



CSA INTERNATIONAL

Certificate of Compliance

Certificate: 1583488 (LR 91261)

Master Contract: 181670

Project: 1741738

Date Issued: 2005/12/07

Issued to: Barco Folsom LLC

11101 A Trade Center Dr
Rancho Cordova, CA 95670
USA
Attention: Kent Vogel

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US'



Issued by: Oscar D. Enojado

Authorized by: Fabio Furlan, Project Manager

PRODUCTS

CLASS 3862 91 - Information Technology Equipment (CSA 60950-1-03/UL 60950-1, - First Edition NRTL Program) Certified to U.S. Standards

CLASS 3862 11 - INFORMATION TECHNOLOGY EQUIPMENT - (CSA 60950-1-03)

- Encore Controller, Model Encore SC, Encore LC, cord-connected, component, input rated 100-240 V, 47-64 Hz, 1.7 A.

Notes:

The 'C' and 'US' indicators adjacent to the CSA Mark signify that the product has been evaluated to the applicable CSA and ANSI/UL Standards, for use in Canada and the U.S., respectively. This 'US' indicator includes products eligible to bear the 'NRTL' indicator. NRTL, i.e. National Recognized Testing Laboratory, is a designation granted by the U.S. Occupational Safety and Health Administration (OSHA) to laboratories which have been recognized to perform certification to U.S. Standards.



Certificate: 1583488 (LR 91261)

Master Contract: 181670

Project: 1741738

Date Issued: 2005/12/07

(a) The model designations may have a suffix and/or prefix consisting of alphanumeric characters denoting minor mechanical options, system configuration options and/or safety extra low voltage secondary circuit options.

CONDITIONS OF ACCEPTABILITY

1. The units are certified only as components of other certified equipment, where the suitability of the combination is to be determined by CSA International.

APPLICABLE REQUIREMENTS

- CAN/CSA C22.2 No 0-M91 - General Requirements, Canadian Electrical Code, Part II
- CAN/CSA C22.2 No 0.4-M1982 - Bonding and Grounding of electrical Equipment (Protective Grounding)
- CAN/CSA C22.2 No 60950-1-03 - Safety of Information Technology Equipment
- ANSI/UL No 60950-1 - Safety of Information Technology Equipment



Supplement to Certificate of Compliance

Certificate: 1583488

Master Contract: 181670

The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

| Project | Date | Description |
|----------------|-------------|-------------------------------|
| 1741738 | 2005/12/07 | Report Update/Correction |
| 1583488 | 2004/08/17 | Canadian and US Certification |



Descriptive and Test Report

MASTER CONTRACT: 181670 (LR91261)

REPORT: 1583488

PROJECT: 1741738

Edition 1: August 17, 2004; Project 1583488 - Irvine
Issued by Oscar D. Enojado

Edition 2: December 7, 2005; Project 1741738 - Irvine
Issued by Oscar D. Enojado

Pages Replaced: All (Report Updated and Re-issued)

Contents: Certificate of Compliance - Pages 1 to 2
Supplement to Certificate of Compliance – Pages 1
Description and Tests – Pages 1 to 13
Includes Photographs – Figs. 1 to 6
Includes Illustrations – Ills. 1 to 3
Bi-Nat CSA 60950-1-03/UL 60950-1 Design Manual

PRODUCTS

CLASS 3862 11/91 – INFORMATION TECHNOLOGY EQUIPMENT

Encore Controller, Model Encore SC, Encore LC, cord-connected, component, input rated 100-240 V, 47-64 Hz, 1.7 A.

Notes:

- (a) The model designations may have a suffix and/or prefix consisting of alphanumeric characters denoting minor mechanical options, system configuration options and/or safety extra low voltage secondary circuit options.

CONDITIONS OF ACCEPTABILITY

1. The units are certified only as components of other certified equipment, where the suitability of the combination is to be determined by CSA International.

BI-NAT CSA 60950-1-03/UL 60950-1 DESIGN MANUAL IS AN INTEGRAL PART OF THIS REPORT

The test report shall not be reproduced, except in full, without the approval of CSA International.

2805 Barranca Parkway, Irvine, CA, U.S.A. 92606-5114

Telephone: 949.733.4300 1.800.463.6727 Fax: 949.733.4320 www.csa-international.org

APPLICABLE REQUIREMENTS


- CAN/CSA C22.2 No 0-M91 - General Requirements, Canadian Electrical Code, Part II
- CAN/CSA C22.2 No 0.4-M1982 - Bonding and Grounding of electrical Equipment (Protective Grounding)
- CAN/CSA C22.2 No 60950-1-03 - Safety of Information Technology Equipment
- ANSI/UL No 60950-1 - Safety of Information Technology Equipment

MARKINGS


The following markings appear on a CSA Certified and UL Recognized adhesive type nameplate:

- (a) The CSA Monogram with "C US" indicators and the optional indicators "CSA 60950" and "ANSI/UL 60950";
- (b) The submittor's name and/or CSA File / Contract Number "LR 91261" or "181670";
- (c) Model designation;
- (d) Complete electrical rating in volts, hertz and amperes;
- (e) A date code or serial numbers traceable to month and year of manufacture and manufacturing facility;

The following additional markings appear marked in a permanent manner:

- (a) The IEC 417 Symbol 5019  is marked in a permanent adjacent to the ground stud.

ALTERATIONS

- (a) Markings, as described above, appear on each unit.
- (b) Grounding is as described in List of Critical Components.
- (c) The IEC 417 Symbol 5019  is marked in a permanent adjacent to the ground stud.
- (d) **Cable tie and cable base are required to prevent the primary and ground wires from touching the power supply.**
- (e) J8 output secondary wires require heat shrink tubing.

FACTORY TEST - Refer to Design Manual for voltage levels.

- (a) Production-line Dielectric Voltage-Withstand Test: Clause 5.3.2
[i] For Grounded Units (Class I or Class 2) rated above 130V and up to 250V;
- (b) Production-Line Earthing-Continuity Test: Ref. ANSI/UL 1950(1993), Clause 7.2.

DESCRIPTION

General: The above models are similar to each other except for changes in SELV circuitry not affecting safety.

- (a) Type of Equipment: Stand-alone - Desk-top.
 - (b) Class of Equipment: I
 - (c) Connection to Supply: Pluggable A
 - (d) Type of Power System: TN-S
 - (e) Mobility: Moveable
 - (f) Weight of Equipment: Encore LC = 26 kg; Encore SC = 14 kg.
 - (g) Pollution Degree: 2
 - (h) Maximum Rated Ambient Temperature: 40 °C
 - (i) Installation: N/A
 - (j) Accessibility: This unit contains no operator access areas and the operator's manual does not instruct the operator to gain access within the enclosure, or imply that access is required
 - (k) Equivalent Components: A "++" prefix denotes that an alternative component with the same min required approval and ratings may be used. If no approval is required, then the component must be constructed as described in the illustration referred to.
 - (l) Minimum required approval coding is:

CSA = CSA International; CSA NRTL/C or CSA C/US= CSA (Canadian and US Requirements);
UL = UL Listed/Recognized; cUL = UL (Canadian and US Requirements);
VDE; SEMKO; TUV; SEV; Demko; Nemko.
1. Enclosure: Folded metal frame construction with metal panels secured by screws and lock washers; shaped as shown, overall dim 33 cm by 56 cm by 29 cm by 3 mm thick (Encore SC), 113 cm by 56 cm by 29 cm by 3 mm thick (Encore LC).
 2. Ventilation Openings: No bare live parts involving shock or energy hazards are located directly behind or below these openings. The openings described below provide no operator access to mechanical, energy or shock hazards.
 - (a) Rear Openings: Two areas measuring 6.6 cm by 7.7 cm, provided with 3 mm by 31.5 mm vertical slot openings. No fire hazardous components are located within a 5 ° projection of these openings. Not located below fire hazardous components.

Table 1.5.1 — List of Critical Components

| Object/Part No. | Manufacturer/ Trademark | Type/Model | Technical Data | Standard | Mark(s) of Conformity ¹⁾ |
|---|--|---|---|--|--|
| Power Supply Cord Set (Canada & US) - Optional - Cord - Attachment Plug (moulded on) - Connector Body | Various | No. 18/3 AWG, SVT NEMA Type 5- 15P or 6-15P Female Type C13 | max. 4.5 m long, 250 V ac, 10 A (120 V ac or 240 V ac applications respectively) 250 V ac, 10 A. | CSA 21 UL 817 IEC/EN 60320 | CSA, UL |
| Alternative Cord Set - Optional | Equipment used outside of Canada and the US may be provided with a non-certified cord, provided the cord is acceptable to the authorities in the country of usage. Such cords have not been investigated by CSA and are not part of the Certification. | | | | |
| Appliance Inlet/EMI Filter/Power Switch combination. | Schurter | P/N 4302.0001 | Rated 250 V, 50/60 Hz, 10 A. Provided with terminals, properly wired to maintain polarity. Secured through a suitably sized opening in the rear by screws. | CSA 8 UL 1283, UL 498 IEC/EN 60320 EN 13320 | CSA UL VDE, SEMKO |
| - Grounding | One min No 18 AWG green or green/yellow insulated grounding conductor is mechanically secured and soldered to the ground terminal at one end. The other end terminates singly in a crimp type closed loop connector secured to the chassis by a min No 6 (M3.5), plated or nonferrous threaded stud, nut and lockwasher (to ensure surface coating penetration); a separate nut and lockwasher secure crimp type closed loop connectors of bonding conductors; screw engages min of twice the pitch of the screw thread. | | | | |
| Power Supply | Volgen (Sinpro Electronic) | P/N SUU120-105 | Rated input 100- 240 V, 47-63 Hz, 1.7 A; output 12 V dc, 10 A. Classification Level 3. | CSA 60950-00 UL 60950 (2000) 3 rd Ed. IEC60950 (1999) EN 60950 (2000) | cURus, TUV |
| PWB | Various | --- | V-1 minimum | UL94 | UL |
| PowerCap Module with Lithium Battery | Dallas Semiconductor | P/N DS9034PCX | Lithium battery rated 3 V dc, 130 mAh,. Non-user replaceable lithium battery. | --- | --- |

Table 1.5.1 — List of Critical Components - Continued

| Object/Part No. | Manufacturer/ Trademark | Type/Model | Technical Data | Standard | Mark(s) of Conformity ¹⁾ |
|--|----------------------------|--------------------|---|--|--|
| PTC (F3) | Raychem | P/N SMD250 | Rated 15 V dc max, 40 A max, 2.5 A hold current, 5.0 A trip current | UL 60950 3 rd Ed. | UR |
| PTC (F2) | Littelfuse | P/N 1206L050 | Rated 6 V dc max, 40 A max, 0.5 A hold current, 1.0 A trip current | CSA 60950-00 UL 60950 3 rd Ed. | CSA, UR |
| DC to AC Inverter (U1) | TDK Corporation | P/N CXA-L10L | Rated input 12 V dc; output 900 V ac open voltage, 5 mA. | --- | --- |
| LCD Display (2 provided) (SELV) | Kyocera | P/N KG057QV1CB-G00 | Rated 5 V dc, 42.8 mA, 11.7 cm by 8.8 cm x display area. | --- | --- |
| +Pushbutton Illuminated Switches | Veetronix, Inc. | 03 Switch | Rated 50 V dc, 100 mA. | --- | --- |
| ¹⁾ An asterisk indicates a mark which assures the agreed level of surveillance. | | | | | |

TEST SUMMARY

Edition: 1

Device Tested: Model Encore LC

Tests were conducted at CKC Laboratories, located at 110 North Olinda Pl., Brea, CA 92823, under the CSA witness-testing program. The detailed test results are located in the Engineering File at the CSA International Irvine Office.

| LIST OF TESTS | | |
|--|---------------|--|
| Tests Conducted (marked with a "C") | Clause | Description |
| C | 1.6.2 | Power Interface (Input) Test |
| | 1.7.13 | Marking Durability |
| | 2.1.1.5 | Energy Hazard Measurement (20 joules and 240VA) |
| C | 2.1.1.7 | Shock Hazard Measurement |
| | 2.2 | SELV (Single Fault Simulation) |
| | 2.3.1 | TNV Limit Measurements |
| | 2.3.4 | Connection of TNV Circuits to Other Circuits |
| | 2.3.5 | TNV Voltages Generated Externally |
| | 2.4 | Limited Current Circuit Measurement |
| | 2.5 | Limited Power Sources |
| C | 2.6.3.4 | Protective Earthing Resistance Measurement |
| | 2.8 | Safety Interlock System |
| | 2.9 | Insulation (Hygroscopic Material) |
| C | 2.10 | Creepage/Clearance/Distances Through Insulation |
| | 3.1.1 | Maximum Limit of Secondary Protection (Tables 2B and 2C) |
| | 3.1.4 | Conductor Insulation (Electric Strength Test) |
| | 3.1.9 | Electrical/Mechanical Connection Test |
| | 3.2.3 | Permanent Connection (Installation Test/Measurement) |
| | 3.2.6 | Power Supply Cord Strain Relief/Cord Anchorage |
| | 3.2.8 | Power Supply Cord Guard Test |
| | 3.3.8 | Field-Wiring Test |

| <u>LIST OF TESTS</u> | | |
|--|---------------|---|
| Tests Conducted (marked with a "C") | Clause | Description |
| | 4.1.1 | Physical Stability Test |
| | 4.2 | Mechanical Strength and Stress Relief |
| | 4.2.10 | Mounting Means Test (For wall or Ceiling Mounted equipment) |
| | 4.3.2 | Handle Test (For Handles Supporting >9.0kg Only) |
| | 4.3.2 | Pull Test (Handle, Knob, Grip, Lever, etc.) |
| | 4.3.6 | Direct Plug-In Moment Test |
| | 4.3.8 | Lithium / Rechargeable Battery (Reverse/Charging Current) |
| | 4.3.10 | Spillage Test (For Non-Flammable Liquid) |
| | 4.3.13 | Ionizing Radiation |
| C | 4.5.1 | Heating Test |
| | 4.5.2 | Resistance to Abnormal Heat (Ball Pressure Test) |
| | 4.6.5 | Adhesive Aging and Securement Test |
| C | 5.1 | Earth Leakage Current Measurement |
| | 5.1.8.1 | Limitation of Touch Currents to a Telecommunication Network |
| | 5.1.8.1.1 | Limitation of Touch Currents due to Ringing Signals |
| | 5.1.8.2 | Summation of Touch Currents from Telecommunication Networks |
| C | 5.2 | Electric Strength Test |
| C | 5.3 | Abnormal - Component Failure (System) |
| | *5.3 | Abnormal - Component Failure (Power Supply) |
| | 5.3.2 | Abnormal - Motor (See Annex B) |
| | *5.3.3 | Abnormal - Transformer (See Annex C) |
| | *5.3.4 | Electric Strength Test (for Deficient Operational Spacings on CB's) |
| C | 5.3.6 | Overload Test (Operator Accessible Connectors) |
| | *5.3.6 | Overload/Short Circuit Test (Power Supply Outputs) |
| | 6.1.2 | Separation of the TNV Network from Earth |
| | 6.2.2.1 | TNV Circuit (Impulse Test) |
| | 6.2.2.2 | TNV Circuit (Electric Strength) |
| | 6.3 | Telecommunication Wiring System Protection from Overheating |
| | 6.4 | Protection Against Overvoltages from Power Line Crosses (Annex NAC) |
| | 6.5 | Acoustic Pressure Tests |
| | A | Flame Tests |
| | B | Motor Tests |
| | C | Transformer Tests |

Requirements/Tests Waived:

- Not applicable

Edition: 2 (Project 1741738)

Covers the changes in Alteration item “d” and critical components PTC from F1 to F3 & XF1 to F2.

No tests were deemed necessary.

PHOTOGRAPHS



Figure 1



Figure 2



Figure 3

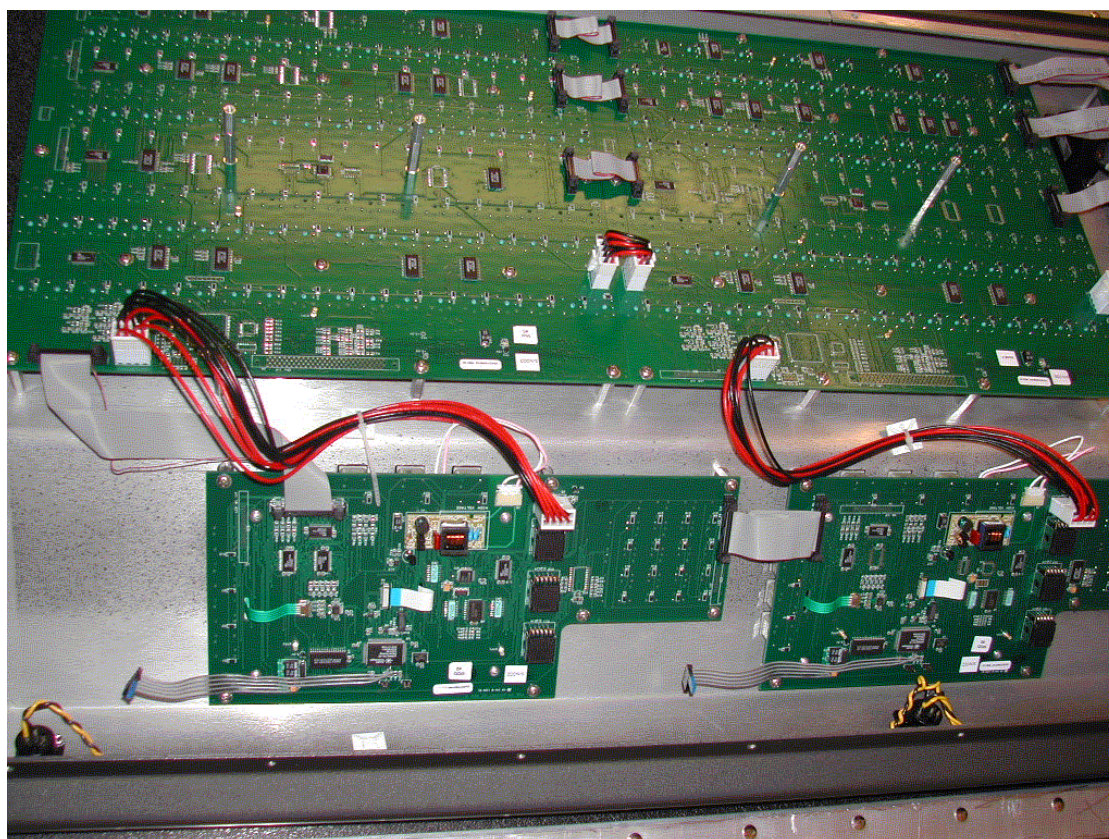


Figure 4

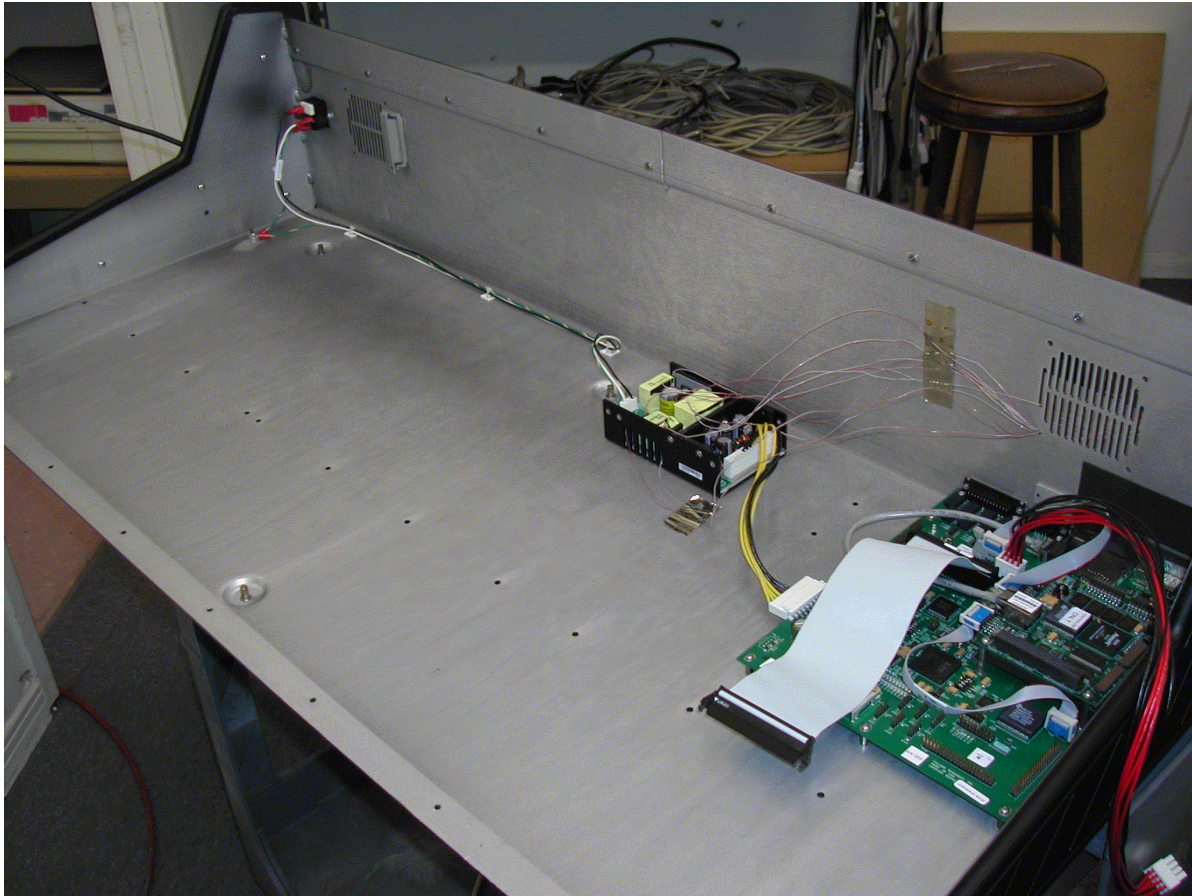


Figure 5



Figure 6

ILLUSTRATIONS

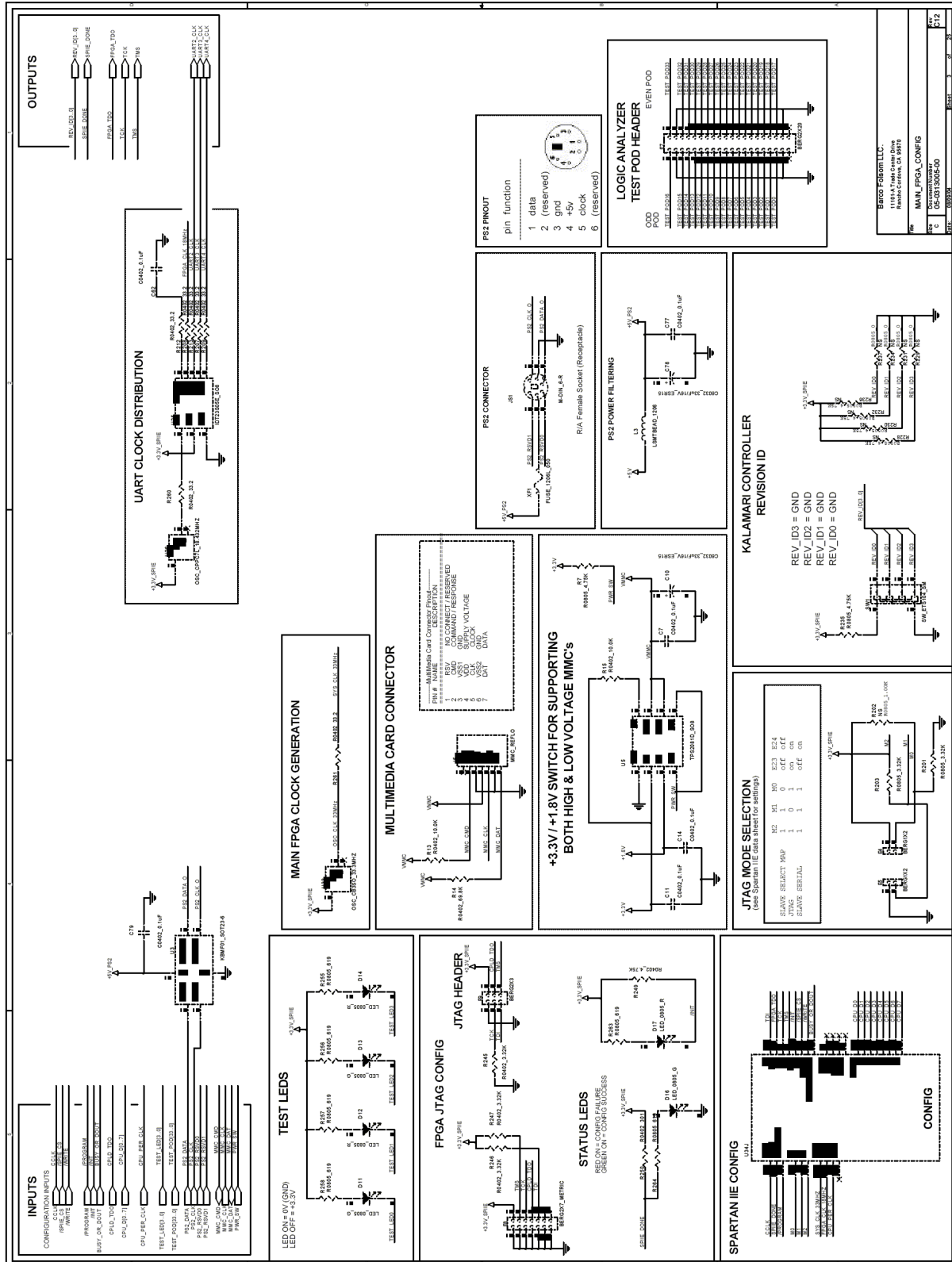
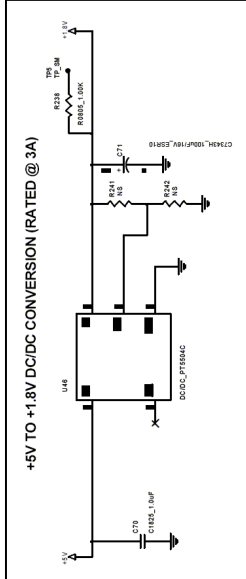
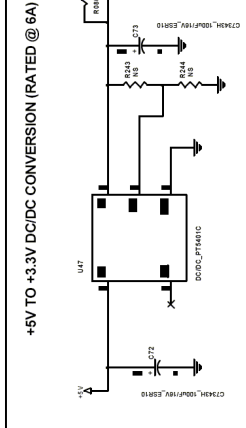
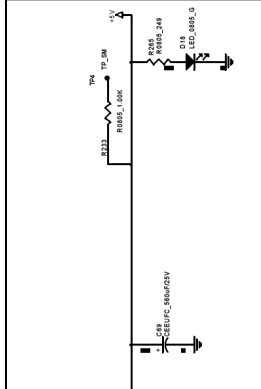
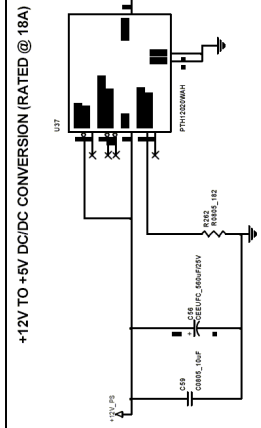
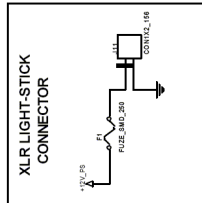
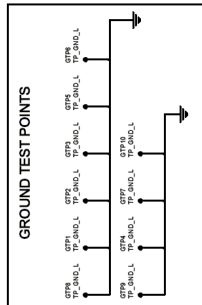
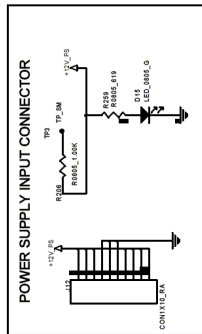


Illustration 1

POWER REGULATION & FILTERING



| | | | |
|----------------------------|------------|-----|------|
| REV | DATE | BY | CHKD |
| 1 | 05-01-2005 | WJW | WJW |
| CARRIER POWER REGULATION | | | |
| 11010A T440 Carrier Drive | | | |
| Rancho Dominguez, CA 90230 | | | |
| BISCO FIBER/LLC | | | |

Illustration 2

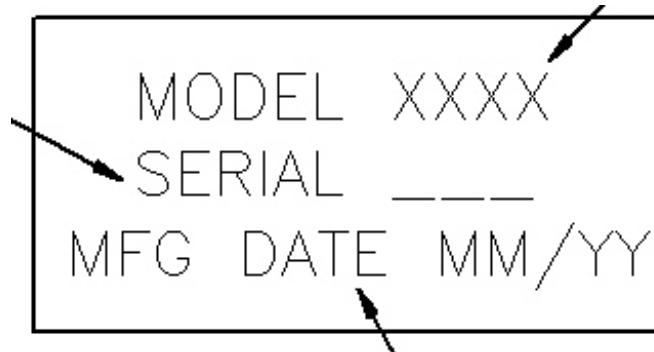
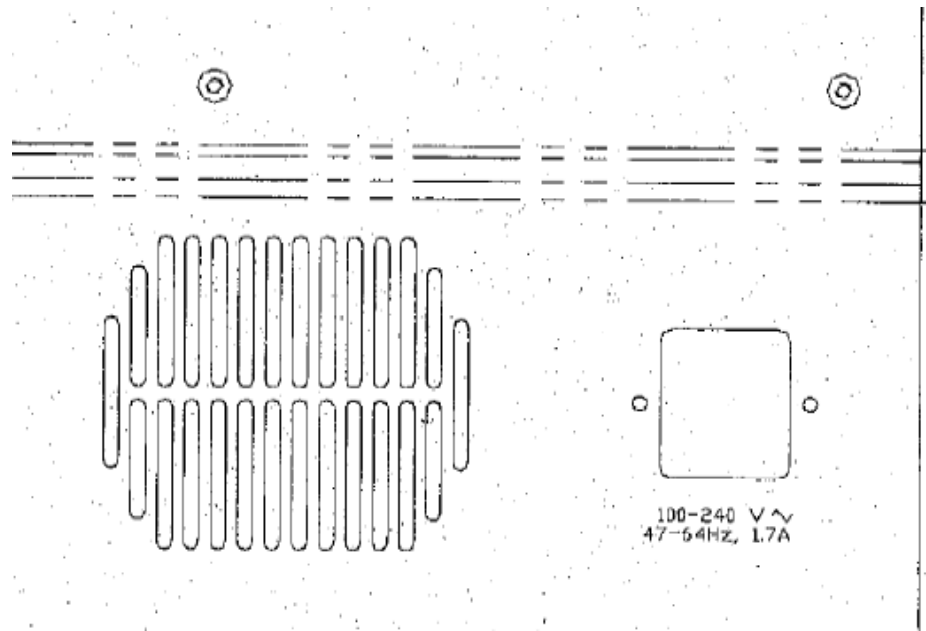


Illustration 3