g GE Energy	**Functional Testing Specification**
Parts & Repair Services ***Louisville, KY***	**LOU-GED-DS3800DGRA**

Test Procedure for a DS3800DGRA

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

REV.	DESCRIPTION	SIGNATURE	REV. DATE
A	Initial release	Steve Pharris	1/22/2010
B	Corrected Typographic Errors	Steve Pharris	12/11/2012
C			

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DATE	**DATE**	**DATE**	**DATE**
1/22/10			1/22/2010

1. SCOPE

1.1 This is a functional testing procedure for a DS3800DGRA.

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 Dual Power Supply

6. TESTING PROCESS

6.1 Setup

6.1.1 See Notes

6.2 Testing Procedure

6.2.1 Install Jumper J4R

6.2.2 Verify DA9-TP1 = 27.4K ohms

6.2.3 Verify DA11-DA9 = 82.5K ohms

6.2.4 Verify DA2-DA9 = 18.2K ohms

6.2.5 Verify DA9-TP3 = 18.2K ohms

6.2.6 Install Jumper J38R

6.2.7 Verify DA2-DA21 = Short

6.2.8 Verify DA28-DA29 = 100K-150K ohms as R11 is adjusted

6.2.9 Verify DA28-TP1 = 50K ohms

6.2.10 Verify DB19-DA6 = 22.1K ohms

6.2.11 Verify DA6-DA5 = 22.1K ohms

6.2.12 Verify DA5-DA11 = 100K ohms

6.2.13 Install Jumper J1R

6.2.14 Verify DA7-DA11 = 100K ohms

6.2.15 Install Jumper J2R

6.2.16 Verify DA7-DB23 = 221K ohms

6.2.17 Install Jumper J41R

6.2.18 Verify DA3-DB11 = 297.5K ohms

6.2.19 Verify DB27-TP22 = Short

6.2.20 Install jumper in saddle clamps C5 and C5A

6.2.21 Verify DA13-TP6 = Short

6.2.22 Verify DA13-DA29 = Short

6.2.23 Install Jumper J39R

6.2.24 Verify DA21-DB37 = 2.41M ohms

6.2.25 Verify DA10-TP5 = Short

6.2.26 Verify DA19-TP2 = Short

6.2.27 Install Jumper J43R

6.2.28 Verify DB29-DA31 = Short

6.2.29 Install Jumper J46R

6.2.30 Verify DB39-DB20 = Short

6.2.31 Install Jumper J45R

6.2.32 Verify DB20-DB17 = Short

6.2.33 Install Jumper J9R

6.2.34 Verify DA34-DA31 = Short

6.2.35 Install Jumper J47R

6.2.36 Verify DA33-DA31 = Short

6.2.37 Install Jumper J42R

6.2.38 Verify DA33-DB17 = Short

6.2.39 Install Jumper J44R

6.2.40 Verify DB29-DB17 = Short

6.2.41 Install Jumper J8R

6.2.42 Verify DB7-DB21 = 0-10K ohms as R22 is adjusted

6.2.43 Install Jumper J7R

6.2.44 Verify DB2-TP1 = 3.27K ohms (must remove J14/J15)

6.2.45 Verify DB6-DA14 = 109.7K ohms

6.2.46 Verify DB32-DA14 = 82.5K ohms

6.2.47 Verify DB32-TP1 = 79.9K ohms

6.2.48 Install Jumper in R74 (Saddle Clamp)

6.2.49 Verify DB5-DB13 = 0-5K ohms as R21 is adjusted

6.2.50 Verify DA15-TP14 = 100K ohms

6.2.51 Install Jumper in C18 (Saddle Clamp)

6.2.52 Verify DA23-DB13 = 10K ohms

6.2.53 Install Jumper in R70 (Saddle Clamp)

6.2.54 Install Jumper in R73 (Saddle Clamp)

6.2.55 Install Jumper J11R

6.2.56 Verify DB18-R71 (Saddle Clamp) = Short

6.2.57 Verify DB18-R72 (Saddle Clamp) = Short.

6.2.58 Verify DB18-R68 (Saddle Clamp) = Short

6.2.59 Verify DB18-R69 (Saddle Clamp) = Short

6.2.60 Verify DB18-TP1 = Short

6.2.61 Install Jumper J12R

6.2.62 Verify DB13-R73 (Saddle Clamp) = Short

6.2.63 Install Jumper J13R

6.2.64 Verify DB16-DB13 = Short

6.2.65 Install Jumper J24R

6.2.66 Verify DB37-DB38 = 0-100K ohms as R8 is adjusted

6.2.67 Verify DB38-DB36 = 100K ohms

6.2.68 Install Jumper J6R

6.2.69 Verify DA17-DA25 = Short

6.2.70 Verify DA17-TP8 = Short

6.2.71 Install Jumper J3R

6.2.72 Verify TP6-DA25 = 1.221M ohms

6.2.73 Remove anything installed at R112 and C28A

6.2.74 Verify DB15-DA25 = 1.15M ohms

6.2.75 Install Jumper in R112 (Saddle Clamp)

6.2.76 Install Jumper in C28A (Saddle Clamp)

6.2.77 Verify DB15-DA25 = 1M ohms

6.2.78 Install Jumper J18R

6.2.79 Verify DB26-TP1 = Short

6.2.80 Install Jumper J40R

6.2.81 Verify DB23-DB11 = 321K ohms

6.2.82 Install Jumper J34R

6.2.83 Verify DB11-TP1 = 110K ohms

6.2.84 Verify DB9-DA31 = Open

6.2.85 Verify DB9-DA31 = Short when SW2 is toggled in either direction

6.2.86 Install Jumper J25R

6.2.87 Verify DA12-DB4 = Short

6.2.88 Install Jumper J27R

6.2.89 Verify TP12-TP13 = Short

6.2.90 Install Jumper J23R

6.2.91 Verify DA30-TP9 = Short

6.2.92 Remove Jumper J23R

6.2.93 Verify DA30-DB12 = 1M ohms

6.2.94 Verify DA30-TP19 = 2M ohms

6.2.95 Install Jumper in R111 (Saddle Clamp)

6.2.96 Install Jumper in C29 (Saddle Clamp)

6.2.97 Verify DB12-TP12 = Short

6.2.98 Move Jumper at C29 to C29A (Saddle Clamp)

6.2.99 Verify DB12-TP12 = Short

6.2.100 Verify DA22-DA24 = 0-10K ohms as R23 is adjusted

6.2.101 Verify DA26-DA24 = 0-10K ohms as R23 is adjusted

6.2.102 Verify DA26-TP1 = 0-10K ohms as R13 is adjusted

6.2.103 Verify DB24-TP16 = Short

6.2.104 Install Jumper J33R

6.2.105 Verify DB38-TP24 = Short

6.2.106 Verify TP24-DB35 = 8.25K ohms

6.2.107 Install Jumper J31R

6.2.108 Verify DB31-DB35 = 8.25K ohms

6.2.109 Install Jumper in R157 (Saddle Clamp)

6.2.110 Install Jumper in C42 (Saddle Clamp)

6.2.111 Install Jumper in C40 (Saddle Clamp)

6.2.112 Install Jumper in R158 (Saddle Clamp)

6.2.113 Verify TP1-TP24 = 0-1K ohms as R29 is adjusted

6.2.114 Verify Right side of C41-TP24 = 0-1K ohms as R29 is adjusted

6.2.115 Install Jumper J35R

6.2.116 Verify DB40-TP1 = 835 ohms

6.2.117 Verify DB40-TP20 = Short

6.2.118 Install Jumper in C40A (Saddle Clamp)

6.2.119 Remove Jumper in C40 (Saddle Clamp)

6.2.120 Remove Jumper J35R

6.2.121 Verify TP24-DB40 = 8K-9K ohms as R29 is adjusted

6.2.122 Verify TP24-DB8 = Short

6.2.123 Install Jumper J37R

6.2.124 Verify TP20-TP21 = 200K ohms

6.2.125 Verify TP21-DB14 = 100K ohms

6.2.126 Verify TP17-DB30 = Short

6.2.127 Verify TP11-DA32 = Short

6.2.128 Install Jumper J36R

6.2.129 Verify TP12-TP21 = 200K ohms

6.2.130 Install Jumper J26R

6.2.131 Verify DA18-TP13 = Short

6.2.132 Verify DA4-TP4 = Short

6.2.133 Verify DA27-TP7 = Short

6.2.134 Install Jumper J5R

6.2.135 Verify DA9-DA11 = 20K ohms

6.2.136 Set power supplies for +15VDC and –15VDC

6.2.137 Connect +15VDC to DB1

6.2.138 Connect –15VDC to DB2

6.2.139 Connect Com to DB3

6.2.140 Apply Power

6.2.141 Verify DA16 = 0-15VDC as R20 is adjusted

6.2.142 Verify DA23 = -14-14VDC as R10is adjusted

6.2.143 Verify DB24 = **.**6-15VDC as R27 is adjusted

6.2.144 Verify DB22 = 0-15VDC as R17 is adjusted

6.2.145 Install Jumper J14R

6.2.146 Verify DB28 = 0- (-)15VDC as R9 is adjusted

6.2.147 Install Jumper J15R

6.2.148 Verify DB28 = 0-15VDC as R9 is adjusted

6.2.149 Install Jumper J16R

6.2.150 Verify DB10 = 0-15VDC as R7 is adjusted

6.2.151 Install Jumper J17R

6.2.152 Verify DB10 = 0- (-)15VDC as R7 is adjusted

6.2.153 Verify TP9-DA24 = Short

6.2.154 Verify TP4 = -10VDC

6.2.155 Set R15 to 0

6.2.156 Verify TP18 = -15-15VDC as R6 is adjusted

6.2.157 Push SW1 and verify no change at TP18

6.2.158 Set R15 to 100

6.2.159 Verify TP18 = -15-15VDC as R6 is adjusted

6.2.160 Push SW1 and verify **.**1VDC change at TP18

6.2.161 Verify DA4 = -10.75VDC

6.2.162 Verify DA1 = 0- (-)10.75VDC as R1 is adjusted

6.2.163 Verify DA8 = 0- (-)12VDC as R2 is adjusted

6.2.164 Apply 5VDC to DA11

6.2.165 Verify DA10 = 0-4VDC as R12 is adjusted

6.2.166 Apply -5VDC to DA11

6.2.167 Verify DA10 = 0- (-)4VDC as R3 is adjusted

6.2.168 Remove Jumper R158

6.2.169 Apply 5VDC to DB8

6.2.170 Verify TP20 = 0-4VDC as R19 is adjusted

6.2.171 Apply -5VDC to DB8

6.2.172 Verify TP20 = 0- (-)4VDC as R18 is adjusted

6.2.173 Apply 5VDC to DB12

6.2.174 Verify DB4 = 0-4VDC as R26 is adjusted

6.2.175 Apply -5VDC to DB12

6.2.176 Verify DB4 = 0- (-)4VDC as R16 is adjusted

6.2.177 Install Jumper J28R

6.2.178 Remove Jumper J27R

6.2.179 Remove Jumper J26R

6.2.180 Disconnect + and -15VDC from DB1 and DB2

6.2.181 Apply 5VDC to DB4

6.2.182 Verify DA32 = .4 - .55VDC as R5 is adjusted

6.2.183 Install Jumper J29R

6.2.184 Apply -5VDC to DB4

6.2.185 Verify DA32 = -.4- (-).55VDC as R14 is adjusted

6.2.186 Reconnect +15VDC to DB1 and -15VDC to DB2

6.2.187 Apply 5VDC to DB14

6.2.188 Verify DB30 = 0-4VDC as R24 is adjusted

6.2.189 Apply -5VDC to DB14

6.2.190 Verify DB30 = 0- (-)4VDC as R25 is adjusted

6.2.191 Remove Jumper J31R

6.2.192 Remove Jumper J33R

6.2.193 Remove Jumper R157

6.2.194 Apply 5VDC to DB35

6.2.195 Verify TP24 = 5VDC

6.2.196 Apply -5VDC to DB35

6.2.197 Verify TP24 = -5VDC

6.3 ***TEST COMPLETE ***

7. NOTES

7.1 When adjusting pots, verify a smooth linear movement**.**

8. ATTACHMENTS

8.1 None at this time.