g GE Energy	**Functional Testing Specification**
Parts & Repair Services ***Louisville, KY***	**LOU–GED-DS3800NAIF**

Test Procedure for a DS3800NAIF

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

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A	Initial release	Steve Pharris	11/23/09
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PREPARED BY	REVIEWED BY	REVIEWED BY	QUALITY APPROVAL
Steve Pharris			Robert Duvall
DATE	**DATE**	**DATE**	**DATE**
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1. SCOPE

1.1 This is a functional testing procedure for a DS3800NAIF.

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 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 the local documented procedures 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		O-Scope
1		Fluke 715 Voltage Calibrator
1		Rainbow Box
1		DS3800 Power Supply
1		DS3800 Connector Box

6. TESTING PROCESS

6.1 Setup

6.1.1 Make the following connections

PA1-PA9

PA4-PA1

SW81-PA53-H

SW82-PA59-H

SW83-PA58-H

SW84-PA68-L

SW85-PA66-L

SW86-PA11-H

SW87-PA72-L

SW88-PA14-H

6.2 Testing Procedure

6.2.1 **Before testing replace the three 8254's**

6.2.2 Verify IMOK is illuminated

6.2.3 Verify 10.24VDC at pin1 of U42, pin17 of U19, and pin4 of U18

6.2.4 Using Fluke apply 5VDC to PA6 (continue using fluke at the following points at the specified voltage)

6.2.5 Verify 330Khz signal at pins 9 and 15 of U15

6.2.6 Apply 6VDC to PA32

6.2.7 Verify 400Khz signal at pins 9 and 15 of U15

6.2.8 Apply 8VDC to PA8

6.2.9 Verify 260Khz signal at pins 9 and 15 of U15

6.2.10 Verify 440Khz signal at pin 9 of U16, and pin 18 of U15

6.2.11 Apply 9VDC to PA37

6.2.12 Verify 295Khz signal at pins 9 and 15 of U15

6.2.13 Verify 496Khz signal at pin 9 of U16, and pin 18 of U15

6.2.14 Apply 10VDC to PA10

6.2.15 Verify 330Khz signal at pins 9 and 15 of U15

6.2.16 Verify 553Khz signal at pin 9 of U16 and pin 18 of U15

6.2.17 Apply 11VDC to PA44

6.2.18 Verify 365Khz signal at pins 9 and 15 of U15

6.2.19 Verify 610Khz signal at pin 9 of U16 and pin 18 of U15

6.2.20 Remove VDC from PA44

6.2.21 Set SW87-H

6.2.22 Toggle SW86-L-H

6.2.23 Set SW84 and SW85-H

6.2.24 Toggle SW86

6.2.25 Verify 581Khz signal at pins 9 and 15 of U15

6.2.26 Verify 550Khz signal at pin 9 of U16, and pin18 of U15

6.2.27 Set SW85-L

6.2.28 Toggle SW86

6.2.29 Verify <10hz signal at pins 9 and 15 of U15

6.2.30 Verify <10hz signal at pin 9 of U16, and pin 18 of U15

6.2.31 Set SW84-L

6.2.32 Set SW85-H

6.2.33 Toggle SW86

6.2.34 Verify 583Khz signal at pins 9 and 15 of U15

6.2.35 Verify 550Khz signal at pin 9 of U16 and pin 18 of U15

6.2.36 Set SW85-L

6.2.37 Set SW87-L

6.2.38 Toggle SW86

6.2.39 Apply 7VDC to PA12

6.2.40 Verify 486Khz signal at pins 15 and 18 of U16

6.2.41 Apply 8VDC to PA13

6.2.42 Verify 203Khz signal at pins 15 and 18 of U16

6.2.43 Apply 9VDC to PA15

6.2.44 Verify 166Khz signal at pins 15 and 18 of U16

6.2.45 Verify 292Khz signal at pins 15 and 18 of U17

6.2.46 Connect PA2-SW89

6.2.47 Verify pin 9 of U17 follows SW89

6.2.48 Remove connection at PA2

6.2.49 Set SW87-H

6.2.50 Set SW84-H

6.2.51 Set SW85-H

6.2.52 Toggle SW86

6.2.53 Verify 532Khz signal at pins 15 and 18 of U16

6.2.54 Verify 532Khz signal at pins 15 and 18 of U17

6.2.55 Set SW84-L

6.2.56 Toggle SW86

6.2.57 Verify 532Khz signal at pins 15 and 18 of U16

6.2.58 Verify 532Khz signal at pins 15 and 18 of U17

6.2.59 Set SW84-H

6.2.60 Set SW85-L

6.2.61 Toggle SW86

6.2.62 Verify <10hz signal at pins 15 and 18 of U16

6.2.63 Verify <10hz signal at pins 15 and 18 of U17

6.2.64 Remove all connections from SW85-SW96

6.2.65 Connect PA11-SW84-L

6.2.66 Make the following connections

SW85-PA68-H

SW86-PA66-H

SW87-PA74-H

SW88-PA64-H

SW89-PA76-H

SW90-PA61-H

SW91-PA72-H

SW92-PA70-H

SW93-PA41-H

SW94-PA48-H

SW95-PA47-H

SW96-PA50-H

6.2.67 Set SW81-H

6.2.68 Set SW82-H

6.2.69 Set SW83-L

6.2.70 Set SW84-L

6.2.71 Connect DMM to TP16

6.2.72 Verify table below

Output	SW85	SW86	SW87	SW88	SW89	SW90	SW91	SW92	SW93	SW94	SW95	SW96
-10VDC	H	H	H	H	H	H	H	H	H	H	H	H
-0.031	H	H	H	H	H	H	H	H	H	H	H	L
-0.026	L	H	H	H	H	H	H	H	H	H	H	L
-0.016	L	L	H	H	H	H	H	H	H	H	H	L
0.003	L	L	L	H	H	H	H	H	H	H	H	L
0.043	L	L	L	L	H	H	H	H	H	H	H	L
0.121	L	L	L	L	L	H	H	H	H	H	H	L
0.277	L	L	L	L	L	L	H	H	H	H	H	L
0.589	L	L	L	L	L	L	L	H	H	H	H	L
1.21	L	L	L	L	L	L	L	L	H	H	H	L
2.46	L	L	L	L	L	L	L	L	L	H	H	L
4.95	L	L	L	L	L	L	L	L	L	L	H	L
9.95	L	L	L	L	L	L	L	L	L	L	L	L
-.035	L	L	L	L	L	L	L	L	L	L	L	H
-.040	H	L	L	L	L	L	L	L	L	L	L	H
-.050	H	H	L	L	L	L	L	L	L	L	L	H
-.069	H	H	H	L	L	L	L	L	L	L	L	H
-.109	H	H	H	H	L	L	L	L	L	L	L	H
-.187	H	H	H	H	H	L	L	L	L	L	L	H
-.342	H	H	H	H	H	H	L	L	L	L	L	H
-.654	H	H	H	H	H	H	H	L	L	L	L	H
-1.278	H	H	H	H	H	H	H	H	L	L	L	H
-2.52	H	H	H	H	H	H	H	H	H	L	L	H
-5.02	H	H	H	H	H	H	H	H	H	H	L	H
-10.00	H	H	H	H	H	H	H	H	H	H	H	H

6.2.73 Move DMM to TP15

6.2.74 Connect PA56 to PA9

6.2.75 Repeat above table

6.2.76 Move DMM to TP14

6.2.77 Move PA56-PA60

6.2.78 Repeat above table

6.2.79 Move DMM to TP13

6.2.80 Connect PA56-PA9

6.2.81 Repeat above table

6.2.82 Move DMM to TP12

6.2.83 Set SW82-L

6.2.84 Set SW83-H

6.2.85 Remove connections at PA56 and PA60

6.2.86 Repeat above table

6.2.87 Move DMM to TP11

6.2.88 Connect PA56 to PA9

6.2.89 Repeat above table

6.2.90 Move DMM to TP8

6.2.91 Move PA56-PA60

6.2.92 Repeat above table

6.2.93 Move DMM to TP9

6.2.94 Connect PA56-PA9

6.2.95 Repeat above table

6.2.96 Verify –15VDC at PA18 and PA22

6.2.97 Remove all connections from SW85-SW96

6.2.98 Apply 7VDC to PA17 and PA21

6.2.99 Verify TP6 and TP7 = -4.3VDC

6.2.100 Set SW81-H

6.2.101 Set SW82-H

6.2.102 Set SW83-H

6.2.103 Connect SW85-PA14-H

6.2.104 Set SW84-H

6.2.105 Make the following connections

SW86-PA72-L

SW87-PA61-H

SW89-PA74-H

SW90-PA64-H

SW91-PA76-H

6.2.106 Using Fluke Voltage Calibrator set pin 13 of U25 for -5VDC

6.2.107 Set SW87-L

6.2.108 Toggle SW84

6.2.109 Set SW87-H

6.2.110 Toggle SW84

6.2.111 Set SW85-L

6.2.112 Remove PA72

6.2.113 Verify the following

PA39-H

PA41-H

PA46-H

PA47-H

PA48-H

PA49-H

PA50-H

PA51-H

PA70-H

PA72-H

6.2.114 Reconnect PA72

6.2.115 Set SW85-H

6.2.116 Toggle SW84

6.2.117 Using Fluke Voltage Calibrator set for 0VDC at pin 13 of U25

6.2.118 Set SW87-L

6.2.119 Toggle SW84

6.2.120 Set SW87-H

6.2.121 Toggle SW84

6.2.122 Set SW85-L

6.2.123 Remove PA72

6.2.124 Verify the following

PA39-L

PA46-H

PA49-H

PA51-H

PA50-H

PA47-H

PA48-H

PA41-H

PA70-H

PA72-L

6.2.125 Reconnect PA72

6.2.126 Set SW85-H

6.2.127 Toggle SW84

6.2.128 Apply 10.52VDC to PA17 and PA21

6.2.129 Verify 4.99VDC at pin 13 of U25

6.2.130 Set SW87-L

6.2.131 Toggle SW84

6.2.132 Set SW87-H

6.2.133 Toggle SW84

6.2.134 Set SW85-L

6.2.135 Remove PA72

6.2.136 Verify the following

PA39-L

PA46-L

PA49-L

PA51-L

PA50-L

PA47-L

PA48-L

PA41-L

PA70-L

PA72-L

6.2.137 Reconnect PA72

6.2.138 Set SW89-L

6.2.139 Set SW85-H

6.2.140 Repeat steps 6.2.106-6.2.137

6.2.141 Move PA17 and PA21 to PA54 and PA57

6.2.142 Set SW89-H

6.2.143 Set SW90-L

6.2.144 Connect PA64 and PA66 to PA1

6.2.145 Set SW85-H

6.2.146 Toggle SW84

6.2.147 Repeat steps 6.2.106-6.2.137

6.2.148 Set SW91-H

6.2.149 Set SW89-L

6.2.150 Toggle SW84

6.2.151 Repeat steps 6.2.106-6.2.137

6.2.152 Move PA54-PA32

6.2.153 Remove PA57

6.2.154 Set SW89-H

6.2.155 Set SW90-H

6.2.156 Set SW91-L

6.2.157 Set SW85-H

6.2.158 Toggle SW84

6.2.159 Repeat steps 6.2.106-6.2.137

6.2.160 Move PA32-PA37

6.2.161 Set SW89-L

6.2.162 Set SW90-H

6.2.163 Set SW91-L

6.2.164 Set SW85-H

6.2.165 Toggle SW84

6.2.166 Repeat steps 6.2.106-6.2.137

6.2.167 Move PA37-PA12

6.2.168 Set SW89-H

6.2.169 Set SW90-L

6.2.170 Set SW91-L

6.2.171 Set SW85-H

6.2.172 Toggle SW84

6.2.173 Repeat steps 6.2.106-6.2.124

6.2.174 Move PA12-PA15

6.2.175 Set SW89-L

6.2.176 Set SW90-L

6.2.177 Set SW91-L

6.2.178 Repeat steps 6.2.126-6.2.137

6.2.179 Connect PA70-SW93-L

6.2.180 Set SW85-H

6.2.181 Toggle SW84

6.2.182 Verify IMOK LED turns off

6.2.183 Set SW93-H

6.2.184 Toggle SW84

6.2.185 Verify IMOK LED turns on

6.2.186 Set SW84L

6.2.187 Using DMM monitor PA20

6.2.188 Verify PA20-H when any of the following points are grounded

PA23

PA24

PA25

PA26

PA27

PA28

PA29

PA30

PA31

PA33

PA34

PA35

PA36

PA38

PA40

PA42

6.3 ***TEST COMPLETE ***

7. NOTES

7.1

8. ATTACHMENTS

8.1