g GE Energy	**Functional Testing Specification**
Parts & Repair Services ***Louisville, KY***	**LOU-GED-IS200JPDB**

Test Procedure for an IS200JPDBGx Power Distribution Board.

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1. SCOPE

1.1 This is a functional testing procedure for an IS200JPDBGx MARK VIe AC Power Distribution Board.

2. STANDARDS OF QUALITY

2.1 Refer to the current revision of the IPC-A-610 standard for workmanship standards.

3. APPLICABLE DOCUMENTS

3.1 The following document(s) shall form part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue shall apply.
3.1.1 Check board's electronic folder for more information.

4. ENGINEERING REQUIREMENTS

4.1 Equipment Cleaning
4.1.1 Equipment should be clean and free of debris prior to applying power unless performing an initial check. Refer to site specific SRA's for cleaning guidelines.
4.2 Equipment Inspection
4.2.1 Equipment should be visually inspected for any defects prior to applying power. This inspection should include the following as a minimum:
4.2.1.1 Wires - broken, cracked, or loosely connected
4.2.1.2 Terminal strips / connectors - broken or cracked
4.2.1.3 Components - visually damaged
4.2.1.4 Capacitors - bloated or leaking
4.2.1.5 Solder joints - damaged or cold
4.2.1.6 Circuit board - burned or de-laminated
4.2.1.7 Printed wire runs / Traces - burned or damaged

5. EQUIPMENT REQUIRED

5.1 The following equipment is required to perform the process requirements. Equipment may be substituted provided that all accuracy's and test ratios are equivalent or better.

Qty	Reference #	Description
1		Fluke 87 DMM (or Equivalent)
1		110 VAC Variac

6. TESTING PROCESS

6.1 Setup Procedure

6.1.1.1 Connect the connectors from the light bar to the unit under test (**UUT**) as labeled.

6.1.1.2 Connect breakout connectors P1 and P2, with attached cables, to UUT as labeled.

6.1.1.3 Connect AC input cable J1 (with E7 GND connector) to UUT as labeled. Connect other end to Variac. **DO NOT APPLY POWER AT THIS TIME**. Adjust Variac for lowest output.

6.1.1.4 Turn all switches (SW1 through SW6) off at this time.

6.2 Testing Procedure

6.2.1 Static checks for Traces between P1 and P2 (We have jumpered the Traces in series, using the Breakout Connectors, that run between connectors P1 and P2 to make testing less time consuming).

6.2.1.1 Using Fluke 87 DMM (or Equivalent), set to measure Resistance, measure from P1-9 to P2-47. Reading should be less than 10 Ohms.

6.2.1.2 Using Fluke 87 DMM (or Equivalent), set to measure Resistance, measure from P1-9 to P2-49. Reading should be less than 10 Ohms.

6.2.1.3 Using Fluke 87 DMM (or Equivalent), set to measure Resistance, measure from P1-10 to P2-48. Reading should be less than 10 Ohms.

6.2.1.4 Using Fluke 87 DMM (or Equivalent), set to measure Resistance, measure from P1-10 to P2-50. Reading should be less than 10 Ohms.

6.2.2 Functional Testing

6.2.2.1 Turn on Variac. Adjust output to 110 VAC -/+ 3 VAC. The following indicators should illuminate: **J1-AC1** and **J1-AC2** (attached to the AC input cable), **JAF1-AC1**, **JAF1-AC2**, **AC1**, and **AC2**.

6.2.2.2 Connect negative lead of Fluke 87 DMM (or Equivalent), set to measure DC voltage, to Breakout Connector P1-1. This connection will be used for the rest of testing, so leave it connected until finished testing.

6.2.2.3 Connect positive lead of Fluke 87 DMM (or Equivalent), set to measure DC voltage, to Breakout Connector P1-2. Reading should be 1.9 VDC -/+ .2 VDC.

6.2.2.4 Connect positive lead of Fluke 87 DMM (or Equivalent), set to measure DC voltage, to Breakout Connector P1-3. Reading should be 1.9 VDC -/+ .2 VDC.

6.2.2.5 Connect positive lead of Fluke 87 DMM (or Equivalent), set to measure DC voltage, to Breakout Connector P1-6. Reading should be 2.7 VDC -/+ .2 VDC.

6.2.2.6 Connect positive lead of Fluke 87 DMM (or Equivalent), set to measure DC voltage, to Breakout Connector P1-4. Reading should be 0 VDC -/+ .2 VDC.

6.2.2.7 Turn switch SW1 on. **JAC1-SW1** indicator should illuminate. The reading on the Fluke 87 DMM (or Equivalent) should go to 3 VDC -/+ .2 VDC.

6.2.2.8 Turn switch SW3 on. **JAC3-SW3** indicator should illuminate. The reading on the Fluke 87 DMM (or Equivalent) should go to 4.2 VDC -/+ .2 VDC.

6.2.2.9 Turn switch SW5 on. **JAC5-SW5** indicator should illuminate. The reading on the Fluke 87 DMM (or Equivalent) should go to 4.6 VDC -/+ .2 VDC.

6.2.2.10 Turn off switches SW1, SW3, and SW5. **JAC1-SW1**, **JAC3-SW3**, and **JAC5-SW5** indicators should turn off. The reading on the Fluke 87 DMM (or Equivalent) should go to 0 VDC -/+ .2 VDC.

6.2.2.11 Connect positive lead of Fluke 87 DMM (or Equivalent), set to measure DC voltage, to Breakout Connector P1-5. Reading should be 0 VDC -/+ .2 VDC.

6.2.2.12 Turn switch SW2 on. **JAC2-SW2** indicator should illuminate. The reading on the Fluke 87 DMM (or Equivalent) should go to 3 VDC -/+ .2 VDC.

6.2.2.13 Turn switch SW4 on. **JAC4-SW4** indicator should illuminate. The reading on the Fluke 87 DMM (or Equivalent) should go to 4.2 VDC -/+ .2 VDC.

6.2.2.14 Turn switch SW6 on. **JAC6-SW6** indicator should illuminate. The reading on the Fluke 87 DMM (or Equivalent) should go to 4.6 VDC -/+ .2 VDC.

6.2.2.15 Turn off switches SW2, SW4, and SW6. **JAC2-SW2**, **JAC4-SW4**, and **JAC6-SW6** indicators should turn off. The reading on the Fluke 87 DMM (or Equivalent) should go to 0 VDC -/+ .2 VDC.

6.2.3 CHIP ID: The ID chip needs to be read to confirm that it has been programmed properly. The instances or blank or miss-programmed ID chips leaving the factory and seeing service out in the field is higher than you might think. This can cause some problems with equipment, maybe even hard failures, even when nothing else is wrong with the card depending on how the customer's software is set up. Simply take the card over to the CHIP ID pc located in the MARK VI area of the shop and select the correct revision of IS200JPDB from the menu and follow the instructions given to you by the pc. When selecting which IS200JPDB to use, you may see a 5G or 7G next to the number. This refers to the serial number and whether it has 5 or 7 digits in it. Select the proper one, as you will be expected to type this number into the system at a given point. When entering this data, be sure to use all CAPITAL LETTERS as lower case might cause it

not to agree with what's programmed in the chip. If the particular revision you need to select doesn't have a 5G or 7G next to it, get it added before proceeding.

6.2.3.1 A trick to remember about chip ID serial numbers: If for some reason your serial number is a 6 digit one, like the R###### numbers given out to units that arrive in our Receiving Dept. without serial number labels, you'll only need to type in some sort of gibberish to get the system to spit out an error when it compares it to what's in the chip, at which point it will tell you what serial number it found, then it'll ask you if you want to change it to the one you typed in. Your answer will be NO, to let it fail the test and quit programming. Be sure to jot down what the number was that it found in the chip and print off this number in a barcode label to place on the card instead of the in-house serial number that receiving stuck on it. Then go back and re-try the test with the correct serial number. This trick works for boards with un-readable or marred up serial number labels, too.

6.3 ***TEST COMPLETE ***

7. NOTES

7.1 None at this time.

8. ATTACHMENTS

8.1 None at this time.