts and other process controls properly implemented?			X	100	100
11.	Is statistical process control being practiced in work centers and are yields being recorded and plotted on a scheduled basis, with respect to upper and lower control limits?	X				

COMMENTS						

5.13 PROBLEM SOLVING		STATUS				
		Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
DESCRIPTION OF PROGRAM						
1.	Are employees trained in problem solving techniques, in comparison to the needs of the organization?			X	100	100
2.	Does the organization utilize participative problem solving techniques to identify, measure and resolve internal and external problems?			X	100	100
3.	Are problem solving efforts timely and effective?			X	100	100
4.	Are applied resources sufficient to remove problem solving constraints?			X	100	100
5.	Are statistical techniques used for problem solving?			X	100	100
6.	Are quality data used to identify barriers, and to determine the priority of problems?			X	100	100
7.	Is there a policy/procedure that includes the use of problem solving techniques to systematically drive reduction in variability?		X			

5.14 IN-PROCESS CONTROL		STATUS				
		Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
DESCRIPTION OF PROGRAM						
1.	Are process capabilities established and maintained on all major processes? (critical parameters)		X			
2.	Are in-process inspections, test operations, and processes properly specified and performed?			X	100	100
3.	Are in-process inspection facilities and equipment adequate?			X	100	100
4.	Are the results of in-process inspections used in the promotion of effective preventative action and corrective action?			X	100	100
5.	Is preventative maintenance performed on the equipment and facilities?			X	100	100
6.	Are housekeeping procedures adequate and how well are they followed?			X	100	100
7.	Are process management plans established, and are critical parameters followed?			X	100	100
8.	Are work areas uncluttered and free of excess work-in-process, supplies, debris, etc? Is the environment conducive to producing quality work? Is proprietary information adequately protected?			X	100	100
9.	Are certifications and in-process inspection results used in making final acceptance decisions?			X	100	100
10.	Are methods and procedures for the control of metallurgical, chemical, and other special			X	100	100

	processes established and followed?					
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COMMENTS

5.15 MATERIAL HANDLING		STATUS				
		Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
DESCRIPTION OF PROGRAM						
1.	Are procured material releases from receiving inspection clearly identified, as to acceptance status?			X	100	100
2.	Are procedures to facilitate limited life materials, such as prepreg, in place, properly controlled, and monitored?			X	100	100
3.	Are procured items identified with some means of traceability (serial number, lot number, date code, etc.)?			X	100	100
4.	Are procedures and facilities adequate for storage, release and control of materials?			X	100	100
5.	Are in-store and in-process materials properly identified and controlled?			X	100	100
6.	Is in-process material protected from corrosion, deterioration, and damage?			X	100	100
7.	Are ESD Policies and Procedures in place for handling electronic components?			X	100	100

5.16 NON-CONFORMING MATERIAL CONTROL		STATUS				
		Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
DESCRIPTION OF PROGRAM						
1.	Is non-conforming material identified, segregated from regular production material, and properly dispositioned?			X	100	100
2.	Are non-conforming materials properly identified and controlled to prevent inadvertent use?			X	100	100
3.	Is the review and disposition of non-conforming materials defined, and are provisions made for inclusion of the customer in disposition decision?			X	100	100
4.	Are procedures for controlling non-conforming materials, and for ensuing corrective action, in place and followed?			X	100	100
5.	Do procedures provide for material review by a committee consisting of Quality and Engineering (as a minimum), to determine the disposition of non-conforming materials? (deviating from drawings or specification)			X	100	100
6.	Do supplier's procedures and controls for corrective action prevent recurrence of non-conformances?			X	100	100
7.	Is there a system for coordinating necessary corrective action with purchasing personnel?			X	100	100
8.	Does the corrective action extend to all applicable causes of non-conformance (e.g., design, workmanship, procedures, equipment, etc.)?			X	100	100

COMMENTS	

5.17 INSPECTION AND TEST PLAN

STATUS

DESCRIPTION OF PROGRAM

		Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
1.	Are statistical techniques used in determining the acceptability of finished goods to customer requirements?			X	100	100
2.	Are periodic tests conducted to audit reliability and environmental performance of the final product?	X				
3.	Is CPK tracking performed for critical characteristics, with plans to achieve CPL = 1.5 with a target of CP of 2.0?	X				
4.	Is root cause failure analysis performed for internal and external failures, and is appropriate corrective action implemented?			X	100	100
5.	Are test and inspection personnel trained in the procedures of their operations, and are those procedures being followed?			X	100	100
6.	Is the new product/technology/service, as produced by the processes, verified to meet all customer satisfaction requirements?			X	100	100

5.18 PRODUCT INSPECTION/FINAL AUDIT

STATUS

DESCRIPTION OF PROGRAM

		Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
1.	Are final product acceptance procedures documented and followed?			X	100	100
2.	Are all specific customer product audits conducted, as required?			X	100	100
3.	Are inspectors trained for the tasks performed?			X	100	100
4.	Are flow charts or milestones developed with checkpoints readily available?			X	100	100
5.	Is a system in place which denotes inspection performed; e.g., use of initials, stamps, labels, bar codes, etc., affixed to production documentation?			X	100	100
6.	Is a quality system established and maintained for control of product/production documentation?			X	100	100
7.	Is "accept/reject" criteria defined and available for use?			X	100	100
8.	Is a final audit performed to ensure that all required verifications and tests, from receipt of materials through point of product completion, have been accomplished?			X	100	100
9.	Are packing and order checking procedures documented and followed?			X	100	100

COMMENTS

5.19 TOOLING INSPECTION, HANDLING, & STORAGE		STATUS				
		Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
DESCRIPTION OF PROGRAM						
1.	Are temperature, humidity, laminar flow controls in place to prevent contamination, and to assure dimensional stability?			X	100	100
2.	Do operators use hairnets, gloves & lab coats in all sensitive assembly areas?			X	100	100
3.	Are work instructions and related forms in place to control all applicable tooling requirements, as stated in the customer's purchase order?			X	100	100
4.	Is customer provided tooling controlled with regard to handling, storage, and revision control?			X	100	100
5.	Are production fixtures controlled with regard to handling, storage, use life, and relationship to customer purchase order?			X	100	100
6.	Are customer-provided consignment materials inspected?			X	100	100
7.	Are customer-provided consignment materials controlled with regard to handling, storage and MRP?			X	100	100
8.	Are all tools, fixtures, and other devices, used for tooling inspection and control, maintained under the calibration control procedure?			X	100	100
9.	Are records showing initial acceptance, periodic checks, and any needs for rework and/or modification available?			X	100	100

5.20 CORRECTIVE ACTION		STATUS				
		Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
DESCRIPTION OF PROGRAM						
1.	Are final acceptance inspection results used for corrective and preventative action?			X	100	100
2.	Is root-cause analysis performed for non-conformances? This includes, but is not limited to, non-conformances (problems) caused by suppliers, found/caused "in-house" during processing, or those reported by the customer.			X	100	100
3.	Is positive action taken to prevent recurrence of problems, and are there documented reports/records of each occasion?			X	100	100
4.	Do procedures and systems provide for ensuring that replies are made to customer requests for correction action within the time limit specified?			X	100	100
5.	Is corrective action controlled and documented for all applicable work centers?			X	100	100
6.	When corrections are made, is their effectiveness subsequently reviewed and monitored?			X	100	100

COMMENTS

SECTION 6

DATE COMPLETED	HISTORY #
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MANUFACTURING HISTORY (See Section 2 Site Capability)(Should represent 70% of your business)

Please complete as many history profiles so that the total descriptions of products you manufacture account for production orders that reflect 70% of your business. History profiles are for assembly type families (assembly types may be grouped together if they are similar).

ASSEMBLY TYPE	DATE OF ORDER	COMPONENT DENSITY
BOARD TYPE	PRODUCTION QUANTITY	TOTAL YEARLY PRODUCTION %

LEGEND	
A = BOARD/PANEL	C = ASSEMBLY
B = COMPONENTS	D = TEST

CHECK ALL THAT APPLY (Dimensions are in millimeters, inches are in brackets)

A	BOARD SIZE (ACROSS DIAGONAL)	X <250 [10.00]	X 250 [10.00]	X 350 [14.00]	X 450 [17.50]	X 550 [21.50]	X 650 [22.50]	X 750 [29.50]	X 850 [33.50]	X >850 [33.50]
	SURFACE MOUNT MAXIMUM WORKING AREA	<input type="checkbox"/> <300 CM ² <[50 IN ²]	<input type="checkbox"/> 300 CM ² [50 IN ²]	<input type="checkbox"/> 600 CM ² [100 IN ²]	<input type="checkbox"/> 1000 CM ² [160 IN ²]	<input type="checkbox"/> 1500 CM ² [230 IN ²]	<input type="checkbox"/> 2100 CM ² [330 IN ²]	<input checked="" type="checkbox"/> 2800 CM ² [430 IN ²]	<input type="checkbox"/> 3600 CM ² [550 IN ²]	<input type="checkbox"/> >3600 CM ² [550 IN ²]
	MAXIMUM THROUGH-HOLE WORKING AREA	<input type="checkbox"/> <300 CM ² <[50 IN ²]	<input type="checkbox"/> 300 CM ² [50 IN ²]	<input type="checkbox"/> 600 CM ² [100 IN ²]	<input type="checkbox"/> 1000 CM ² [160 IN ²]	<input type="checkbox"/> 1500 CM ² [230 IN ²]	<input type="checkbox"/> 2100 CM ² [330 IN ²]	<input type="checkbox"/> 2800 CM ² [430 IN ²]	<input type="checkbox"/> 3600 CM ² [550 IN ²]	<input checked="" type="checkbox"/> >3600 CM ² [550 IN ²]
B	THROUGH HOLE INSERTION	X Two Leaded-Axial	X Two Leaded-Radial	X Multiple Leaded ≤6 - Radial	X Single-In-Line Packages- SIPS	X Dual In-line pkgs (DIPS) ≤24 PION	X Dual In-line pkgs (DIPS) >24 PION	X Pin Grid Arrays (PGA's)	X Component Sockets	X Card Edge/Two Piece Connect.
	SURFACE MOUNT PLACEMENT	X Chip Resistors/ Cap. (Reel)	<input type="checkbox"/> Chip Resistors/ Cap. (Bulk)	X Tantalum Capacitor	X Metal Faced Comp. (MELFS)	X Sm. Outline Diodes (SODS)	X Sm. Outline Transistors- SOTS	X Sm. Outline IC's (SOIC's)	X Var. Resistor Trim Pots	X Surf. Mt. Sockets /Test Pts.Con.
	HIGH PIN COUNT	<input type="checkbox"/> Chip-on-Tape (Molded ring) >0.4mm pitch	<input type="checkbox"/> Chip-on-Tape (Molded ring) ≤0.3mm pitch	X Quad Flat Pack (QFP) ≤0.4mm pitch	X Quad Flat Pack (QFP) ≤0.3mm pitch	X Shrink Quad Flat Pack (SQFP)	X Thin Small Out-line Pkg. (TSOP)	X Ball/Post Grid Array >1.0mm pitch	X Ball/Post Grid Array ≤1.0mm pitch	X Land Grid Array Any Pitch
	BARE CHIP ATTACHMENT	<input type="checkbox"/> Thermal Wire Bonding	<input type="checkbox"/> Ball Bonding	<input type="checkbox"/> Ultrasonic Wire Bonding	<input type="checkbox"/> Beam Lead Chip Bonding	<input type="checkbox"/> Generic Tape Automated Bond.	<input type="checkbox"/> Custom Tape Automated Bond.	<input type="checkbox"/> Flip Chip Ceramic /Glass Based	<input type="checkbox"/> Flip Chip on Rigid Printed Boards	<input type="checkbox"/> Flip Chip on Flex Circuit Boards
C	ATTACHMENT TECHNIQUES	X Hand Soldering	X Hot Bar Soldering	<input type="checkbox"/> Focused Hot Air Soldering	X Wave Soldering	<input type="checkbox"/> IR Reflow Soldering	<input type="checkbox"/> Vapor Phase Soldering	X Hot Air Con- vection Soldering	<input type="checkbox"/> Laser Soldering	<input type="checkbox"/> Conductive Adhesive Attach.
	CLEANING AND CLEANLINESS TESTING	X No Clean/Never Clean System	X Aqueous Clean. In-line System	<input type="checkbox"/> Aqueous Clean. Static Soak	X Modified Solvent clean. In-line	<input type="checkbox"/> Modified Solvent clean. static soak	X Ultrasonic agitation cleaning	X Ionic Salt /ResidueTest	<input type="checkbox"/> Organic Contami- nate Impreg. test	<input type="checkbox"/> Surface Insul. Resist. (SIR) Test
	COATING AND ENCAPSULATION	<input type="checkbox"/> Bare Die- Glob Top	<input type="checkbox"/> Bare Die- Total Assembly	X Asbly (1-2 sides) Epoxy coat	X Asbly (1- 2 sides) Polyurethane coat	X Asbly (1-2 sides) Acrylic coating	<input type="checkbox"/> Asbly (1- 2sides) vacuum Dep coat	<input type="checkbox"/> Encap. Exterior Access (Test)	<input type="checkbox"/> Encap. Ex- access (Tuning)	<input type="checkbox"/> Encapl. Entire asbly. (Thin Coat)
D	TEST TYPE	X Automatic Test Generation	X X-Ray Joint Evaluation	X Cleanliness Testing	X Auto in-circuit Electronic Asbly	<input type="checkbox"/> Electromagnetic Interference	X Auto function Electronic Asbly	X System Level Test Electrical	X System Level Test Function	<input type="checkbox"/> System Level test environmental
	NO. TEST VECTORS	X <500	X 500	X 1000	X 2000	<input type="checkbox"/> 3000	<input type="checkbox"/> 4000	<input type="checkbox"/> 5000	<input type="checkbox"/> 6000	<input type="checkbox"/> >6000
	ENVIRONMENTAL STRESS SCREENING	X Burn-in at Temperature	X Burn-in with Temp. Cycling	X Burn-in Hi Temp. Cycles	X Burn-in w/temp. cycles hi-hum	X Power Cycling On-Off	<input type="checkbox"/> Vibrations Testing	<input type="checkbox"/> Shock Test	<input type="checkbox"/> Salt Spray Testing	

SECTION 7

DATE COMPLETED

IDENTIFICATION OF PREVIOUS AUDITS (Optional)

Please complete as many forms as you feel reflect the intensity of your customer visits.

COMPANY AUDITORS Det Norske Veritas (DNV)	DATE OF AUDIT 4/22/08- 4/23/08
AUDIT TEAM MEMBERS Don Mischke	AUDITOR REMARKS Altron's efforts in meeting and exceeding comp[any objectives is note worthy of recognition
	SPECIFICATIONS USED IN AUDIT ISO 9001:2000, ISO 13485
LENGTH OF AUDIT 2 Days	
TEAM MEMBERS MAY BE CONTACTED AT	
COMPANY AUDITORS	DATE OF AUDIT 10/10/07 - 10/15/07
AUDIT TEAM MEMBERS Yehuala A. Gessesse	AUDITOR REMARKS No FDA-483 objectionable observations found during inspection
	SPECIFICATIONS USED IN AUDIT 21 CFR Part 820 CGMP
LENGTH OF AUDIT 4 Days	
TEAM MEMBERS MAY BE CONTACTED AT	