g GE Energy	**Functional Testing Specification**
Parts & Repair Services ***Louisville, KY***	**LOU-GED-DS3800DGRB**

Test Procedure for a DS3800DGRB

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

REV.	DESCRIPTION	SIGNATURE	REV. DATE
A	Initial release	Steve Pharris	12/27/2011
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C			

PREPARED BY	REVIEWED BY	REVIEWED BY	QUALITY APPROVAL
Steve Pharris			Charlie Wade
DATE	**DATE**	**DATE**	**DATE**
12/27/2011			12/30/2011

1. SCOPE

1.1 This is a functional testing procedure for a DS3800DGRB.

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

6. Testing Process

6.1 Setup

6.1.1 Remove any components from saddle clamps

6.1.2 Set all Pots Fully CW

6.1.3 Install the following berg jumpers.

J1R J18R

J4R J3R

J38R J24R

J8R J40R

J11R J34R

J46R J25R

J9R J26R

J43R J28R

J36R J47R

6.1.4 Install jumper wires across the following Saddle Clamp components

C5

C40

C42

R69

R70

R157

R158

Note: This test depends highly on the correct jumper configuration, incoming voltage, and saddle clamp components.

6.2 Testing Procedure

6.2.1 DB27 - TP22 = <1 Ohm.

6.2.2 Install J46R

6.2.3 DB39 – DB20 = <1 Ohm

6.2.4 Move J46R to J45R

6.2.5 DB20 – DB17 = < 1 Ohm

6.2.6 Install J10R

6.2.7 DB20 – DA34 = < 1 Ohm

6.2.8 Move J10R to J9R

6.2.9 DA34 – DA31 = < 1 Ohm

6.2.10 Install J42R

6.2.11 DB17 – DA33 = < 1 Ohm

6.2.12 Move J42R to J47R

6.2.13 DA33 – DA31 = < 1 Ohm

6.2.14 Install J44R

6.2.15 DB17 – DB29 = < 1 Ohm

6.2.16 Move J44R to J43R

6.2.17 DB29 – DA31 = < 1 Ohm

6.2.18 DA19 – TP2 = < 1 Ohm

6.2.19 DB19 – DA6 = 22.1K Ohm

6.2.20 DA6 – DA5 = 22.1K Ohm

6.2.21 Install J38R

6.2.22 DA2 – TP3 = < 1 Ohm

6.2.23 TP3 – DA21 = < 1 Ohm

6.2.24 TP5 – DA10 = < 1 Ohm

6.2.25 DA9 – DA2 = 18.2K Ohm

6.2.26 Install J6R

6.2.27 Remove J4R/J5R

6.2.28 DA9 – DA11 = 82.5K Ohm

6.2.29 Install J5R

6.2.30 DA9 – DA11 = 20.5K Ohm

6.2.31 Move J5R to J4R

6.2.32 DA9 – TP1 = 22.9K Ohm

6.2.33 Remove J4R

6.2.34 Install J1R

6.2.35 DA7 – DA11 = 100K Ohm

6.2.36 Move J1R to J2R

6.2.37 DA7 – DB23 = 221K Ohm

6.2.38 Install J41R

6.2.39 Remove J34R

6.2.40 DA7 – DB11 = 542K Ohm

6.2.41 Install J34R

6.2.42 TP1 – DB11 = 110K Ohm

6.2.43 Move J41R to J40R

6.2.44 TP1 – DA5 = 157.5K Ohm

6.2.45 TP1 – DA11 = 57.5K Ohm

6.2.46 Install J39R

6.2.47 DA29 – DA21 = < 1 Ohm

6.2.48 DA21 – TP6 = < 1 Ohm

6.2.49 TP6 – DA13 = < 1 Ohm

6.2.50 Remove J24R

6.2.51 DA13 – DB23 = 221K Ohm

6.2.52 Move J6R to J3R

6.2.53 DA9 – DB23 = 204K Ohm

6.2.54 Install J18R

6.2.55 DB26 – TP1 = < 1 Ohm

6.2.56 DB9 – DA31 = Open

6.2.57 DB9 – DA31 = < 1 Ohm while SW2 is Closed

6.2.58 DB32 – DA14 = 82.5K Ohm

6.2.59 DA14 – DB6 = 109.9K Ohm

6.2.60 DB13 – TP14 = < 1 Ohm

6.2.61 DB13 – DB32 = 27.4K Ohm

6.2.62 TP14 – DA15 = 100K Ohm

6.2.63 DA23 – DB5 = 10K Ohm

6.2.64 Remove any component across R74

6.2.65 TP1 – R74 (side closest to corner of card) Varies from 47.5K – 52.5K Ohm as R21 is adjusted

6.2.66 TP1 – DB13 = 52.5K Ohm

6.2.67 DA28 – TP1 = 50K Ohm

6.2.68 DA28 – DA29 = 100K – 150K Ohm as R11 is adjusted

6.2.69 TP1 – DB37 = 3.3K Ohm

6.2.70 DB37 – DB10 = 0 – 3.3K Ohm as R7 is adjusted

6.2.71 DB37 – DB22 = 0 – 3.3K Ohm as R17 is adjusted

6.2.72 DB37 – DB28 = 0 – 3.3K Ohm as R9 is adjusted

6.2.73 Remove any components across R112 and C28A

6.2.74 Install J24R

6.2.75 DB15 – DB23 = 150K Ohm

6.2.76 Remove J24R

6.2.77 DB36 – DB38 = 100K Ohm

6.2.78 Install J24R

6.2.79 Remove J33R

6.2.80 DB38 – DB23 = 2.21M – 2.31M Ohm as R8 is adjusted

6.2.81 Remove J24R

6.2.82 Install J33R

6.2.83 DB38 – TP24 = < 1 Ohm

6.2.84 Install J16R

6.2.85 DA25 – TP24 = < 1 Ohm

6.2.86 Install J31R

6.2.87 DB31 – TP24 = < 1 Ohm

6.2.88 DB35 – TP24 = 8.25K Ohm

6.2.89 Install J23R

6.2.90 DA30 – TP9 = < 1 Ohm

6.2.91 TP9 – DA24 = < 1 Ohm

6.2.92 DA30 – DA22 = < 1 Ohm – 10K Ohm as R23 is adjusted

6.2.93 DA22 – DA26 = 10K Ohm

6.2.94 DA26 – TP1 = < 1 Ohm – 10K Ohm as R13 is adjusted

6.2.95 Remove J23R

6.2.96 DA30 – DB12 = 1M Ohm

6.2.97 DB12 – TP19 = 1M Ohm

6.2.98 DB24 – TP16 = < 1 Ohm

6.2.99 DB1 – TP16 = 1K – 11K Ohm as R27 is adjusted

6.2.100 TP1 – TP16 = 5.3K – 15.3K Ohm as R7 is adjusted

6.2.101 Install J25R

6.2.102 DB4 – DA12 = < 1 Ohm

6.2.103 Remove J25R

6.2.104 Install J27R

6.2.105 TP12 – TP13 = < 1 Ohm

6.2.106 Install J26R

6.2.107 DA18 – TP13 = < 1 Ohm

6.2.108 DB14 – TP21 = 100K Ohm

6.2.109 Install J36R

6.2.110 TP12 – TP21 = 200K Ohm

6.2.111 Install J37R

6.2.112 TP21 – TP20 = 200K Ohm

6.2.113 Install J11R

6.2.114 DB16 – TP13 = < 1 Ohm

6.2.115 DA27 – TP7 = < 1 Ohm

6.2.116 TP11 – DA32 = < 1 Ohm

6.2.117 TP17 – DB30 = < 1 Ohm

6.2.118 Set Power Supply for +15VDC Connect (-) to TP1 and (+) to DB1

6.2.119 Connect Com from DMM to TP1

6.2.120 DB5 = 13.5V – 3.5V as R10 is adjusted

6.2.121 DB35 = 2.7V – 2.6V as R28 is adjusted

6.2.122 CR1 Cathode = 15V – 9V as R12 is adjusted

6.2.123 TP5 = 9V

6.2.124 CR24 Cathode = 15V – 2.7V as R19 is adjusted

6.2.125 TP20 = 2.8V

6.2.126 CR6 Cathode = 15V to 9V as R26 is adjusted

6.2.127 TP12 = 9.1V

6.2.128 TP18 = 15V – 3.5V as R6 is adjusted

6.2.129 Set R6 Fully CW

6.2.130 Set R15 Fully CW

6.2.131 TP18 = 14.8V

6.2.132 Press SW1 and verify Voltage at TP18 increases by .1V

6.2.133 While holding SW1 Rotate R15 Fully CCW and Verify TP18 = 14.7V then release SW1

6.2.134 TP10 = 14.1V – 4.3V as R4 is adjusted

6.2.135 CR19 Cathode = 15V – 9V as R5 is adjusted

6.2.136 TP11 = 9V

6.2.137 CR26 Cathode = 15V – 9V as R24 is adjusted

6.2.138 TP17 = 9V

6.2.139 Remove +15VDC from DB1

6.2.140 Apply -15VDC to DB2

6.2.141 CR2 Anode = -15V – -8.5V as R3 is adjusted

6.2.142 TP5 = -8.5V

6.2.143 Install J7R

6.2.144 DB21 = -15V – 0V as R22 is adjusted

6.2.145 Install J8R

6.2.146 DB7 – DB21 = < 1 Ohm – 10K Ohm as R22 is adjusted

6.2.147 DB5 = -13.5V – -3.5V as R10 is adjusted

6.2.148 DB35 = -2.76V – -2.77V as R28 is adjusted

6.2.149 CR7 Anode = -15V – -9.5V as R16 is adjusted

6.2.150 TP18 = -14.7V – -3.8V as R6 is adjusted

6.2.151 TP10 = -14.1V – -4.6V as R4 is adjusted

6.2.152 CR27 Anode = -15V – -9.5V as R25 is adjusted

6.2.153 CR18 Anode = -15V – -9.5V as R14 is adjusted

6.2.154 TP11 = -9.5V

6.2.155 CR25 Anode = -15V – -3V as R18 is adjusted

6.2.156 DB40 = -3V

6.2.157 Remove Power

6.2.158 TP15 – TP13 = 200K Ohm

6.2.159 Set R1 and R2 Fully CW

6.2.160 DA4 – DA1 = 13.1K – 21.2K Ohm as R1 is adjusted to Fully CCW

6.2.161 DA4 – DA1 = 21.2K – 22.1K Ohm as R2 is adjusted to Fully CCW

6.2.162 TP1 – DA8 = 13.5K Ohm

6.3 ***TEST COMPLETE ***

7. Notes

7.1 All tolerances on resistance measurements are +/-5%.

7.2 All voltage measurements depend on actual power supply output. When this test was written the 15V line was set to 15.06V.

8. Attachments

8.1 None at this time.