ASSOCIATION CONNECTING
ELECTRONICS INDUSTRIES®

IPC-1710A

OEM Standard for Printed Board Manufacturers' Qualification Profile

Developed by the OEM council of the IPC, the MQP sets the standard for assessing PWB manufacturer's capabilities and allows PWB manufacturers to more easily satisfy customer requirements.

IPC-1710A
May 2004 **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 Manufacturers' Qualification Profile (MQP) 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 others needs.

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SECTION 1.1
COMPANY DESCRIPTION

DATE COMPLETED
August 8, 2011

GENERAL INFORMATION			
LEGAL NAME FTG Circuits, Inc. (A Wholly Owned Subsidiary of Firan Technology Group)			
PHYSICAL ADDRESS 20750 Marilla Street			
CITY Chatsworth	STATE California	ZIP 91311	
PROVINCE N/A	COUNTRY USA		
TELEPHONE NUMBER 818-407-4024	FAX NUMBER 818-407-4033	TELEX NUMBER N/A	
E-MAIL ADDRESS Corporate: info@firantechnology.com Chatsworth: jimspaulding@ftgcorp.com	MODEM NUMBER N/A	DATE FOUNDED 1983 ☒ PUBLIC ☐ PRIVATE	
INTERNET URL www.ftgcorp.com	FTP SITE ON FILE FOR CUSTOMERS WHEN REQUIRED		

MANAGEMENT
CHIEF EXECUTIVE OFFICER Bradley Bourne (Firan Technology Group)
PRESIDENT Michael Labrador (FTG Circuits, Inc.)
VICE PRESIDENT – NEW BUSINESS DEVELOPMENT AND MARKETING Peter Dimopoulos (Firan Technology Group)
QUALITY ASSURANCE MANAGER Jim Spaulding
DIRECTOR OF OPERATIONS Jim Janda
PRODUCT/PROCESS ENGINEERING MANAGER Dave Nelson
PRODUCTION CONTROL MANAGER Gary Abel
CUSTOMER SERVICE MANAGER Mary Kazandjian

CORPORATE DESCRIPTION		NUMBER OF EMPLOYEES CORPORATE	SITE	COMMENTS
DESIGN AND DEVELOPMENT		N/A	N/A	FTG does not do design but does support customers in refining designs for manufacturability.
ENGINEERING		19	8	Process – 1, Product - 7
MANUFACTURING CONTROL		11	4	Includes shop floor supervisors and production control
MANUFACTURING	DIRECT	130	53	
	INDIRECT	8	4	Managers & Supervisor
QUALITY CONTROL	QUALITY ENGINEERS	4	1	
	INTERNAL AUDITORS	23	11	Auditors & Inspectors
	GENERAL MANAGEMENT	4	1	Director

ADMINISTRATION	30	18	Includes executive, finance, customer service, IT, waste treat, maintenance
TOTAL	281	100	See above

SECTION 1.2
SITE DESCRIPTION

(TO BE COMPLETED FOR EACH SITE) DATE COMPLETED March 25, 2011 ATTACH APPROPRIATE CHARTS (OPTIONAL)

MANUFACTURING FACILITY

COMPANY NAME	FTG Circuits, Inc (Chatsworth)		
PHYSICAL ADDRESS	20750 Marilla Street		
CITY Chatsworth	STATE California	ZIP 91311	
PROVINCE N/A	COUNTRY USA		
TELEPHONE NUMBER 818-407-4024	FAX NUMBER 818-407-4033	TELEX N/A	
E-MAIL ADDRESS info@firantechnology.com	MODEM NUMBER N/A	YEARS IN BUSINESS 28	
INTERNET URL – www.firantechnology.com	FTP - ON FILE FOR CUSTOMERS WHEN REQUIRED		

PRINCIPLE PRODUCTS/SERVICES/SPECIALTIES
Printed circuit boards for primarily military, aerospace and down hole applications. Some commercial. Offerings include blind and buried via (incl. laser drilled microvia), sequential lamination, rigid flex, heat sink and core products, metal backed, CMC, CIC, Copper, Aluminum, several alternate surface finishes, electro plated Ni/Pd/Au, (soft), Hard Gold, ENIG, Imm Sn, OSP's as well as Fuse Solder and HASL.

BUSINESS CHARACTERIZATION (LOW VOLUME, QUICK TURN-AROUND, ETC.)
Medium volume at 20 day leads plus quick turns (3,5,7 day)

FACILITY MANAGEMENT	TITLE	REPORTS TO (Function/Job Title)
OVERALL OPERATION RESPONSIBILITY FOR THIS SITE Michael Labrador	President	CEO
MANUFACTURING Jim Janda	Director of Operations	President
QUALITY Jim Spaulding	Quality Assurance Manager	President
ADMINISTRATION/PURCHASING James Kim	Accounts Manager	President
CUSTOMER SERVICE Mary Kazandjian	Customer Service Manager	President
PRODUCT / PROCESS ENGINEERING Dave Nelson	Product / Process Engineering Manager	Director of Operations
PRODUCTION CONTROL Gary Abel	Production Control Manager	Director of Operations
SALES REPRESENTATIVE Kurt Summa	Application Engineering / Technical Sales	Customer Service Manager

BUILDINGS / SYSTEMS (INDICATE % COVERAGE)

	AGE	AREA (Sq. Ft.)	Construction (Wood/Brick)	Power Conditioning	Heating	Ventilation	Air Conditioning	Sprinklers	Waste Treatment	Other
Office	30 yrs	2,000	concrete	100%	100%	100%	100%	100%	N/A	N/A
Manufacturing	30 yrs	36,000	Concrete / Brick	100%	100%	100%	100%	100%	100% internal	N/A
Storage	30 yrs	1,500	On site	100%	100%	100%	100%	100%	N/A	N/A
Planned additions	In process	14,000	Concrete / Brick	N/A	N/A	N/A	N/A	N/A	N/A	N/A

SAFETY AND REGULATORY AGENCY REQUIREMENTS

Are fire extinguishers functional and accessible to employees?	☒ YES	☐ NO	What is the distance to the nearest fire station? (in minutes)	4 Minutes

Do you conform to local/federal environment protection agency requirements?	☒ YES	☐ NO	Date of last OSHA visit Date of last EPA visit	N/A Approximately 2008-2009
Are you currently operating under a waiver or in violation of local government requirements?	☐ YES	☒ NO	Other Agency Audits, UL, ISO 9001, NECQ, CSA Approval and Number	☒ UL # E41953 ☒ ISO 9001# 1st Qrt 2006 ☐ CSA # _____ ☒ Other – AS9100B /2006
Do you have a safety program? Describe below.	☒ YES	☐ NO	Hazardous Waste Number Trade Waste Account Number	CAR000017715 N/A

PLANT PERSONNEL (TOTAL EMPLOYEES)

Regular	Contract	Office	Technical/ Engineering	Production	Full-Time QA	Part-Time QA	Union	Non-Union	Union Name	Contract Expires (Date)
100	NONE	18	8	53	5	NONE	N/A	N/A	N/A	N/A

COMMENTS

Our safety program is managed by a Joint Health and Safety Committee with members from management, and Human Resources. The committee is responsible for the review and implementation of Health and safety policies and procedures. These are written in accordance with local, and federal requirements and third party audited by these bodies.

SECTION 2.1
PROCESS

DATE COMPLETED
February 15, 2008

This section is intended to provide overview information on the processes used to fabricate printed board products.

Site Capability Snapshot (Please Check all that apply)

	Designators		Remarks
A	Conductor Forming Processes	☒Subtractive	Internal layer print and etch
		☒Thin Foil Subtractive less than .5 oz.	Used for lines and spaces less than .0035
		☐Semi-Additive	Not used
		☒Additive (Electro-less)	Panel and sub-assembly plating
		☐Black Hole	Not used
		☐Thick Film Paste and Fire	Not used
		☒Thin Film Semi-conductor Sputtering	Sputtering
		☐Other:	
B	PTH Materials and Processes	☒Acid Copper	Dual rectification plate copper
		☐Pyro-Phosphate Copper	Not used
		☐Full Built Electro-Less	Not used
		☐Gold Paste	Not used
		☐Copper Paste	Not used
		☒Gold Conductor Sputtering	Not used
		☒Nickel Conductor Sputtering	Not used
		☒Other: Copper sputtering	Not used
C	Permanent Over-plating	☒Tin	As Requested by Customer
		☒Tin-Lead	Reflow and selectively plated products
		☐Tin-Nickel Alloy	Not used
		☒Nickel	Plated products
		☒Nickel Gold (Hard)	Full body
		☒Nickel Gold (Soft)	Full body
		☐Nickel Rhodium	Not used
		☐Conductive Polymer	Not used
		☒Other: N/A	Palladium

D	Permanent Selective Plating	☐Tin ☒Tin-Lead ☐Tin-Nickel Alloy ☒Nickel ☒Nickel Gold (Hard) ☒Nickel Gold (Soft) ☐Nickel Rhodium ☒Other:	Not used in selective process Selectively plated with other finishes Not used in selective process Selectively plated with other finishes Selectively plated with other finishes Selectively plated with other finishes N/A Palladium
E	Permanent Mask or Coating	☒Photo Dry Film ☒Photo Liquid ☒Image Transfer Screen Mask ☐Conformal Coating Solder Mask ☒Cover Coat ☐Other: N/A	Dupont 8120, 8130, 8140 LPI – Taiyo PSR400BN standard Various Film and Liquid Photoimageable N/A
F	Other Surface Finishes	☒Tin-Lead Fused ☒Immersion Tin ☒Solder Leveled ☐Roll Soldered ☐Electro-less Solder Fused ☐Solder Bumped Lands ☐Solder Paste Fused ☐Azole Organic Protective Covering ☐Flux Protective Covering ☒Other: OSP's, ENIG, NiPdAu, ENEPIG, ENIPIG	Standard and selective Standard offering Standard offering N/A N/A N/A N/A N/A Not available – OSP is Formic acid based N/A

SECTION 2.2
ELECTRICAL TEST EQUIPMENT

DATE COMPLETED
February 15, 2008

This section is intended to provide overview information on the test equipment and testing capability of the manufacturer.

Site Capability Snapshot (Please Check the column that applies furthest to the right.)

	Designators		Remarks
A	Number of Nets	☐<200 ☐200 ☐500 ☐1000 ☐2000 ☐3000 ☐4000 ☐5000 ☒>5000 ☐Other:	
B	Number of Nodes	☐<500 ☐500 ☐1000 ☐2000 ☐3000 ☐4000 ☐5000 ☐6000 ☒>6000 ☐Other:	
C	Probe Point Pitch	☐>1.0 [.040] ☐1.0 [.040] ☐0.8 [.032] ☐0.65 [.025] ☐0.50 [.020] ☐0.40 [.016] ☐0.30 [.012] ☐0.20 [.008] ☒<0.20 [.008] ☐Other:	

D	Test % Single Pass	☐None ☐<60% ☐60% ☐70% ☐80% ☐90% ☐95% ☐99% ☒100% ☐Other:	
E	Probe Accuracy (DTP)	☐>0.2 [.008] ☐0.2 [.008] ☐0.15 [.006] ☐0.125 [.005] ☐0.1 [.004] ☐0.075 [.003] ☒<0.075 [.003] ☐Other:	
F	Grid Density	☒Single Side Grid ☐Double Sided Grid ☐Double Density Grid ☒Double Density Double Sided ☐Quad Density ☐Double Sided Quad Density ☒Flying Probe ☐Other:	
G	Net list Capability	☒Golden Board ☒IPC-D-356 ☒Net List Extraction ☒CAD/CAM Net List Compare ☐Other:	

H	Test Voltage	☐<20 VDC ☐20 VDC ☐40 VDC ☐60 VDC ☐80 VDC ☐100 VDC ☐500 VDC ☒1000 VDC ☐>1000 VDC ☐ Other:	On flying probe
J	Impedance Meas	☐Micro Section ☐Inboard Circuit ☒Coupon ☒Manual TDR ☒Automated TDR ☐Other:	Tektronix – In house Polar
K	Impedance Tolerance	☐None ☐>20% ☐20% ☐15% ☐10% ☐7% ☒5% ☐2% ☐<2% ☐Other:	

SECTION 2.3
PRODUCT TYPE

DATE COMPLETED
February 15, 2008

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

Site Capability Snapshot (Please Check all that apply.)

	Designators		Remarks
A	Product Type	☒Rigid Printed Board	Standard offering
		☒Flex Printed Board	Limited production – existing contracts
		☒Rigid/Flex Board	Limited production – existing contracts
		☒Rigid Back Plane	.250 maximum thickness, some isolated offerings of <.375.
		☐Molded Product	
		☒Ceramic Printed Board	
		☐Multichip Module	
		☐Laminated Multichip Module	
		☐Deposited Dielectric Multichip Modules	
		☐Other:	
B	Circuit Mounting Type	☒Single Sided	Maximum – 36 layers
		☒Double Sided	
		☒Multilayer	
		☒Single-sided Bonded to Substrate	
		☒Double-sided Bonded to Substrate	
		☒Multilayer Bonded to Substrate	
		☒Constrained Multilayer	
		☒Distributed Plane Multilayer	
		☒Other: heat sinks, metal cores, and metal backed	
C	Via Technology	☒No-Vias	Less than 1% of production
		☒Thru Hole Vias	Standard product
		☒Buried Vias	Sequentially laminated
		☒Blind Vias	Sequentially laminated and laser vias
		☒Thru Hole & Blind Vias]	In any combination
		☒Thru Hole & Buried Vias	In any combination
		☒Thru Hole Buried & Blind Vias	In any combination
		☒Buried & Blind Vias	In any combination
		☒Other: Laser drilled micro vias.	

D	Laminate Material	☒Phenolic	Limited release
		☐Epoxy Paper	N/A
		☒Epoxy Glass	Standard offering
		☒Modified Epoxy Composite	
		☒Polyimide Film & Reinforce	Standard offering
		☒Cynanate Ester	
		☒Teflon	CLTE
		☒Ceramic Glass Types	
		☒Various Combinations	For all of the above materials
		☒Other:	Thermount
E	Core Material	☒No Core	Standard builds
		☒Polymer	
		☒Copper	Cores of various thicknesses
		☒Aluminum	Cores of various thicknesses
		☐Graphite	
		☒Copper Invar/Copper	Limited production
		☒Copper Moly/Copper	Limited production
		☒Other:	Brass
F	Copper Thickness (Oz.)	☒1/8 Minimum	
		☒1/4 Minimum	Internal and external layers modified subtractive
		☒3/8 Minimum	
		☒1/2 Nominal	Standard material
		☒1 Nominal	Standard Material
		☒2 Nominal	Standard Foil material
		☒3-5 Max	Standard Foil Material (can be in combination with plated copper)
		☒6-9 Max	
		☒>10	10 ounce external copper foil or in combination with plated copper.
		☐Other:	
G	Construction	☒≤4 Planes	Standard
		☒>4 Planes	Up to 36 layers
		☒THK to TOL ≤0.2 mm	Standard
		☐THK to TOL >0.2 mm	
		☒Bow/Twist ≤1%	Standard
		☐Bow/Twist >1%	
		☒≤0.3 mm Profile Tolerance	Per standards
		☐0.3 mm Profile Tolerance	
		☐Other:	

H	Coatings and Markings	☒≤0.1 mm Mask Clearance	Standard
		☐>0.1 mm Mask Clearance	
		☐One Side (Legend)	
		☒Two Side (Legend)	Standard
		☐None (Legend)	
		☒UL Material Logo	Standard
		☒U.L. V_0 Logo	
		☐U.L. V_1 Logo	
		☐U.L. V_2 Logo	
		☒ Other: Military = 30803	

SECTION 2.4
PRODUCT COMPLEXITY

DATE COMPLETED
February 15, 2008

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

(Please check the column that applies farthest to the right)

Designators			Remarks
A	Board Size Diagonal	☐<250 [10.00] ☐250 [10.00] ☐350 [14.00] ☐450[17.50] ☒550 [21.50] ☐650 [25.50] ☐750 [29.50] ☐850 [33.50] ☐>850 [33.50] ☐Other:	
B	Total Board Thickness	☒<1,0 [.040] ☐1,0 [.040] ☐1,6 [.060] ☐2,0 [.080] ☐2,5 [.100] ☐3,5 [.135] ☐5,0 [.200] ☒6,5 [.250] ☒>6,5 [.250] ☐Other:	Minimum M/L thickness = .018 Maximum thickness
C	Number Conductive Layers	☐1-4 ☐5-6 ☐7-8 ☐9-12 ☐13-16 ☐17-20 ☐21-24 ☐25-28 ☒>28 ☐Other:	36 layers maximum

D	Dia Drilled Holes	☐>0,5 [.020] ☐0,5 [.020] ☐0,4 [.016] ☐0,35 [.014] ☐0,30 [.012] ☐0,25 [.010] ☒0,20 [.008] ☐0,15 [.006] ☒<0,15 [.006] ☐Other:	Minimum mechanical drill size when board is <.040 thick Minimum laser drill size = .005
E	Total PTH TOL (Max-Min)	☐>0,250 [.010] ☐0,250 [.010] ☐0,200 [.008] ☐0,150 [.006] ☒0,125 [.005] ☐0,100 [.004] ☐0,075 [.003] ☒0,050 [.002] ☐<0,050 [.002] ☐Other:	Maximum Minimum
F	Hole Location TOL DTP	☐>0,50 [.020] ☐0,50 [.020] ☐0,40 [.016] ☐0,30 [.012] ☐0,25 [.010] ☐0,20 [.008] ☐0,15 [.006] ☐0,10 [.004] ☒<0,10 [.004] ☐Other:	
G	Internal Layer Clearance (Min)	☐>0,350 [.014] ☐0,350 [.014] ☐0,250 [.010] ☐0,200 [.008] ☐0,150 [.005] ☐0,125 [.005] ☐0,100 [.004] ☒0,075 [.003] ☐<0,075 [.003] ☐Other:	Minimum line to line and line to pad spacing

H	Internal Layer Conductor Width (Min)	☐>0,250 [.010] ☐0,250 [.010] ☐0,200 [.008] ☐0,150 [.006] ☐0,125 [.005] ☐0,100 [.004] ☐0,075 [.003] ☒0,050 [.002] ☐<0,050 [.002] ☐Other:	.002 lines with .003 space
J	Internal Layer Process Allowance	☐>0,100 [.004] ☐0,100 [.004] ☐0,075 [.003] ☐0,050 [.002] ☐0,040 [.0015] ☐0,030 [.0012] ☐0,025 [.001] ☐0,020 [.0008] ☒<0,020 [.0008] ☐Other:	.0005 oz
K	External Layer Clearance (Min)	☐>0,350 [.014] ☐0,350 [.014] ☐0,250 [.010] ☐0,200 [.008] ☐0,150 [.006] ☐0,125 [.005] ☒0,100 [.004] ☐0,075 [.003] ☐<0,075 [.003] ☐Other:	

L	External Layer Conductor Width (Min)	☐>0,250 [.010] ☐0,250 [.010] ☐0,200 [.008] ☐0,150 [.006] ☐0,125 [.005] ☐0,100 [.004] ☒0,075 [.003] ☐0,050 [.002] ☐<0,050 [.002] ☐Other:	.0035 minimum on artwork
M	External Layer Process Allowance	☐>0,100 [.004] ☐0,100 [.004] ☐0,075 [.003] ☐0,050 [.002] ☐0,040 [.0015] ☐0,030 [.0012] ☒0,025 [.001] ☐0,020 [[.0008] ☐<0,020 [.0008] ☐Other:	.00075 inch per side / per ounce
N	Feature Location DTP	☐>0,50 [.020] ☐0,50 [.020] ☐0,40 [.016] ☐0,30 [.012] ☐0,25 [.010] ☐0,20 [.008] ☐0,15 [.006] ☐0,10 [.004] ☒<0,10 [.004] ☐Other:	

All Dimensions are in millimeters [inches shown in brackets]

SECTION 2.5
QUALITY DEVELOPMENT

DATE COMPLETED
February 15, 2008

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	☒Functional Steering Committee Formed	Tech Team Review Board
		☒TQM Plan & Philosophy Established & Published	Reference the Quality Manual
		☒Documented Quality Progress Review	Under Monthly Mgmnt Review
		☒Implementation & review of Project Team Recommendations	Under Tech Team
		☒TQM Communicated throughout organization	Staff mtgs/performance postings
		☒Controlled New process Start-up	Control by Process eng.
		☒Management Participates in TQM Audits	Regularly
		☒Employee Recognition Program	Under review
		☒Total TQM Plan/Involvement Customer Training	Customer led SIOP and Lean Mfg
		☐Other:	
B	Employee Involvement	☒Certified Training Available	Internal Certification
		☒Training of Employee Base	Across the board
		☒TQM Team Trained	Quality Teams in place
		☒Design of Experiment Training and Use	Under Process Eng.
		☒New Process Implementation Training	As required
		☒Support Personnel Training	Same as manufacturing
		☒Advanced Statistical Training	Truechem training in process
		☒Quality Functional Deployment	Under Tech Team
		☒Ongoing Improvement Program for Employees	For new processes and procedures
		☐Other:	
C	Quality Manual	☐Quality Manual Started	
		☒Generic Quality Manual for Facility	In place
		☐10% of manufacturing depts. have process specifications	
		☐25% of manufacturing depts. have process specifications	
		☒50% of manufacturing depts. have process specifications	All mfg. depts. have procedures
		☒Non-manufacturing Manuals Developed	
		☐25% of all departments have quality manuals	
		☐50% of all departments have quality manuals	
		☒All Manufacturing and support depts. have controlled quality manual	All support depts. have procedures Single Manual, specific procedures
		☐Other:	

D	Instructions	☐Work Instructions Started ☐Quality Instructions Started ☐10% Work Instructions Completed ☐10% Quality Instructions Completed ☐25% Work Instructions Competed, Controlled ☐25% Quality Instructions Completed, Controlled ☐50% Work Instructions Completed, Controlled ☐50% Quality Instructions Completed, Controlled ☒Quality and work Instruct. Completed, Controlled ☐Other:	All dept. have work instructions and quality instructions posted Procedures are controlled by revision level.
E	SPC Implementation IPC-PC-90	☒Plan Exists ☐Training Started ☒Process Data Collected & Analyzed ☐All Employees Trained ☒First Process Stable & Capable ☒Several Major Processes Stable & Capable ☒Continued Improvement of Stable Processes ☒Additional Mfg Processes under Control ☐All Processes Under Control ☐Other:	Processes being monitored for capability and improvement.
F	Supplier Programs/Controls	☒Supplier Rating Program ☒Monthly Analysis Program ☒Key Problems Identified ☒Supplier Reviews Performance Data provided ☒TQM Acceptance by suppliers ☒10% of Suppliers Using SPC ☐25% of Suppliers Using SPC ☐50% of Suppliers Using SPC ☒All Key Suppliers using Certified parts program ☐Other:	Supplier data is collected monthly with report Cards issued Annually. Issues that require immediate attention are addressed CAR program..
G	Third Party IPC	☒Instrument Controls in Place ☒Measurement System in Control IPC-PC-90 ☒Document Controls in Place ☒Reduced Lot Sampling ☐10% of Processes Under Audit Control ☒50% or Greater of Processes Under Audit Control ☐ISO-9003 Certified ☐ISO-9002 Certified ☒ISO-9001 ☒Other: Military	In house controls to cover all requirements. Third party and OEM calibration where required. In process sampling. All processes are audited. Nadcap, AS 9100B certified and ISO 9001:2000 MIL-PRF-55110 & Mil-P-50884 place.

SECTION 3

DATE COMPLETED
February 15, 2008

EQUIPMENT PROFILE (Pre-Site Audit)

* Examples of equipment limitations include: min/max board size & min/max working area

3.1 PHOTOTOOL CAPABILITY	YES	NO	EQUIPMENT	QTY	EQUIPMENT LIMITS
A) AOI of photo tool	☒	☐	Orbotech (New 2006)	1	21x24 image size
B) AOI CAD reference (CAM)	☒	☐	Orbotech (New 2006) Valor Genesis	1 3	18x24 18x24
C) Photo plotting	☒	☐	Orbotech (New 2006)	1	18x24
D) Photo reductions	☐	☒	Outside service used when needed	0	No limitations
E) Film scan and conversion	☐	☒	Outside service used for digitization	0	Quality of supplied data
F) Film processing ☐ air-dried ☐ force-dried ☒ processed in automatic processor	☒	☐	Kodak Processor	1	18x24
G) Media types ☒ silver halide film ☐ glass ☒ diazo	☒	☐	Media used depends on product type and density	1	Ref. above photo processors

3.2 DRILLING EQUIPMENT	YES	NO	EQUIPMENT	QTY	EQUIPMENT LIMITS
A) Manual	☐	☒	N/A	0	N/A
B) Optical (single spindle)	☒	☐	Uni-Line	0	N/A
C) N.C. drill	☒	☐	Excellon 300 Excellon Mark VI, Hitach 160k Excellon Single head 160K	1 2 2 2	18x24 panel size

3.3 ROUTING EQUIPMENT	YES	NO	EQUIPMENT	QTY	EQUIPMENT LIMITS
A) Edge beveller	☒	☐		1	
B) Hand router (pin router)	☐	☒		1	
C) N.C. router	☒	☐	Excellon Ex 200	2	18x24
D) N.C. driller/router	☒	☐	Excellon Ex 300	1	Not applicable
E) Scoring (profile)	☐	☒	Not applicable / OSS	0	Not applicable
F) Scoring (straight line)	☒	☐	Excellon Modification Process or Outside service used – Mania Technologies	1	18x24

3.4 MECHANICAL EQUIPMENT	YES	NO	EQUIPMENT	QTY	EQUIPMENT LIMITS
A) Punch press	☐	☒	N/A	0	N/A
B) Shear	☒	☐	Mechanical shear for raw material only	1	Rarely used
C) Milling machine	☒	☐	Milling done on Excellon Ex 200 CNC Bridgeport 760, 800	2	Milling done by FTG

3.5 HOLE PREPARATION (DESMEAR)	YES	NO	EQUIPMENT	QTY	EQUIPMENT LIMITS
A) Permagnate	☒	☐	Automated line – Rhom & Haas chemistry	1	
B) Plasma	☒	☐	Plasma Etch, Inc.	2	6 18x24 panels per load
C) Mechanical	☒	☐	Scrubbex,High Pressure Spray Rinse	1	Used for post drill / pre-etchback surface and hole wall preparation.
D) Etchback	☒	☐	See items A & B in this section	0	See items A & B in this section.

3.6 PRIMARY IMAGE APPLICATION	YES	NO	EQUIPMENT	QTY	EQUIPMENT LIMITS
A) Dry film	☒	☐	Dupot HRL - Hot Roll Laminators	2	18x24 layer size
B) Hand screening	☐	☒	N/A	0	N/A
C) Machine screening	☐	☒	N/A	0	N/A
D) Wet film	☐	☒	N/A	0	N/A
E) Liquid photo imageable	☐	☒	N/A	0	N/A

3.7 TYPE OF TREATMENT FOR MULTILAYER INNERLAYERS	YES	NO	EQUIPMENT	QTY	EQUIPMENT LIMITS
A) Black oxide	☐	☒	N/A	0	N/A
B) Red oxide	☒	☐	McDermid 449	1	Dip Tank
C) Copper scrub	☐	☒	N/A	0	N/A
D) Durabond	☐	☒	N/A	0	N/A
E) Other	☒	☐	Bond film alternative oxide	1	No limits within our standard process.

3.8 LAMINATION	YES	NO	MATERIAL	QTY	APPLICATION TECHNIQUE
A) High pressure	☒	☐	PHI Electric Presses	2	Maximum pressure = 450 psi
B) High temperature	☒	☐	PHI Electric Presses	2	Max temp. on PHI = 450 F
C) Vacuum	☒	☐	Burkel 6 opening 603 press	1	
D) Vacuum assist	☒	☐	Off Line Vacuum Pump with Vacuum Frames	2	All presses are Vacuum assisted presses
E) Foil heat assist	☐	☒	N/A	0	N/A
F) Separate cool-down	☐	☒	Burkel HPI Cool Press	2	Ties to Burkel HPI presses and autoloader

3.9 ELECTROLESS COPPER PLATING	YES	NO	EQUIPMENT	QTY	EQUIPMENT LIMITS
A) Fully additive application	☒	☐	Custom automated vertical dip line	1	18x24 panel size in standard production
B) Electroless deposition (semi additive)	☐	☒	N/A	0	N/A
C) Through-hole and via	☒	☐	Custom automated vertical dip line	1	18x24 panel size in standard production

3.10 COPPER ELECTROPLATING	YES	NO	EQUIPMENT	QTY	EQUIPMENT LIMITS
A) Copper sulfate	☒	☐	Dual DC Rectification System	3	18x24 panel size in standard production
B) Pyrophosphate	☐	☒	N/A	0	N/A
C) Copper fluoborate	☐	☒	N/A	0	N/A
D) Other	☐	☒	N/A	0	N/A

3.11 TIN/LEAD SURFACE PLATINGS/COATINGS	YES	NO	EQUIPMENT	QTY	EQUIPMENT LIMITS
A) Tin/lead electroplated	☒	☐	Custom manual tin lead plate line	1	Used for reflow and selective plate product.
B) Immersion tin or tin/lead (electroless)	☒	☐	Custom	0	N/A
C) Hot air solder leveled (HASL)	☒	☐	OSS	2	2 OSS Sources.

3.12 FUSING PROCESSES	YES	NO	EQUIPMENT	QTY	EQUIPMENT LIMITS
A) I.R. reflow	☐	☒	N/A	0	N/A
B) Hot oil reflow	☒	☐	Custom installation with pre-clean and post clean applications	1	18x24 panel size
C) Horizontal (hot air level)	☒	☐	OSS	1	OSS
D) Vertical (hot air level)	☒	☐	OSS	1	OSS.

3.13 NICKEL SURFACE PLATING	YES	NO	EQUIPMENT	QTY	EQUIPMENT LIMITS
A) Electroless nickel	☒	☐	OSS	2	18x24 panel size
B) Electroplated nickel	☒	☐	Custom installation	1	18x24 panel size

3.14 GOLD SURFACE PLATING	YES	NO	EQUIPMENT	QTY	EQUIPMENT LIMITS
A) Electroless gold	☒	☐	OSS	1	18x24 panel size
B) Electroplated gold	☒	☐	Custom installation Custom installation	1 1	Hard gold application Soft gold application

3.15 PALLADIUM SURFACE PLATING	YES	NO	EQUIPMENT	QTY	EQUIPMENT LIMITS
A) Electroless palladium	☒	☐	OSS	0	18 x 24 panel size
B) Immersion palladium	☒	☐	OSS	1	18 x 24 panel size
B) Electroplated palladium	☒	☐	Custom installation	1	For Soft gold application

3.16 SOLDERMASK	YES	NO	EQUIPMENT	QTY	EQUIPMENT LIMITS
A) Screened deposited image	☒	☐	Manual	1	Manual
B) Dry film photo imageable	☒	☐	Dupont SMVL100 Vacuum Laminator	1	18x24 panel size
C) Liquid photo imageable	☒	☐	Manual Screen Method	3	18X24 panel size
D) Dry film/liquid combination	☒	☒	OSS	0	18X24 panel size

3.17 ORGANIC SURFACE PROTECTION	YES	NO	EQUIPMENT	QTY	EQUIPMENT LIMITS
A) Benzotriazole	☐	☒	**Manual vertical dip line for the application of Entek 106A**	1	**Entek OSP's are formic acid based and do not meet the chemical descriptions listed in this section**
B) Imidazole	☐	☒			
C) Benzimidazole	☐	☒			

3.18 MICROSECTION CAPABILITY	YES	NO	EQUIPMENT	QTY	EQUIPMENT LIMITS
A) Manual	☒	☐	Manual "as is' one up sectioning or gang mounting	3	Operator performed by hand for all sectioning
B) Single cavity automated	☐	☒	N/A	0	N/A
C) Multiple cavity automated	☐	☒	N/A	0	N/A
D) Plating thickness analysis	☒	☐	CMI XRX XRF unit CMI PTX-200 unit	1 1	Used for all final finishes Used for in process reference only.

3.19 CHEMICAL ANALYSIS	YES	NO	EQUIPMENT	QTY	EQUIPMENT LIMITS
A) Etching chemistry	☒	☐	Lab analysis	3	Lab analysis by technician – data stored in Truechem
B) Plating chemistry	☒	☐	Lab analysis	3	Lab analysis by technician – data stored in Truechem
C) Effluent (PPM) analysis	☒	☐	Lab analysis	3	Lab analysis by technician – data stored in Truechem

3.20 ELECTRICAL TEST EQUIPMENT	YES	NO	EQUIPMENT	QTY	EQUIPMENT LIMITS
A) Continuity and shorts	☒	☐	2 Mania Flying Probe, TTI Single sided Tester (all in house)	4	100% net list to supplied data Multiple OSS to assist testing
B) Fixture development	☒	☐	Microcraft (testing sub-contracted)	2	100% net list to supplied data
C) Flying probe test	☒	☐	Microcraft (testing sub-contracted)	2	100% net list to supplied data
D) Impedance control	☒	☐	Tektronix Polar	1 1	+/- 5% value measurement +/- 5% value measurement

MASTER EQUIPMENT LISTING

DATE COMPLETED
March 28, 2011

FORM MQP 10

Please complete a Master Equipment List. You may use your own form or the MQP Form 10.

IDENTIFICATION	EQUIPMENT NAME/DESCRIPTION	MANUFACTURER TYPE/MODEL	EQUIPMENT LIMITS	ACCURACY	CALIBRATION FREQUENCY	REMARKS
Reference attached equipment list for this section						

DATE COMPLETED
February 15, 2008

SECTION 4
TECHNOLOGY PROFILE SPECIFICS

4.1 ADMINISTRATION

4.1.1 CAPACITY PROFILE	EST %	COMMENTS
A) Total annual capacity in square meters (surface area) per month	1,200	Capacity measured in square feet based on 250 calendar days of production
B) Presently running at 75 % of capacity	70%	Based on total projected daily throughput

4.1.2 PERCENTAGE OF DOLLAR VOLUME	EST %	COMMENTS
A) Single sided (rigid)	<1%	Not a core business
B) Double sided (rigid)	<2%	Not a core business
C) Multilayer (rigid)	83%	Core business – includes up to 32 layer count, blind and buried vias, micro vias, hybrid constructions, core and heatsink parts.
D) Single side (unreinforced-flex)	2%	No comment
E) Double sided (unreinforced-flex)	<2%	To fill existing contracts
F) Multilayer (unreinforced-flex)	0	No comment
G) Multilayer (rigid/flex)	10%	To fill existing contracts

4.1.3 PANEL PRODUCTION PROFILE	UNITS PER MONTH
A) Size of a production lot in panels	
1) Normal	8 panels to assist in panel movement. Based on machine loading at bottlenecks.
2) Smallest	2 panels minimum for QTA's and small production lots.
B) Number of panels per month	
1) High Production	15 panels per every other day times 10 days for a single part number
2) Medium Production	20 panels per week times 4 weeks a single part number
3) Low Production	15 panels per month per part number.
3) Short run	One 8 panel lot per part number.
4) Prototype	3 panels per day in total to a maximum of 1 job times 20 days.

C) Average lead time (delivery) as defined in B)				
1) High Production	30 working days			
2) Medium Production	20 working days			
3) Low Production	15 working days			
3) Short run	5-10 working days			
4) Prototype Quick turn - No. of days: see comments.	3, 5, 7 turns offered.			
D) Product delivered in full panel or array sub-panel format				
1) Total in panel or array format	<3% of product shipped in array format routed from master production panel.			
2) Scored format	<1% on the above in scored arrays			
3) Tab breakaway format	95% of 1) in tab breakaway arrays			
4) Other	1% shipped in partially routed or scored production master panels			
5) Total to customer layout	100% of product shipped in arrays are to a customer approved format. Some are supplied in advance, others are developed by FTG product engineering and approved by the customer prior to release to manufacturing.			
6) Total to manufacturing layout	100% of all manufactured panels are run to a panel optimization program.			
E) Product delivered in board format				
1) Total in board format	98% of existing parts are shipped in single up format.			
2) Extracted: scored to size	<1%			
3) Extracted: sheared to size	0%			
4) Extracted: routed to size	>98%			
4.1.4 APPROVAL AND CERTIFICATION		**YES**	**NO**	**COMMENTS**
A) Company approvals				
1) UL approval		☒	☐	94V Level V0. File number E41953
2) Canadian standards		☐	☒	N/A
3) MIL-PRF-55110		☒	☐	CAGE Code =30803
4) MIL-P-50884		☒	☐	
5) ISO-9002		☐	☒	
6) ISO-9001		☒	☐	AS9100B certified and ISO 9001:2000

7) ISO-14000	☐	☒	Emissions controlled to local, provincial, and federal requirements.
8) BABT	☐	☒	N/A
9) EEC	☐	☒	N/A
10) Customer satisfaction	☒	☐	Use customer generated report cards to monitor and control our business planning and processes.
B) Other certification information			
1)Laminate	☐	☒	N/A
2)Quality standards	☒	☐	AS9100B, NADCAP.
3)Equipment calibration	☒	☐	ANSI/NCSL/Z540.

4.1.5 CUSTOMER INTERFACE PROFILE	YES	NO	COMMENTS
A) Modem capability	☐	☒	Replaced by FTP and E-mail
B) Baud rate			N/A
C) Data verification technique	☒	☐	On screen inspection with DFM software and net list compare
D) Engineering change order process	☒	☐	Numbered and controlled as part of controlled documents process.
E) Job status reporting to customers	☒	☐	E-mail and MRP based status reports

4.1.6 OTHER CAPABILITIES	YES	NO	COMMENTS
A) Facility research and development	☒	☐	6 Certified Green Belt 6 Sigma 1 certified Black belt 6 Sigma
B) (Automated) On-line shop floor control/MRP system	☒	☐	Cimnet with real time on screen scheduling by priority.
C) Process control system	☒	☐	Truechem SPC based process monitoring and control. GAGEtrak calibration software.
D) Operator training system	☒	☐	Various In-House training and certification programs.

4.2 PROCESS ORIENTATION

4.2.1 LAMINATE MATERIAL	EST %	COMMENTS
A) Most commonly used laminates (G10, FR4, etc.)	50% 32% 15%	Brand name Panasonic Type FR-4 Brand name Arlon Type Polyimide Brand name Arlon Type Thermount
B) Other laminate material	See below	
1) Planar resistor layers	<2%	UL approved ☐
2) BT Epoxy	N/A	UL approved ☐
3) Kevlar	N/A	UL approved ☐
4) Teflon	10%	UL approved ☐
5) Polyimide	See above	UL approved ☒ Pending
6) Cyanate ester	4%	UL approved ☐
7) Other	CLTE <1%	UL approved ☐
C) Specification to which laminate is purchased (check all that apply) ☒MIL-P-13949 ☒IPC-4204 ☒IPC-4101 ☒UL Approved ☒IPC-4103 ☐Other ☒IPC-4202 ☒IPC-4203		
D) Laminate storage ☐ Uncontrolled ☒ Humidity controlled ☒ Temperature controlled ☐ Dry box ☒ JIT inventory		"C" stage controlled vertically. "B" stage stored under temperature and humidity controls. Monthly JIT inventory pulled from local distributor.
E) Panel size configurations in X, Y dimensions maximum X 457 Y 609 mm minimum X 304 Y 457 mm other X 228 Y 304 mm		Panel sizes below 9 x 12 are used for exotic materials and in cases where material availability limits raw material panel size.

4.2.2 PROCESS PRECISION SPECIFICS	YES	NO	VALUE	COMMENTS
A) Maximum printed board thickness built in volume				
1) Single sided	X		.125”	Based on stock material availability
2) Double sided	X		.125”	Based on stock material availability
3) Multilayer	X		.250”	Based on conveyorized line capability
4) Rigid flex	X		.250”	Based on conveyorized line capability
B) Printed board electrical performance capability				
1) Impedance control	☒	☐	+/-10% +/-5%	Standard offering if required
2) Capacitance control	☒	☐		ZBC licensed
3) Micro strip boards	☒	☐		To customer supplied specifications
C) Tooling system description				
1) Same holes in panels used for all processes	☐	☒		Post etch punch holes used for lamination Multiline XRT drill optimization
2) Optical registration	☒	☐		Process: Stereomicroscope soldermask registration
3) Other	☒	☐	+/- .001”	Spartanic Punch: Modify tolling for specific jobs Multiline post etch punch

4.2.3 OTHER PROCESS ORIENTATION SPECIFICS	YES	NO	SYSTEM	COMMENTS
A) Solder mask over bare copper	☒	☐	Manual Screening	Tack cured, exposed, developed, and final cured in LPI specific line.
B) Plating/coating information				
1) Tin/lead reflow	☒	☐	Custom built line	Enclosed and self contained for safety reasons.
2) Hot air leveling	☒	☐	OSS	In line with bake, pre-clean, flux, and post wash equipment.
3) Azole organic	☒	☐	Manual dip tank tine	Entec 106B application. Currently suggesting Ni/Pd/Au as lead free process alternatives.
4) Conductive	☒	☐	Dupont CB100 conductive fill	
C) Hole formation				
1) Hole cleaning	☒	☐	HPSR Plasma	High pressure rinse, brushes, ultrasonic clean
2) Hole cleanliness verified	☒	☐	Visual Inspection	Backlighting used

4.3 PRODUCT DESCRIPTION

***CONSISTENCY IMPLIES YIELDS IN EXCESS OF 80%**

4.3.1. THROUGH HOLE INSERTION	EST %	SIZE (MM) - +/- TOL	COMMENTS
A) Smallest conductor width and tolerance produced with consistency			
1) Outer layers (print and etch)	95%	Size 0.004 inches Tol ± .0005 inches	
2) Inner layers (print and etch)	95%	Size 0.002 inches Tol ± 0.00025 inches	
3) Outer layers (plated)	80%	Size 0.005 inches Tol ± 0.0005 inches	
4) Inner layers (plated)	80%	Size 0.004 inches Tol ± 0.0005 inches	
5) Outer layers (additive plating)	N/A	Size 0.005 inches Tol ± 0.0005 inches	
6) Inner layers (additive plating)	N/A	Size 0.004 inches Tol ± 0.0005 inches	
B) Smallest plated-through hole (PTH) and tolerance consistently produced in 1.5mm thickness material or multilayer board			
1) Minimum PTH diameter	80%	Size 0.006 inches Tol ± +0.000/-0.008 inches	
2) Largest panel where this hole can be controlled (across diagonal)	85%	Size 18x24 inches Tol ± 0.025 inches	
C) Largest hole size that can be drilled and plated through in a 1.25mm diameter land while maintaining an annular ring of 0.125mm in large/small boards			
1) Largest board size (across diagonal)		Size 26.5 inches	18x24 panel. Cannot be applied to some technologies
2) Largest hole diameter		Size 0.036 inches	
3) Smallest board size (across diagonal)		Size 11.5 inches	9 X 12 & 12x18 panels used for exotic applications
4) Largest hole diameter		Size 0.039 inches	Holes larger can be routed before plating.
D) Surface mount land pattern pitch (check all that apply) ☒1.27mm [.050] ☒0.63mm [.025] ☒0.5mm [.020] ☒0.4mm [.016] ☒0.3mm [.012] ☒0.25mm [.010] ☐Other _____ .			

E) Solder mask dam between lands (check all that apply) ☒1.27mm [.050] ☒0.63mm [.025] ☒0.5mm [.020] ☒0.4mm [.016] ☒0.3mm [.012] ☒0.25mm [.010] ☐Other ____ .				Smallest dam being held in place consistently is .003”
F) Flatness tolerance (bow & twist) after reflow or solder coating ☐1.5% ☐1.0% ☒0.5% ☒Other 0.75%				Based on receipt of a balance build.

4.3.2 PRODUCT QUALITATIVE AND QUANTITATIVE INFORMATION	YES	NO	QUANTITY OF PANELS	NUMBER or DIMENSION	COMMENTS
A) Multilayer layer count					
1) Maximum layers fabricated in volume (Maximum Lot)			15	36 layers 18x24	Maximum panel size may be reduced based on density and design requirements.
2) Maximum layers fabricated in prototype (Minimum Lot)			3	32 18x24	Maximum panel size may be reduced based on density and design requirements.
B) Buried vias produced consistently in volume	☒	☐			
1) Size			15 panels	18x24	Minimum mechanically drilled buried via hole size is .008” and may be restricted by design aspect ratio.
2) Number of layers			15 panels	18x24	Maximum number of layers for this product type is currently 24.
B) Blind vias produced consistently in volume	☒	☐			
1) Size			15 panels	18x24	Minimum mechanically drilled blind via hole size is .008” and may be restricted by design aspect ratio. Laser drilled blind vias may be as small as .005”.
2) Number of layers			15 panels	18x24	Maximum number of layers for this product type is currently 24.
1) Controlled depth drilling	☒	☐			
2) Total number of layers					Dependent on aspect ratio ≤ 0.75:1

4.4. TESTING CAPABILITY

4.4.1 TEST AND TEST EQUIPMENT CAPABILITY	YES	NO	COMMENTS
A) SMT centerline pitch that can be electrically tested ☒ 0.63mm [.025] ☒ 0.5mm [.020] ☒ 0.4mm [.016] ☒ 0.3mm [.012] ☒ 0.25mm [.010] ☐ Other			Centerline pitch below .016” tested on flying probe testers.
B) Double sided simultaneous electrical testing	☒	☐	100% net list tested to original data on dual density machines.
1) Equipment type	☒	☐	Mania, Microtech, TTI equipment. Some testing sub-contracted to OOS for testing.
2) X-ray fluorescence inspection equipment	☒	☐	CMI XRX X-ray fluorescence equipment with standards for all internal surface finishes.
3) TDR equipment	☒	☐	Polar

4) Hi-pot test equipment	☒	☐	Associated Research HYPOT III
5) Four-wire kelvin tester	☒	☐	Extech
6) Capacitance meter	☐	☒	
7) Cleanliness testing	☒	☐	Alpha Metals Omegameter 500

4.4.2 AUTOMATED OPTICAL INSPECTION USAGE	EST %	COMMENTS
A) Before etching	0%	Not currently being done at this facility.
B) After etching	100%	All impedance jobs, sub-assemblies, jobs with less than .005/.005 technology and all outerlayer jobs.
C) Internal layers	100%	All internal layers are scanned.
D) Final inspection	0%	Microscopes are used for all final inspection product.
E) Other	100%	Outer layer
F) Conductor/clearance normally inspected by AOI equipment		
1) ☐ 0.05mm [.002]	Not applicable	Not produced at this facility
2) ☒ 0.05-.10mm [.002-.004]	100%	Internal and external images
3) ☒ >.10mm [.004]	100% plus as req'd.	100% of all inner layers As required by design limitations stated above for external images
4) ☒ Planes	100%	All internal planes External planes visually inspected.
G) CAD download to AOI	100%	Direct download of customer based data.

SECTION 5
QUALITY PROFILE

DATE COMPLETED
March 25, 2011

GENERAL INFORMATION	
COMPANY NAME FTG Circuits	
CONTACT Jim Spaulding, Quality Assurance Manager	
TELEPHONE NUMBER 818-407-4024 ext. 2212	FAX NUMBER 818-407-4033

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

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
5.2 New Products/Technical Services
5.3 Customer Satisfaction
5.4 Computer Integrated Manufacturing
5.5 Process Documentation
5.6 Quality Records
5.7 Skill, Training & Certification
5.8 Subcontractor Control
5.9 Calibration Control
5.10 Internal Audits
5.11 Statistical Process Control
5.12 Problem Solving
5.13 In-Process Control
5.14 Receiving Inspection
5.15 Material Handling
5.16 Non-Conforming Material Control
5.17 Inspection and Test Plan
5.18 Product Inspection/Final Audit
5.19 Tooling Inspection, Handling, & Storage
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
MIL-PRF-55110 & Mil-P-50884 certified.
AS 9100B and ISO 9001:2008 certified.
Nadcap certified.

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

5.2 NEW PRODUCTS/TECHNICAL SERVICES		STATUS				
	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?				100%	100%
2.	Is quantitative benchmarking used to evaluate all new products/technologies/services in comparison to best-in-class offerings?				100%	100%
3.	Does a roadmap exist to ensure continued development of leading edge, best-in-class products/technology/services?				100%	100%
4.	Is the capability of each operation which controls critical-to-function characteristics for new products, fully certified?				100%	100%
5.	Are statistical tools used in the development of robust (high yield) new processes, products, and services?				100%	100%
6.	When new product/technology/service requires a new process, is it developed jointly and concurrently with the customer and/or suppliers?				100%	100%
7.	Are design reviews conducted on a scheduled basis which properly address the process capability indices of critical-to-function and product/service characteristics?				100%	100%
8.	Is the new product/technology/service, as produced by the process, verified to meet all customer satisfaction requirements?				100%	100%

COMMENTS
New Process Introduction procedures New Customer / Technology Introduction procedures

5.3 CUSTOMER SATISFACTION		STATUS				
	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?				100%	100%
2.	Is an independent (unbiased) customer survey routinely conducted?				100%	100%
3.	Is there an internal measurement system within the organization which correlates to the level of customer satisfaction?				100%	100%
4.	Are there specific goals for achieving Total Customer Satisfaction, both internal and external?				100%	100%
5.	To what extent are customer satisfaction goals disseminated and understood by everyone in the organization?				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?				100%	100%
7.	Is there a method in place to obtain future customer requirements?				100%	100%
8.	Are all findings of customer dissatisfaction reported back to the proper organization for analysis and corrective action?				100%	100%
9.	Are customer satisfaction requirements formally defined and documented, and are they based on customer input?				100%	100%
10.	Do all support organizations understand their role in achieving total customer satisfaction?				100%	100%

5.4 COMPUTER INTEGRATED MANUFACTURING		STATUS				
	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?				100%	100%
2.	Can customers electronically transfer CAD/CAM directly into manufacturing?	N/A				
3.	Can customers electronically transfer order information directly into the business system?				100%	100%
4.	Is data electronically shared between shop floor control and process control systems (i.e., CNC, SPC, Electrical Test, AOI, etc.)?				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.)?				95%	95%
6.	Is information available from system processes in real time (vs. batch processing)?				100%	100%
7.	Are processes and procedures documented and available on-line?				100%	100%
8.	Do all functional departments have system access to key financial, manufacturing, sales, and operational data, as it relates to their functional objectives?				100%	100%
9.	Are computer simulation and design tools used to the maximum extent practicable in the design of new products/technologies/services	N/A				

COMMENTS

MRP system is Paradigm
Several internal programs written in support of and linked to Paradigm.

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

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

COMMENTS

Quality data is linked to the manufacturing data by work order number and operator through Paradigm.

5.7 SKILLS, TRAINING, & CERTIFICATION	STATUS

	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?				100%	100%
2.	Do all personnel understand how their performance impacts internal and external customer satisfaction?				100%	100%
3.	Do all personnel who contact external customers reflect quality improvement programs?				100%	100%
4.	Do personnel participate in professional societies and growth programs?				100%	100%
5.	Are all personnel trained in sufficient detail to support key initiatives?				100%	80%
6.	Are the results of training evaluated and indicated program changes made?				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?				100%	100%
8.	Are performance standards participatively developed, and regularly applied for all personnel?				100%	100%
9.	Are Total Customer Satisfaction programs and resulting successes publicized to all personnel?				100%	100%
10.	Do goal setting and reward/incentive programs support the quality improvement process?				100%	100%

5.8 SUBCONTRACTOR CONTROL		**STATUS**				
	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?				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)				100%	100%
3.	Have the organization's processes been characterized to identify the critical requirements for the suppliers products?				100%	100%
4.	Have the capabilities of the supplier's processes been assessed and considered in the establishment of the requirements?				100%	100%
5.	Have partnerships been established with suppliers, and is assistance provided to ensure that each supplier has the capability to consistently supply conforming products?				100%	100%
6.	Have quality and cycle time metrics and improvement goals been established participatively with the supplier?				100%	100%
7.	Has a system been established with the supplier for identification and verification of corrective action?				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?				100%	100%
9.	Is there a supplier certification program or equivalent procured material/service continuous quality improvement program?				100%	100%
10.	Can all personnel who contract suppliers properly reflect appropriate quality improvement programs and status to them?				100%	100%

COMMENTS

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

5.10 INTERNAL AUDITS		STATUS				
	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?				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?				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?				100%	100%
4.	Are all pertinent methods of statistical quality control properly, effectively and efficiently used?				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?				100%	100%
6.	Are the operators within the process provided with written work instructions and are they trained?				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?				100%	100%
8.	Is there a first in/first out (FIFO) system in place, and is it followed?				100%	100%

COMMENTS
Specific procedures in place for all elements of above sections at point of impact.

5.11 STATISTICAL PROCESS CONTROL		STATUS				
	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?				100%	100%
2.	Are statistical techniques used to reduce variation in the engineering process before the start of production?				100%	100%
3.	Is the quality system dependent upon process rather than product controls?				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?				85%	85%
5.	Are incapable processes or machines targeted for improvement or replacement?				100%	100%
6.	Is SPC implemented for all critical processes?				100%	100%
7.	Are procedures that control the reaction to out-of-control situations adequate and effective?				100%	100%
8.	Are operators trained in the use of appropriate statistical techniques, and are they properly applying them?				100%	100%
9.	Are advanced problem solving techniques used by engineers to solve problems? (Design of Experiments, planned experimentation, advanced diagnostic tools, etc.)				100%	100%
10.	Are control charts and other process controls properly implemented?				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?				100%	100%

5.12 PROBLEM SOLVING		STATUS				
	DESCRIPTION OF PROGRAM	Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
1.	Are employees trained in problem solving techniques, in comparison to the needs of the organization?				100%	100%
2.	Does the organization utilize participative problem solving techniques to identify, measure and resolve internal and external problems?				100%	100%
3.	Are problem solving efforts timely and effective?				100%	100%
4.	Are applied resources sufficient to remove problem solving constraints?				90%	90%
5.	Are statistical techniques used for problem solving?				100%	100%
6.	Are quality data used to identify barriers, and to determine the priority of problems?				100%	100%
7.	Is there a policy/procedure that includes the use of problem solving techniques to systematically drive reduction in variability?				100%	100%

COMMENTS

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

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

COMMENTS
Receiving inspection requirements geared to meet current supplier dock to stock status.

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

5.16 NON-CONFORMING MATERIAL CONTROL		STATUS				
DESCRIPTION OF PROGRAM		Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
1.	Is non-conforming material identified, segregated from regular production material, and properly dispositioned?				100%	100%
2.	Are non-conforming materials properly identified and controlled to prevent inadvertent use?				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?				100%	100%
4.	Are procedures for controlling non-conforming materials, and for ensuing corrective action, in place and followed?				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)				100%	100%
6.	Do supplier's procedures and controls for corrective action prevent recurrence of non-conformances?				100%	100%
7.	Is there a system for coordinating necessary corrective action with purchasing personnel?				100%	100%
8.	Does the corrective action extend to all applicable causes of non-conformance (e.g., design, workmanship, procedures, equipment, etc.)?				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?				100%	100%
2.	Are periodic tests conducted to audit reliability and environmental performance of the final product?				100%	100%
3.	Is CPK tracking performed for critical characteristics, with plans to achieve CPK = 1.5 with a target of CP of 2.0?				100%	100%
4.	Is root cause failure analysis performed for internal and external failures, and is appropriate corrective action implemented?				100%	95%
5.	Are test and inspection personnel trained in the procedures of their operations, and are those procedures being followed?				100%	100%
6.	Is the new product/technology/service, as produced by the processes, verified to meet all customer satisfaction requirements?				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?				100%	100%
2.	Are all specific customer product audits conducted, as required?				100%	100%
3.	Are inspectors trained for the tasks performed?				100%	100%
4.	Are flow charts or milestones developed with checkpoints readily available?				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?				100%	100%
6.	Is a quality system established and maintained for control of product/production documentation?				100%	100%
7.	Is “accept/reject” criteria defined and available for use?				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?				100%	100%
9.	Are packing and order checking procedures documented and followed?				100%	100%

COMMENTS

Parts are inspected to customer drawings and specifications.

5.19 TOOLING INSPECTION, HANDLING, & STORAGE		STATUS				
	DESCRIPTION OF PROGRAM	Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
1.	Are temperature, humidity, laminar flow controls in place to prevent contamination, and to assure dimensional stability?				100%	100%
2.	Do operators use hairnets, gloves & lab coats in all photo lab and photo exposure areas?				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?				100%	100%
4.	Are customer provided artworks controlled with regard to handling, storage, revision control and relationship to converted production photo tools (working films)?				100%	100%
5.	Are production photo tools (working films) controlled with regard to handling, storage, use life, and relationship to customer purchase order?				100%	100%
6.	Are customer provided artworks and production photo tools (working films) inspected, including dimensional checks?				100%	100%
7.	Are all tools, fixtures, and other devices, used for tooling inspection and control, maintained under the calibration control procedure?				100%	100%
8.	Are records showing initial acceptance, periodic checks, and any needs for rework and/or modification available?				100%	100%

5.20 CORRECTIVE ACTION		STATUS				
	DESCRIPTION OF PROGRAM	Not Applicable	Not Started	Approach Developed	Percent Deployed	Percent Results
1.	Are final acceptance inspection results used for corrective and preventative action?				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.				100%	100%
3.	Is positive action taken to prevent recurrence of problems, and are there documented reports/records of each occasion?				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?				100%	100%
5.	Is corrective action controlled and documented for all applicable work centers?				100%	100%
6.	When corrections are made, is their effectiveness subsequently reviewed and monitored?				100%	100%

COMMENTS

Section 5.19 – no.4 – customer data

DATE COMPLETED
August, 2010

SECTION 6 (CHECK ONE IN EACH LINE THAT APPLIES)
MANUFACTURING HISTORY (See Section 2 Site Capability)

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 board or board family (board types may be grounded together if they are similar).

BOARD TYPE	DATE OF ORDER	MATERIAL	HISTORY #
M/L	7/14/07	BI/GI/GF	30803
VIA TYPE	PRODUCTION QUANTITY	TOTAL YEARLY PRODUCTION %	
.008	50	6000	

Dimensions in millimeters (inches in brackets)

BOARD			HOLES		
BOARD SIZE DIAGONAL	TOTAL BOARD THICKNESS	NUMBER CONDUCTIVE LAYERS	DIA DRILLED HOLES	TOTAL PTH TOL (MAX-MIN)	LOCATION TOL DTP
☒<250 [<10.00]	☐<1,0 [<.040]	☐1-4 [1-4]	☐>0,5 [>.020]	☐>0,250 [> .010]	☐**>0,50 [>.020]**
☐250 [10.00]	☐1,0 [.040]	☐5-6 [5-6]	☐0,5 [.020]	☐0,250 [.010]	☐**0,50 [.020]**
☐350 [14.00]	☐1,6 [.060]	☐7-8 [7-8]	☐0,4 [.016]	☐0,200 [.008]	☐**0,40 [.016]**
☐450[17.50]	☒2,0 [.080]	☒9-12 [9-12]	☐0,35 [.014]	☒0,150 [.006]	☐**0,30 [.012]**
☐550 [21.50]	☐2,5 [.100]	☐13-16 [13-16]	☐0,30 [.012]	☐0,125 [.005]	☐**0,25 [.010]**
☐650 [25.50]	☐3,5 [.135]	☐17-20 [17-20]	☒0,25 [.010]	☐0,100 [.004]	☐**0,20 [.008]**
☐750 [29.50]	☐5,0 [.200]	☐21-24 [21-24]	☐0,20 [.008]	☐0,075 [.003]	☐**0,15 [.006]**
☐850 [33.50]	☐6,5 [.250]	☐25-28 [25-28]	☐0,15 [.006]	☐0,050 [.002]	☐**0,10 [.004]**
☐>850 [>33.50]	☐>6,5 [>.250]	☐>28 [>28]	☐<0,15 [.006]	☐<0,050 [<.002]	☒**<0,10 [<.004]**
☐Other:	☐Other:	☐Other:	☐Other:	☐Other:	☐**Other:**

CONDUCTORS						
INTERNAL ELEC CLEARANCE (MIN)	INTERNAL COND WIDTH (MIN)	INTERNAL PROCESS ALLOWANCE	EXTERNAL ELEC CLEARANCE (MIN)	EXTERNAL COND WIDTH (MIN)	EXTERNAL PROCESS ALLOWANCE	FEATURE LOCATION DTP
☐>0,350 [>.014]	☐>0,250 [>.010]	☐>0,100 [>.004]	☐>0,350 [>.014]	☐>0,250 [>.010]	☐>0,100 [>.004]	☐>0,50 [>.020]
☐0,350 [.014]	☐0,250 [.010]	☐0,100 [.004]	☐0,350 [.014]	☐0,250 [.010]	☐0,100 [.004]	☐0,50 [.020]
☐0,250 [.010]	☐0,200 [.008]	☐0,075 [.003]	☐0,250 [.010]	☐0,200 [.008]	☐0,075 [.003]	☐0,40 [.016]
☐0,200 [.008]	☐0,150 [.006]	☐0,050 [.002]	☐0,200 [.008]	☐0,150 [.006]	☐0,050 [.002]	☐0,30 [.012]
☐0,150 [.005]	☒0,125 [.005]	☐0,040 [.0015]	☐0,150 [.006]	☒0,125 [.005]	☐0,040 [.0015]	☐0,25 [.010]
☒0,125 [.005]	☐0,100 [.004]	☐0,030 [.0012]	☒0,125 [.005]	☐0,100 [.004]	☐0,030 [.0012]	☐0,20 [.008]
☐0,100 [.004]	☐0,075 [.003]	☐0,025 [.001]	☐0,100 [.004]	☐0,075 [.003]	☒0,025 [.001]	☐0,15 [.006]
☐0,075 [.003]	☐0,050 [.002]	☐0,020 [.0008]	☐0,075 [.003]	☐0,050 [.002]	☐0,020 [.0008]	☐0,10 [.004]
☐<0,075 [<.003]	☐<0,050 [<.002]	☒<0,020 [<.0008]	☐<0,075 [<.003]	☐<0,050 [<.002]	☐<0,020 [<.008]	☒<0,10 [<.004]
☐Other:	☐Other:	☐Other:	☐Other:	☐Other:	☐Other:	☐Other:

DATE COMPLETED
March 25, 2011

SECTION 7

IDENTIFICATION OF PREVIOUS AUDITS (Optional)

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

COMPANY AUDITORS **CUSTOMER AUDITS AVAILABLE AT TIME OF AUDIT**	DATE OF AUDIT
AUDIT TEAM MEMBERS	AUDITOR REMARKS
	SPECIFICATIONS USED IN AUDIT
LENGTH OF AUDIT	
TEAM MEMBERS MAY BE CONTACTED AT	

COMPANY AUDITORS **CUSTOMER AUDITS AVAILABLE AT TIME OF AUDIT**	DATE OF AUDIT
AUDIT TEAM MEMBERS	AUDITOR REMARKS
	SPECIFICATIONS USED IN AUDIT
LENGTH OF AUDIT	
TEAM MEMBERS MAY BE CONTACTED AT	

COMPANY AUDITORS **CUSTOMER AUDITS AVAILABLE AT TIME OF AUDIT**	DATE OF AUDIT
AUDIT TEAM MEMBERS	AUDITOR REMARKS
	SPECIFICATIONS USED IN AUDIT
LENGTH OF AUDIT	
TEAM MEMBERS MAY BE CONTACT AT	

*REPEAT THIS FORM AS NECESSARY

SECTION 8

DATE COMPLETED
February 15, 2008

FINANCIAL REVIEW (OPTIONAL)

Please complete the following financial information that coincides with the company description and site information provided in section 1.

COMPANY FINANCIAL DESCRIPTION

LEGAL NAME		
TAXPAYER ID NUMBER	DUNS NUMBER	TRADING SYMBOL
ANNUAL SALES	PRIOR YEAR	YEAR-TO-DATE
FISCAL YEAR		
BANK	ACCOUNT NUMBER	
BANK ADDRESS	STATE	ZIP
PROVINCE	COUNTRY	
BANK TELEPHONE NUMBER	FAX NUMBER	
COMMENTS **FINANCIAL DATA CAN BE REVIEWED AT WWW.FTGCORP.COM**		

SITE FINANCIAL DESCRIPTION

SITE NAME		
TAXPAYER ID NUMBER	DUNS NUMBER	TRADING SYMBOL
ANNUAL SALES	PRIOR YEAR	YEAR-TO-DATE
FISCAL YEAR		
BANK	ACCOUNT NUMBER	
BANK ADDRESS	STATE	ZIP
PROVINCE	COUNTRY	
BANK TELEPHONE NUMBER	FAX NUMBER	
COMMENTS **FINANCIAL DATA CAN BE REVIEWED AT WWW.FTGCORP.COM**		

SECTION 9
MQP ELECTRONIC EDITING

This MS Word template comes with editable fields. IPC has made this electronic document available for ease of completing, updating, and filing the MQP, as well as to give the laminate manufacturer and customer a common interface. Using the template enables laminate manufacturers to maintain several customer specific files without the endless stream of paperwork.

Editable fields are highlighted in gray. To complete the fields in the template, use the TAB key to toggle from field to field, entering the information as instructed in the introductory text for each section.

The developers of this MQP strongly suggest the person at the laminate manufacturing facility responsible for creating and maintaining the MQP write protect the file to be sent.