g GE Energy	**Functional Testing Specification**
Parts & Repair Services ***Louisville, KY***	**LOU-GED-DS3800NGPA**

Test Procedure for a DS3800NGPA

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

REV.	DESCRIPTION	SIGNATURE	REV. DATE
A	Initial release	Steve Pharris	8/12/2010
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C			

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DATE	**DATE**	**DATE**	**DATE**
8/12/2010	4/9/2014		8/12/2010

1. SCOPE

1.1 This is a functional testing procedure for a DS3800NGPA.

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		DS3800DGPA Daughter Card
2		47.5K Ohm Resistors
1		Tenma Dual Power Supply
1		Rainbow Box
1		DS3800 Power Supply
1		DS3800 Connector Box

6. TESTING PROCESS

6.1 Setup

6.1.1 Connect rainbow box to DS3800 power supply and DS3800 connector box.

6.1.2 Connect PA1-PA9

6.2 Testing Procedure

6.2.1 Apply Power

6.2.2 Verify IMOK LED = on

6.2.3 Verify PA55 = L

6.2.4 Connect SW81-PA60-H

6.2.5 Connect SW82-PA61-H

6.2.6 Connect SW83-PA62-H

6.2.7 Verify PA55 = H if any SW=L

6.2.8 Remove connections at SW81-83

6.2.9 Connect SW81-PA31-H

6.2.10 Connect SW82-PA32-H

6.2.11 Verify 30 Ohms between PA63 and PA64

6.2.12 Verify 1ASA LED = on

6.2.13 Set SW81-L

6.2.14 Verify open between PA63 and PA64

6.2.15 Verify 1ASA LED = off

6.2.16 Verify 30 Ohms between PA65 and PA66

6.2.17 Verify 1ASB LED = on

6.2.18 Set SW82-L

6.2.19 Verify open between PA65 and PA66

6.2.20 Verify 1ASB LED = off

6.2.21 Remove connections at SW81-82

6.2.22 Connect SW81-PA57-H

6.2.23 Connect SW82-PA58-H

6.2.24 Connect SW83-PA59-H

6.2.25 Verify PA56 = L

6.2.26 Verify PA56 = H if any SW=L

6.2.27 Remove connections at SW81-83

6.2.28 Connect PA71, PA74, and PA78 to PA1

6.2.29 Connect PA76-PA80

6.2.30 Using Tenma PS apply 4VDC-PA72

6.2.31 Using Tenma PS apply -2VDC-PA10

6.2.32 Verify PA80 = -.8VDC

6.2.33 Increase voltage at PA72 to 5VDC

6.2.34 Set voltage at PA10 to 10VDC

6.2.35 Verify PA80 = 5VDC

6.2.36 Reverse polarity of PA10

6.2.37 Verify PA80 = -5VDC

6.2.38 Increase voltage at PA72 to 10VDC

6.2.39 Set voltage at PA10 to 5VDC

6.2.40 Verify PA80 = 5VDC

6.2.41 Reverse polarity of PA72

6.2.42 Verify PA80 = -5VDC

6.2.43 Connect PA72-PA9

6.2.44 Connect PA10-PA9

6.2.45 Using Tenma PS apply 4VDC-PA71

6.2.46 Using Tenma PS apply -2VDC-PA74

6.2.47 Verify PA80 = -.8VDC

6.2.48 Increase voltage at PA71 to 5VDC

6.2.49 Set voltage at PA74 to 10VDC

6.2.50 Verify PA80 = 5VDC

6.2.51 Reverse polarity of PA74

6.2.52 Verify PA80 = -5VDC

6.2.53 Set voltage at PA74 to 5VDC

6.2.54 Increase voltage at PA71 to 10VDC

6.2.55 Verify PA80 = 5VDC

6.2.56 Reverse polarity of PA71

6.2.57 Verify PA80 = -5VDC

6.2.58 Remove connections at PA72 and PA10

6.2.59 Connect PA72 and PA10 to 5VDC

6.2.60 Connect PA74 and PA71-PA9

6.2.61 Verify PA80 = 2.5VDC

6.2.62 Connect PA78 to 5VDC

6.2.63 Verify PA80 = 7.5VDC

6.2.64 Remove all connections except PA1-PA9

6.2.65 Set Tenma PS to 0VDC

6.2.66 Connect Tenma PS to PA12

6.2.67 Verify PA18 = H

6.2.68 Verify PA15 = L

6.2.69 Verify 1CPC LED = off

6.2.70 Increase V at PA12 to 3VDC

6.2.71 Verify PA18 = L

6.2.72 Verify PA15 = H

6.2.73 Verify 1CPC LED = on

6.2.74 Remove connection at PA12

6.2.75 Connect PA14-SW81-L

6.2.76 Connect PA11-SW82-H

6.2.77 Verify 1TDA LED = on

6.2.78 Verify PA17 = L

6.2.79 Verify PA20 = H

6.2.80 Set SW81-H

6.2.81 Set SW82-L

6.2.82 Verify 1TDA LED = off

6.2.83 Verify PA17 = H

6.2.84 Verify PA20 = L

6.2.85 Remove connection at PA11

6.2.86 Connect SW82-PA4

6.2.87 Verify 1TDA LED = on

6.2.88 Set SW82-H

6.2.89 Verify 1TDA LED = off

6.2.90 Set SW81-L

6.2.91 Verify 1TDA LED = on

6.2.92 Verify 1TDA LED remains on regardless of SW82

6.2.93 Remove connection at PA4

6.2.94 Connect PA6-SW82-L

6.2.95 Connect PA8-SW83-L

6.2.96 Set SW81-H

6.2.97 Verify 1TDA LED = off

6.2.98 Verify 1TDA LED = on if SW82 **AND** SW83 =H

6.2.99 Set SW81-H

6.2.100 Verify 1TDA LED = off

6.2.101 Verify 1TDA LED = on if SW82 **AND** SW83 =H

6.2.102 Verify 1TDA LED = off with any other combination of states of SW82 and SW83

6.2.103 Remove connections from all switches

6.2.104 Connect SW81-PA2-H

6.2.105 Connect PA41-PA9

6.2.106 Verify PA75 = 24VDC

6.2.107 Verify PA70 = 0VDC

6.2.108 Set SW81-L

6.2.109 Verify PA70 =24VDC

6.2.110 Verify 1RDA LED = on

6.2.111 Set SW81-H

6.2.112 Verify 1RDA LED = off

6.2.113 Remove all connections except PA1-PA9

6.2.114 Adjust R3 (Daughter Card) for –6VDC at PA68

6.2.115 Verify 6VDC at PA16

6.2.116 Set Tenma PS for +5VDC and –5VDC

6.2.117 Connect –5VDC to PA69

6.2.118 Connect 5VDC to PA13

6.2.119 Verify 1CPA LED = off

6.2.120 Verify PA33=H

6.2.121 Verify PA34=L

6.2.122 Increase –5VDC past –6VDC

6.2.123 Verify 1CPA LED = on

6.2.124 Verify PA33=L

6.2.125 Verify PA34=H

6.2.126 Decrease back to –5VDC

6.2.127 Verify 1CPA LED = off

6.2.128 Increase 5VDC past 6VDC

6.2.129 Verify 1CPA LED = on

6.2.130 Decrease back to 5VDC

6.2.131 Verify 1CPA LED = off

6.2.132 Remove all connections except PA1-PA9

6.2.133 Install 47.5K ohm resistors across Daughter Board connections DB6 and DB7

6.2.134 Connect PA67-PA9

6.2.135 Connect PA49-TP14

6.2.136 Connect Tenma PS to PA52 thru a 47.5K ohm resistor

6.2.137 Verify PA49 = negative of the applied voltage

6.2.138 Remove connection at TP14 and reconnect PA49-PA53

6.2.139 Verify PA49 = negative of the applied voltage

6.2.140 Remove connection at PA53 and reconnect PA49-PA25

6.2.141 Verify PA49 = negative of the applied voltage

6.2.142 Remove connection at PA49

6.2.143 Verify PA49 = -11.5VDC

6.2.144 Remove all connections except PA1-PA9

6.2.145 Connect PA48-TP11

6.2.146 Connect PA54-PA9

6.2.147 Connect Tenma PS to PA51 thru a 47.5K ohm resistor

6.2.148 Verify PA48 = negative of the applied voltage

6.2.149 Remove connection at TP11 and reconnect PA48-PA50

6.2.150 Verify PA48 = negative of the applied voltage

6.2.151 Remove connection at PA50 and reconnect PA48-PA26

6.2.152 Verify PA48 = negative of the applied voltage

6.2.153 Remove all connections except PA1-PA9

6.2.154 Connect PA12, PA13, PA52, and PA69 to PA9

6.2.155 Set Tenma PS to 0VDC

6.2.156 Connect PA67 to Tenma PS

6.2.157 Verify IMOK LED = on

6.2.158 Slowly increase voltage on PS to 5VDC

6.2.159 Verify IMOK LED = off

6.2.160 Set Tenma PS to 0VDC

6.2.161 Verify IMOK LED = on

6.3 ***TEST COMPLETE ***

7. **Notes & Attachments**

7.1 None at this time.