| g GE Energy | **Functional Testing Specification** |
|---|---|
| ***Parts & Repair Services***<br>***Louisville, KY*** | **LOU-GED-531X189LTBA** |

**Test Procedure for a 531X189LTBAJG1 a LAN option board.**

**DOCUMENT REVISION STATUS: Determined by the last entry in the "REV" and "DATE" column**

| REV. | DESCRIPTION | SIGNATURE | REV. DATE |
|---|---|---|---|
| A | Initial release | Steve Pharris | 9/19/2011 |
| B | | | |
| C | | | |



| PREPARED BY | REVIEWED BY | REVIEWED BY | QUALITY APPROVAL |
|---|---|---|---|
| Steve Pharris | Cristyn Edlin | | Charlie Wade |
| **DATE** | **DATE** | **DATE** | **DATE** |
| 9/19/2011 | 9/20/11 | | 9/20/2011 |

## 1. SCOPE

**1.1** This is a functional testing procedure for a 531X189LTBAJG1.

## 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 | | Tenma Power Supply |
| 1 | H188703 | Sencore LC103 |

## 6. Testing Process

### 6.1 Continuity Test

**6.1.1** Verify less than 2 ohms between the following points.

| | | | | | |
|---|---|---|---|---|---|
| LTB1 | RPL1 | LTB25 | 6PL5 | LTB49 | 10PL7 |
| LTB2 | RPL3 | LTB26 | 6PL6 | LTB50 | 10PL8 |
| LTB3 | RPL5 | LTB27 | 6PL7 | LTB51 | 10PL11 |
| LTB4 | RPL7 | LTB28 | 6PL9 | LTB52 | 10PL16 |
| LTB5 | RPL9 | LTB29 | 6PL10 | LTB56 | 10PL13 |
| LTB6 | RPL11 | LTB30 | 6PL11 | LTB57 | 10PL14 |
| LTB7 | RPL13 | LTB31 | 6PL12 | LTB58 | 10PL15 |
| LTB8 | RPL15 | LTB32 | 6PL13 | LTB59 | PSPL |
| LTB9 | 29PL1 | LTB33 | 6PL14 | LTB60 | 30PL20 |
| LTB10 | 29PL2 | LTB34 | 6PL15 | LTB61 | LTB66 |
| LTB11 | 29PL3 | LTB35 | 6PL16 | LTB62 | 4PL1 |
| LTB12 | 29PL4 | LTB36 | 6PL18 | LTB63 | 4PL2 |
| LTB13 | 29PL5 | LTB37 | 6PL19 | LTB64 | 4PL3 |
| LTB14 | 29PL6 | LTB38 | 6PL20 | LTB65 | 6PL8 |
| LTB15 | 29PL7 | LTB39 | 6PL22 | LTB66 | 30PL20 |
| LTB16 | 29PL8 | LTB40 | 6PL23 | 30PL24 | MUP4(tp) |
| LTB17 | 29PL9 | LTB41 | 6PL24 | 6PL4 | 30PL15 |
| LTB18 | 29PL10 | LTB42 | 10PL1 | 6PL6 | 30PL16 |
| LTB19 | 29PL11 | LTB43 | 10PL2 | 6PL9 | 30PL17 |
| LTB20 | 29PL12 | LTB44 | 10PL12 | 6PL10 | 30PL18 |
| LTB21 | 29PL13 | LTB45 | 10PL10 | 6PL11 | 30PL19 |
| LTB22 | 29PL14 | LTB46 | 10PL4 | 30PL1 | 29PL1 |
| LTB23 | 6PL1 | LTB47 | 10PL5 | 30PL2 | 29PL2 |
| LTB24 | 6PL4 | LTB48 | 10PL6 | 30PL3 | 29PL3 |

| | |
|---|---|
| 30PL4 | 29PL4 |
| 30PL5 | 29PL5 |
| 30PL6 | 29PL6 |
| 30PL7 | 29PL7 |
| 30PL8 | 29PL8 |
| 30PL9 | 29PL9 |
| 30PL10 | 29PL10 |
| 30PL11 | 29PL11 |
| 30PL12 | 29PL12 |
| 30PL13 | 29PL13 |
| 30PL14 | 29PL14 |

**6.1.3 Capacitor Test**

**6.1.4** Connect Sencore LC103 to LTB61 (negative lead) and Ground eyelet (positive lead) and set for .047uF.

**6.1.5** Verify C1 by pressing the “Capacitor Good/Bad” button.

**6.1.6** Remove Sencore

**6.1.7 Relay Test**

**6.1.8** Verify LTB53 - LTB54 = <2 Ohms

**6.1.9** Verify LTB53 - LTB55 = Open

**6.1.10** Apply 30VDC to 6PL22 with respect to 6PL17

**6.1.11** Verify LTB53 - LTB54 = Open

**6.1.12** Verify LTB53 - LTB55 = <2 Ohms

**6.1.13** Remove 30VDC

**6.1.14** Connect + from power supply to 29PL26 (this connection can remain for the rest of the test).

**6.1.15** Connect – from power supply to 29PL19 (this connection will move as you fire each relay).

**6.1.16** Verify 30PL21 – 30PL22 = Open

**6.1.17** Apply power

**6.1.18** Verify 30PL21 – 30PL22 = <2 Ohms

**6.1.19** Verify 30PL22 – 30PL23 = Open

**6.1.20** Remove power

**6.1.21** Move – lead from power supply to 29PL20

**6.1.22** Apply power

**6.1.23** Verify 30PL22 – 30PL23 = <2 Ohms

**6.1.24** Remove power

**6.1.25** Move – lead from power supply to 29PL19

**6.1.26** Set JP1 to pos. 2-3 and remove all other jumpers

**6.1.27** Verify RPL1 – RPL3 = <2 Ohms

**6.1.28** Apply Power

**6.1.29** Verify RPL1 – RPL3 = Open

**6.1.30** Set JP1 to pos.1-2

**6.1.31** Verify RPL1 – RPL3 = <2 Ohms

**6.1.32** Remove power

**6.1.33** Verify RPL1 – RPL3 = Open

**6.1.34** Move – lead from power supply to 29PL20

**6.1.35** Remove JP1

**6.1.36** Install JP2 and set to pos. 2-3

**6.1.37** Verify RPL1 – RPL5 = <2 Ohms

**6.1.38** Apply power

**6.1.39** Verify RPL1 – RPL5 = Open

**6.1.40** Set JP2 to pos. 1-2

**6.1.41** Verify RPL1 – RPL5 = <2 Ohms

**6.1.42** Remove power

**6.1.43** Verify RPL1 – RPL5 = Open

**6.1.44** Move – lead from power supply to 29PL21

**6.1.45** Remove JP2

**6.1.46** Install JP3 and set to pos. 2-3

**6.1.47** Verify RPL1 – RPL7 = <2 Ohms

**6.1.48** Apply power

**6.1.49** Verify RPL1 – RPL7 = Open

**6.1.50** Set JP3 to pos. 1-2

**6.1.51** Verify RPL1 – RPL7 = <2 Ohms

**6.1.52** Remove power

**6.1.53** Verify RPL1 – RPL7 = Open

**6.1.54** Move – lead from power supply to 29PL22

**6.1.55** Remove JP3

**6.1.56** Install JP4 and set to pos. 2-3

**6.1.57** Verify RPL1 – RPL9 = <2 Ohms

**6.1.58** Apply power

**6.1.59** Verify RPL1 – RPL9 = Open

**6.1.60** Set JP4 to pos. 1-2

**6.1.61** Verify RPL1 – RPL9 = <2 Ohms

**6.1.62** Remove power

**6.1.63** Verify RPL1 – RPL9 = Open

**6.1.64** Move – lead from power supply to 29PL23

**6.1.65** Remove JP4

**6.1.66** Install JP5 and set to pos. 2-3

**6.1.67** Verify RPL1 – RPL11 = <2 Ohms

**6.1.68** Apply power

**6.1.69** Verify RPL1 – RPL11 = Open

**6.1.70** Set JP5 to pos. 1-2

**6.1.71** Verify RPL1 – RPL11 = <2 Ohms

**6.1.72** Remove power

**6.1.73** Verify RPL1 – RPL11 = Open

**6.1.74** Move – lead from power supply to 29PL24

**6.1.75** Remove JP5

**6.1.76** Install JP6 and set to pos. 2-3

**6.1.77** Verify RPL1 – RPL13 = <2 Ohms

**6.1.78** Apply power

**6.1.79** Verify RPL1 – RPL13 = Open

**6.1.80** Set JP6 to pos. 1-2

**6.1.81** Verify RPL1 – RPL13 = <2 Ohms

**6.1.82** Remove power

**6.1.83** Verify RPL1 – RPL13 = Open

**6.1.84** Move – lead from power supply to 29PL25

**6.1.85** Remove JP6

**6.1.86** Install JP7 and set to pos. 2-3

**6.1.87** Verify RPL1 – RPL15 = <2 Ohms

**6.1.88** Apply power

**6.1.89** Verify RPL1 – RPL15 = Open

**6.1.90** Set JP7 to pos. 1-2

**6.1.91** Verify RPL1 – RPL15 = <2 Ohms

**6.1.92** Remove power

**6.1.93** Verify RPL1 – RPL15 = Open

**6.1.94** Reinstall All Jumpers

***6.2 ***TEST COMPLETE ******

## 7. Notes

**7.1** None at this time.

## 8. Attachments

**8.1** None at this time.