


QUALIFICATIONS VALIDATED
ANNUALLY

QML-31032-6
9 November 1999
SUPERSEDING
QML-31032-5
25 November 1998

QUALIFIED MANUFACTURERS LIST
OF
DEPARTMENT OF DEFENSE PERFORMANCE SPECIFICATION
MIL-PRF-31032
PRINTED CIRCUIT BOARDS / PRINTED WIRING BOARDS
GENERAL SPECIFICATION FOR

 This list has been prepared for use by or for the Government in the acquisition of printed circuit boards / printed wiring boards (hereafter referred to as printed boards) covered by Department of Defense Performance Specification MIL-PRF-31032. Listing of a manufacturer is not intended to and does not connote endorsement of the manufacturer by the Department of Defense. All listings herein have been qualified under the requirements as specified in the latest effective issue of MIL-PRF-31032. This list is subject to change without notice; revision or amendment of this list will be issued as necessary. The listing of a manufacturer does not in any way release the manufacturer from compliance with the individual item specification requirements.

THE ACTIVITY RESPONSIBLE FOR THIS QML IS THE DEFENSE SUPPLY CENTER COLUMBUS (DSCC-VQ), COLUMBUS, OH 43216-5000.

If a manufacturer desires to have test data considered for qualification, it must be certified and meet all qualification test requirements of MIL-PRF-31032 and the applicable associated specification.

The listing of printed board manufacturing lines in the QML applies only to printed boards produced in the plant(s) specified herein. Therefore, only those printed boards that have been manufactured and tested within the United States and its territories and as provided by international agreement(s) establishing reciprocal and equivalent quality systems and procedures, can be supplied as QML printed boards.

QML-31032 is available from the DSCC-VQ World Wide Web pages at the following addresses:

Web pages: http://www.dscccols.com/offices/sourcing_and_qualification/

QML: <http://www.dscccols.com/programs/qmlqpl/QPLdetail.asp?QPL=31032>

QML is a definition of a manufacturer's verified capabilities. Manufacturers may use the add-on qualification process to qualify capabilities that are not currently listed on the QML. The user is encouraged to contact the manufacturer or DSCC to make arrangements for QML availability.

SECTION I

LIST OF MANUFACTURERS BY ASSOCIATED SPECIFICATION

MIL-PRF-31032/1 - Printed Wiring Board, Rigid, Multilayered, Woven E-Glass Reinforced Thermosetting Resin Base Material, With Plated Through Holes, For Soldered Part Mounting.

Accudyne, Inc.
5800 McHines Place
Raleigh, NC 27616-1839

Dynamic & Proto Circuits, Inc.
869 Barton Street
Stoney Creek, Ontario L8E 5G6
Canada

Lockheed Martin Electronics & Missiles
498 Oak Road
Ocala, FL 34472-3009

Philway Products, inc.
701 Virginia Avenue
Ashland, OH 44806

Raytheon Systems Company
P.O. Box 201155, MS 2110
Austin, TX 78720-1155

Teradyne Circuits Operation
4 Pittsburgh Avenue
Nashua, New Hampshire 03060

MIL-PRF-31032/2 - Printed Wiring Board, Rigid, Single and Double Layer, Woven E-Glass Reinforced Thermosetting Resin Base Material, With or Without Plated Through Holes, For Soldered Part Mounting.

Accudyne, Inc.
5800 McHines Place
Raleigh, NC 27616-1839

Dynamic & Proto Circuits, Inc.
869 Barton Street
Stoney Creek, Ontario L8E 5G6
Canada

Lockheed Martin Electronics & Missiles
498 Oak Road
Ocala, FL 34472-3009

Raytheon Systems Company
P.O. Box 201155, MS 2110
Austin, TX 78720-1155

Teradyne Circuits Operation
4 Pittsburgh Avenue
Nashua, New Hampshire 03060

SECTION I

LIST OF MANUFACTURERS BY ASSOCIATED SPECIFICATION

MIL-PRF-31032/3 - Printed Wiring Board, Flexible, Single and Double Layer, With or Without Plated Through Holes, With or Without Stiffeners, For Soldered Part Mounting.

Lockheed Martin Electronics & Missiles
498 Oak Road
Ocala, FL 34472-3009

Raytheon systems company
P.O. Box 201155, MS 2110
Austin, TX 78720-1155

Rigid / Flex Custom Qualification.

Lockheed Martin Electronics & Missiles
498 Oak Road
Ocala, FL 34472-3009

Raytheon systems company
P.O. Box 201155, MS 2110
Austin, TX 78720-1155

SECTION II

LIST OF MANUFACTURERS' QUALIFIED CAPABILITIES FOR EACH TECHNOLOGY

MANUFACTURER NAME & ADDRESS Accudyne, Inc. 5800 McHines Place Raleigh, NC 27616-1839	PLANT LOCATION Same	CAGE CODE: 1JQF6 CONTACT: Patrick J. Gardner PHONE #: 919-713-4872 FAX #: 919-876-6385 EMAIL: Accuengr@mindspring.com
CAPABILITIES BY TECHNOLOGY / ASSOCIATED SPECIFICATION:		QUALIFICATION LETTER:
MIL-PRF-31032/1 MIL-PRF-31032/2 Panel Size 18" X 24" Max. Board Thickness 0.090" Max/Min Hole Size /0.010" Aspect Ratio 7:1 Max. Number of Layers 8 Min. Conductor Width 0.005" Min. Conductor Spacing 0.005" Part Mounting SM, THM, COB Base Material GF (Epoxy resin) Finish System Fused SnPB Hot Air Solder Leveling Hole Preparation Permanganate Desmear Copper Plating Acid Copper Solder Resist Liquid Photo Imagable, Dry Film BGA Platform 250 volt testing max.		VQE-99-0871

SECTION II

LIST OF MANUFACTURERS' QUALIFIED CAPABILITIES FOR EACH TECHNOLOGY

MANUFACTURER NAME & ADDRESS Dynamic & Proto Circuits, Inc. 869 Barton Street Stoney Creek, Ontario L8E 566 Canada	PLANT LOCATION Same	CAGE CODE: 38898 CONTACT: Mr. Sal Sanchez PHONE #: 905-643-9900 FAX #: 905-643-9911 EMAIL: ssanchez@dapc.com
CAPABILITIES BY TECHNOLOGY / ASSOCIATED SPECIFICATION:		QUALIFICATION LETTER:
MIL-PRF-31032/1 MIL-PRF-31032/2 Panel Size 12"X18" Max. Board Thickness 0.072" Max/Min Hole Size 0.039"/0.018" Aspect Ratio 8:1 Max. Number of Layers 10 Min. Conductor Width 0.005" Min. Conductor Spacing 0.005" Part Mounting SM, THM, MIX Base Material GF (Woven E-Glass, Epoxy resin) GI (Woven E-Glass, Polyimide resin) Finish System Hot Air Solder Leveling Hole Preparation Plasma Etch Copper Plating Acid Copper Solder Resist Liquid Photoimagable Dry film solder resist plugs		VQE-98-1143, VQE-00-0007 VQE-00-0007 VQE-98-1143 VQE-98-1143 VQE-00-0007 VQE-98-1143 VQE-98-1143 VQE-98-1143, VQE-00-0007 VQE-98-1143, VQE-00-0007 VQE-00-0007 VQE-98-1143 VQE-98-1143, VQE-00-0007 VQE-98-1143, VQE-00-0007 VQE-98-1143, VQE-00-0007 VQE-98-1143 VQE-00-0007

SECTION II

LIST OF MANUFACTURERS' QUALIFIED CAPABILITIES FOR EACH TECHNOLOGY

MANUFACTURER NAME & ADDRESS Lockheed Martin Electronics & Missiles 498 Oak Road Ocala, FL 34472-3009	PLANT LOCATION Same	CAGE CODE: 04939 CONTACT: Shirley Berry PHONE #: 352-687-5676 FAX #: 352-687-5625 EMAIL: shirleyberry@usa.net
CAPABILITIES BY TECHNOLOGY / ASSOCIATED SPECIFICATION:		QUALIFICATION LETTER:
MIL-PRF-31032/1 MIL-PRF-31032/2 Panel Size 18" X 24" Max. Board Thickness 0.110" Max/Min Hole Size /0.010" Aspect Ratio 9.7:1 Max. Number of Layers 14 Min. Conductor Width 0.004" Min. Conductor Spacing 0.005" Part Mounting THM, SM Base Material GF (Epoxy resin) GI (Polyimide resin) SC (Cynate Ester) NELCO N4000-13 (GF) Finish System Fused SnPB Hot Air Solder Leveling Hole Preparation Plasma Desmear/Etchback Copper Plating Electro-deposited Acid Copper Solder Resist UV-Cured Wet Screen Liquid Photoimagable SMOBC		VQE-97-0933 VQE-98-0289 VQE-98-0289 VQE-98-0289 VQE-98-0289 VQE-98-0289 VQE-99-0081
MIL-PRF-31032/3 Panel Size 18" X 24" Max. Board Thickness 0.025" Max/Min Hole Size /0.012" Aspect Ratio 2.1:1 Min. Conductor Width 0.006" Min. Conductor Spacing 0.006" Part Mounting THM Base Material Polyimide Non-Reinforced film (3 mil) Finish System Fused SnPB Hole Preparation Plasma Desmear/Etchback Copper Plating Electro-deposited Acid Copper Solder Resist UV-Cured Wet Screen Liquid Photoimagable SMOBC		VQE-97-1233

SECTION II

LIST OF MANUFACTURERS' QUALIFIED CAPABILITIES FOR EACH TECHNOLOGY

MANUFACTURER NAME & ADDRESS	PLANT LOCATION	CAGE CODE: 04939
Lockheed Martin Electronics & Missiles 498 Oak Road Ocala, FL 34472-3009	Same	CONTACT: Shirley Berry PHONE #: 352-687-5676 FAX #: 352-687-5625 EMAIL: shirleyberry@usa.net
Multilayer Rigid/Flex Construction (Custom)		VQE-99-0080
Panel Size Max. Board Thickness Max/Min Hole Size Aspect Ratio Max. Number of Layers Internal Connections Min. Conductor Width Min. Conductor Spacing Part Mounting Base Material Hole Preparation Copper Plating Solder Resist Usage	18" X 26" 0.195" /0.025" 7.8:1 18 Blind / Buried Vias 0.005" 0.005" THM Polyimide and Acrylic Plasma Desmear/Etchback Electro-deposited Acid Copper UV-Cured Wet Screen Liquid Photoimagable SMOBC Class A (Flex during installation)	

SECTION II

LIST OF MANUFACTURERS' QUALIFIED CAPABILITIES FOR EACH TECHNOLOGY

MANUFACTURER NAME & ADDRESS Philway Products, Inc. 701 Virginia Avenue Ashland, OH 44806	PLANT LOCATION Same	CAGE CODE: 21971 CONTACT: Ted Norris PHONE #: 419-281-7777 FAX #: 419-289-3447 EMAIL: chris@philway.com
CAPABILITIES BY TECHNOLOGY / ASSOCIATED SPECIFICATION:		QUALIFICATION LETTER:
MIL-PRF-31032/1 Panel Size 18" X 21" Max. Board Thickness 0.090" Max. Base Cu Thickness 0.002" Max/Min Plated Hole Size 0.04410"/0.012 Aspect Ratio 4:1 Max. Number of Layers 12 Min. Conductor Width 0.005" Min. Conductor Spacing 0.005" Part Mounting SM, THM, MIX Base Material GF (Woven E-Glass, Epoxy resin) GI (Woven E-Glass, Polyimide resin) GM (Woven E-Glass, Triazine and/or Bismaleimide Modified Epoxy resin) Finish System Hot Air Solder Leveling: IR Reflow following SnPb plate Hole Preparation Permanganate Desmear/Etchback Copper Plating Acid Copper Solder Resist Liquid Photoimagable		VQE-99-1107

SECTION II

LIST OF MANUFACTURERS' QUALIFIED CAPABILITIES FOR EACH TECHNOLOGY

MANUFACTURER NAME & ADDRESS Raytheon Systems Company P.O. Box 201155, MS 2110 Austin, TX 78720-1155	PLANT LOCATION 12501 Research Blvd. Austin, TX 78759	CAGE CODE: 96214 CONTACT: Roddy Scherff PHONE #: (512) 250-7538 FAX #: (512) 250-7010 EMAIL: r-scherff@ti.com
CAPABILITIES BY TECHNOLOGY / ASSOCIATED SPECIFICATION:		QUALIFICATION LETTER:
MIL-PRF-31032/1 MIL-PRF-31032/2 Panel Size 18" X 24" Max. Board Thickness 0.150" Max/Min Hole Size /0.010" Aspect Ratio 9:1 Max. Number of Layers 20 Min. Conductor Width 0.004" Min. Conductor Spacing 0.004" Part Mounting THM, SM Base Material BI (Nonwoven aramid reinforced polyimide resin) GF (Epoxy resin) GI (Polyimide resin) Finish System Fused SnPB Hot Air Solder Leveling OSP Nickel Gold Hole Preparation Plasma Desmear/Etchback Copper Plating Acid Copper Solder Resist Liquid Photo Imageable (spray coated and screen printed), Dry Film Photo Imageable, SMOBC		VQE-97-0509 VQE-97-0718
MIL-PRF-31032/3		VQE-99-0935
Panel Size 18" X 24" Max/Min Hole Size /0.010" Aspect Ratio 9:1 Min. Conductor Width 0.004" Min. Conductor Spacing 0.004" Part Mounting THM Flex Base Material IPC-FC-241/1 IPC-FC-241/11 Finish System Fused SnPB, HAL, OSP, Nickel, Gold Immersion Silver Copper Plating Electro-deposited Acid Copper Usage Class A		

SECTION II

LIST OF MANUFACTURERS' QUALIFIED CAPABILITIES FOR EACH TECHNOLOGY

MANUFACTURER NAME & ADDRESS Raytheon Systems Company P.O. Box 201155, MS 2110 Austin, TX 78720-1155	PLANT LOCATION 12501 Research Blvd. Austin, TX 78759	CAGE CODE: 96214 CONTACT: Roddy Scherff PHONE #: (512) 250-7538 FAX #: (512) 250-7010 EMAIL: r-scherff@ti.com																														
CAPABILITIES BY TECHNOLOGY / ASSOCIATED SPECIFICATION:		QUALIFICATION LETTER:																														
Multilayer Rigid/Flex Construction (Custom) <table border="0"> <tr><td>Panel Size</td><td>18" X 26"</td></tr> <tr><td>Max. Board Thickness</td><td>0.150"</td></tr> <tr><td>Max/Min Hole Size</td><td>/0.010"</td></tr> <tr><td>Aspect Ratio</td><td>9:1</td></tr> <tr><td>Max. Number of Layers</td><td>20</td></tr> <tr><td>Internal Connections</td><td>Blind Vias</td></tr> <tr><td>Min. Conductor Width</td><td>0.004"</td></tr> <tr><td>Min. Conductor Spacing</td><td>0.004"</td></tr> <tr><td>Part Mounting</td><td>THM, SM</td></tr> <tr><td>Rigid Base Material</td><td>GF (Epoxy resin) GI (Polyimide resin)</td></tr> <tr><td>Flex Base Material</td><td>IPC-FC-241/1 IPC-FC-241/11</td></tr> <tr><td>Finish System</td><td>Fused SnPb, HAL, OSP, Nickel Gold, Immersion Silver</td></tr> <tr><td>Copper Plating</td><td>Electro-deposited Acid Copper</td></tr> <tr><td>Solder Resist</td><td>UV-Cured Wet Screen</td></tr> <tr><td>Usage</td><td>Class A (Flex during installation)</td></tr> </table>		Panel Size	18" X 26"	Max. Board Thickness	0.150"	Max/Min Hole Size	/0.010"	Aspect Ratio	9:1	Max. Number of Layers	20	Internal Connections	Blind Vias	Min. Conductor Width	0.004"	Min. Conductor Spacing	0.004"	Part Mounting	THM, SM	Rigid Base Material	GF (Epoxy resin) GI (Polyimide resin)	Flex Base Material	IPC-FC-241/1 IPC-FC-241/11	Finish System	Fused SnPb, HAL, OSP, Nickel Gold, Immersion Silver	Copper Plating	Electro-deposited Acid Copper	Solder Resist	UV-Cured Wet Screen	Usage	Class A (Flex during installation)	VQE-99-0933
Panel Size	18" X 26"																															
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Usage	Class A (Flex during installation)																															

SECTION II

LIST OF MANUFACTURERS' QUALIFIED CAPABILITIES FOR EACH TECHNOLOGY

MANUFACTURER NAME & ADDRESS Teradyne, Inc. Connection Systems Division MS-124 4 Pittsburgh Avenue Nashua, New Hampshire 03062	PLANT LOCATION Same	CAGE CODE: 3T000 CONTACT: Mark Buechner PHONE #: 603-791-3832 FAX #: 603-791-3080 EMAIL: buechner.mark @tcs.teradyne.com
CAPABILITIES BY TECHNOLOGY / ASSOCIATED SPECIFICATION:	QUALIFICATION LETTER:	
MIL-PRF-31032/1 MIL-PRF-31032/2 Panel Size 24" X 36" Max. Board Thickness 0.322" Max/Min Hole Size /0.016" Aspect Ratio 8:1 Max. Number of Layers 27 Min. Conductor Width 0.004" Min. Conductor Spacing 0.004" Part Mounting THM, Compliant Pin, SMT Base Material GF (Epoxy resin) GI (Polyimide resin) Finish System Fused SnPB Nickel Gold Hole Preparation Permanganate Desmear/Etchback Copper Plating Acid Copper Solder Resist Thermal cured soldermask and SMOBC	VQE-97-0649 VQE-97-0721	

SECTION III

ALPHABETICAL LIST OF QUALIFIED MANUFACTURERS

MANUFACTURER NAME & ADDRESS	PLANT LOCATION	OTHER INFORMATION
Accudyne, Inc. 5800 McHines Place Raleigh, NC 27616-1839	Same	CAGE CODE: 1JQF6 CONTACT: Patrick Gardner PHONE #: 919-713-4872 FAX #: 919-876-6385 EMAIL: Accuengr@mindspring.com
Dynamic & Proto Circuits, Inc. 869 Barton Street Stoney Creek, Ontario L8E 566 Canada	Same	CAGE CODE: 38898 CONTACT: Mr. Sal Sanchez PHONE #: 905-643-9900 FAX #: 905-643-9911
Lockheed Martin Electronics & Missiles 498 Oak Road Ocala, FL 34472-3009	Same	CAGE CODE: 04939 CONTACT: Shirley Berry PHONE #: 352-687-5676 FAX #: 352-687-5625 EMAIL: shirleyberry&usa.net
Philway Products, Inc. 701 Virginia Avenue Ashland, OH 44806	Same	CAGE CODE: 21971 CONTACT: Ted Norris PHONE #: 419-281-7777 FAX #: 419-289-3447 EMAIL: chris@philway.com
Raytheon Systems Company P.O. Box 201155, MS 2110 Austin, TX 78720-1155	12501 Research Blvd. 78759 Austin, TX 78759	CAGE CODE: 96214 CONTACT: Roddy Scherff PHONE #: (512) 250-7538 FAX #: (512) 250-7010 EMAIL: r-scherff@ti.com
Teradyne, Inc. Connection Systems Division MS-124 4 Pittsburgh Avenue Nashua, New Hampshire 03062	Same	CAGE CODE: 3T000 CONTACT: Mark Buechner PHONE #: 603-791-3832 FAX #: 603-791-3080 EMAIL: buechner.mark@tcs.teradyne.com