g GE Energy	**Functional Testing Specification**
Parts & Repair Services ***Louisville, KY***	**LOU-GED-DS3800HSAC**

Test Procedure for a DS3800HSAC

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

REV.	DESCRIPTION	SIGNATURE	REV. DATE
A	Initial release	Steve Pharris	2/7/2011
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PREPARED BY	REVIEWED BY	REVIEWED BY	QUALITY APPROVAL
Steve Pharris			Charlie Wade
DATE	**DATE**	**DATE**	**DATE**
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1. SCOPE

1.1 This is a functional testing procedure for a DS3800HSAC.

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		O-Scope
1		DS3800 Power Supply
1		DS3800 Connector Box
1		Rainbow Box
1		Fluke Voltage Source
1		Auxiliary Input Box

6. Modifications/Upgrades

6.1 None at this time.

7. Testing Process

7.1 Setup

7.1.1 Make the following connections and set switches as follows.

PA1-PA9

PA68-SW81-L

PA66-SW82-L

PA74-SW83-L

PA64-SW84-L

PA76-SW85-L

PA61-SW86-L

PA72-SW87-L

PA70-SW88-L

PA41-SW89-L

PA48-SW90-L

PA47-SW91-L

PA50-SW92-L

PA51-SW93-L

PA49-SW94-L

PA46-SW95-L

PA39-SW96-H

(From auxiliary box)

PA36-1-L

PA40-2-L

PA31-3-L

PA35-4-L

PA42-5-L

PA33-6-L

PA34-7-H

PA38-8-L

(Other connections)

PA37-COM

PA44-COM

PA63-COM

PA11-COM

7.1.2 Set jumpers J1-J6 to “T”

7.2 Testing Procedure

7.2.1 Apply Power.

7.2.2 Adjust R138 for 10V at U2P6

7.2.3 Verify PA78 = 9.9V

7.2.4 Set SW96-L

7.2.5 Verify PA78 = 0V

7.2.6 Set SW95-H

7.2.7 Verify PA78 = -5V

7.2.8 Set SW94-H

7.2.9 Verify PA78 = -7.5V

7.2.10 Verify PA23 = -7.5V

7.2.11 Set SW93-H

7.2.12 Verify PA78 = -8.7V

7.2.13 Set SW92-H

7.2.14 Verify PA78 = -9.3V

7.2.15 Set SW91-H

7.2.16 Verify PA78 = -9.6V

7.2.17 Set SW90-H

7.2.18 Verify PA78 = -9.8V

7.2.19 Set SW95-L

7.2.20 Verify PA78 = -4.8V

7.2.21 Set SW89-H

7.2.22 Verify PA78 = -4.9V

7.2.23 Set SW94-L

7.2.24 Verify PA78 = -2.41V

7.2.25 Set SW88-H

7.2.26 Verify PA78 = -2.45V

7.2.27 Verify PA23 = -2.45V

7.2.28 Set SW87-H

7.2.29 Verify PA78 = -2.47V

7.2.30 Set SW86-H

7.2.31 Verify PA78 = -2.48V

7.2.32 Set SW84-H and SW85-H

7.2.33 Verify PA78 = -2.49V

7.2.34 Set SW83, SW82, and SW81-H

7.2.35 Verify PA78 = -2.5V

7.2.36 Set SW81-SW96-H

7.2.37 Verify PA78 = 0V

7.2.38 Set SW83, SW82, and SW81-L

7.2.39 Verify PA78 = 0V

7.2.40 Set SW84-L

7.2.41 Verify PA78 = .001V

7.2.42 Set SW85-L

7.2.43 Verify PA78 = .007V

7.2.44 Set SW86-L

7.2.45 Verify PA78 = .016V

7.2.46 Set SW87-L

7.2.47 Verify PA78 = .036V

7.2.48 Set SW88-L

7.2.49 Verify PA78 = .075V

7.2.50 Set SW89-L

7.2.51 Verify PA78 = .153V

7.2.52 Set SW90-L

7.2.53 Verify PA78 = .3V

7.2.54 Set SW91-L

7.2.55 Verify PA78 = .62V

7.2.56 Set SW92-L

7.2.57 Verify PA78 = 1.24V

7.2.58 Set SW93-L

7.2.59 Verify PA78 = 2.48V

7.2.60 Set SW94-L

7.2.61 Verify PA78 = 4.98V

7.2.62 Set SW95-L

7.2.63 Verify PA78 = 9.96V

7.2.64 Remove PA11

7.2.65 Verify PA78 does NOT change while toggling any switches 81-96

7.2.66 Reconnect PA11

7.2.67 Set 7-L (on aux box)

7.2.68 Verify PA78 does NOT change while toggling any switches 81-96

7.2.69 Set J1-J6=F

7.2.70 Set SW1-7-H (on aux box)

7.2.71 Set SW8-L (on aux box)

7.2.72 Verify PA78 DOES change while toggling any switches 81-96

7.2.73 Make the following connections

PA63-L

PA37-H

PA44-H

PA56-L

7.2.74 Verify PA78 = 10V

7.2.75 Set SW96-L

7.2.76 Verify PA78 = 0V

7.2.77 Set SW95-H

7.2.78 Verify PA78 = -5V

7.2.79 Verify PA24 = -5V

7.2.80 Set SW94-H

7.2.81 Verify PA78 = -7.5V

7.2.82 Set SW93-H

7.2.83 Verify PA78 = -8.7V

7.2.84 Set SW92-H

7.2.85 Verify PA78 = -9.3V

7.2.86 Set SW91-H

7.2.87 Verify PA78 = -9.6V

7.2.88 Set SW90-H

7.2.89 Verify PA78 = -9.8V

7.2.90 Set SW95-L

7.2.91 Verify PA78 = -4.8V

7.2.92 Set SW89-H

7.2.93 Verify PA78 = -4.9V

7.2.94 Set SW94-L

7.2.95 Verify PA78 = -2.4V

7.2.96 Set SW88-H

7.2.97 Verify PA78 = -2.44V

7.2.98 Set SW87-H

7.2.99 Verify PA78 = -2.46V

7.2.100 Set SW86-H

7.2.101 Verify PA78 = -2.47V

7.2.102 Set SW84 and SW85-H

7.2.103 Verify PA78 = -2.48V

7.2.104 Set SW83, SW82, and SW81-H

7.2.105 Verify PA78 = -2.49V

7.2.106 Set SW94, SW95, and SW96-H (switches 81-96 should be H)

7.2.107 Verify PA78 = 0V

7.2.108 Set SW83, SW82, and SW81-L

7.2.109 Verify PA78 = 0V

7.2.110 Set SW84-L

7.2.111 Verify PA78 = .017V

7.2.112 Set SW85-L

7.2.113 Verify PA78 = .022V

7.2.114 Set SW86-L

7.2.115 Verify PA78 = .032V

7.2.116 Set SW87-L

7.2.117 Verify PA78 = .05V

7.2.118 Set SW88-L

7.2.119 Verify PA78 = .09V

7.2.120 Set SW89-L

7.2.121 Verify PA78 = .168V

7.2.122 Set SW90-L

7.2.123 Verify PA78 = .325V

7.2.124 Set SW91-L

7.2.125 Verify PA78 = .63V

7.2.126 Set SW92-L

7.2.127 Verify PA78 = 1.26V

7.2.128 Set SW93-L

7.2.129 Verify PA78 = 2.5V

7.2.130 Set SW94-L

7.2.131 Verify PA78 = 5V

7.2.132 Verify PA24 = 5V

7.2.133 Set SW95-L

7.2.134 Verify PA78 = 10V

7.2.135 Verify PA20 = L

7.2.136 Remove PA11

7.2.137 Verify PA20 = H

7.2.138 Set jumpers as follows

J24-L

J18-L

J20-L

J7-CHAR

7.2.139 Connect JA7-COM

7.2.140 Apply 3VDC-JA5

7.2.141 Verify PA44 = L

7.2.142 Verify PA78 = -6.3V

7.2.143 Set J24-H

7.2.144 Verify PA78 = -2.2V

7.2.145 Set J18-H

7.2.146 Verify PA78 = -1.7V

7.2.147 Set J20-H

7.2.148 Verify PA78 = -2.5V

7.2.149 Set J7-NOR

7.2.150 Verify PA78 = -8.5V

7.2.151 Reverse polarity at JA5

7.2.152 Verify PA78 = -8.5V

7.2.153 Connect JA5-COM

7.2.154 Apply 3VDC-JA7

7.2.155 Verify PA78 = -8.5V

7.2.156 Reverse polarity at JA7

7.2.157 Verify PA78 = -8.5V

7.2.158 Verify PA21 = -8.5V

7.2.159 Set jumper “PFB1”-IN

7.2.160 Set jumper J30-A

7.2.161 Verify U12P7 = 8.8V

7.2.162 Set jumper “PFB1”-OUT

7.2.163 Verify U12P7 = 0V

7.2.164 Set jumpers as follows

J25-L

J21-L

J23-L

J8-CHAR

7.2.165 Connect PA63-H

7.2.166 Connect PA37-L

7.2.167 Connect PA44-L

7.2.168 Remove connections at JA5 and JA7

7.2.169 Apply 3VDC-JA11

7.2.170 Connect JA9-COM

7.2.171 Verify PA78 = -6.3V

7.2.172 Set J25-H

7.2.173 Verify PA78 = -2.2V

7.2.174 Set J21-H

7.2.175 Verify PA78 = -1.7V

7.2.176 Set J23-H

7.2.177 Verify PA78 = -2.5V

7.2.178 Set J8-NOR

7.2.179 Verify PA78 = -8.5V

7.2.180 Connect JA11-COM

7.2.181 Apply 3VDC-JA9

7.2.182 Verify PA78 = -8.5V

7.2.183 Verify PA30 = -8.5V

7.2.184 Set jumper “PFB2”-IN

7.2.185 Set jumper J33-A

7.2.186 Verify U12P1 = 0V

7.2.187 Connect PA44-H

7.2.188 Verify PA78 = 5V

7.2.189 Connect PA37-H

7.2.190 Rotate R144 fully CCW

7.2.191 Rotate R139 fully CCW

7.2.192 Set J12-3.3

7.2.193 Verify JA20 = 26Vpk-pk @ 2.6Khz sine wave

7.2.194 Rotate R144 fully CW

7.2.195 Verify JA20 frequency increases to 3.9Khz

7.2.196 Set R144 for 3.3Khz @ JA20

7.2.197 Set J12-3.0

7.2.198 Verify JA20 = 26Vpk-pk @ 3.0Khz sine wave

7.2.199 Set J12-2.7

7.2.200 Verify JA20 = 26Vpk-pk @ 2.7Khz sine wave

7.2.201 Rotate R139 fully CW

7.2.202 Verify JA20 amplitude decrease to 17Vpk-pk

7.2.203 Verify PA78 varies between -3.4V to -2.7V as R144 is adjusted

7.2.204 Set R144 for 2.7Khz @ JA20

7.2.205 Verify PA78 = -2.9V

7.2.206 Set jumper J14-A

7.2.207 Set jumper J13-A

7.2.208 Connect PA63-L

7.2.209 Connect PA37-L

7.2.210 Remove connections at JA9 and JA11

7.2.211 Apply -1V-JA18

7.2.212 Verify PA78 = -1V

7.2.213 Verify JA12 = -15V

7.2.214 Set jumper INH2-IN

7.2.215 Connect PA4 to COM

7.2.216 Connect PA10 to COM

7.2.217 Verify JA12 = 15V

7.2.218 Remove PA10

7.2.219 Verify JA12 = -15V

7.2.220 Set jumper INH2-OUT

7.2.221 Verify JA12 = 15V

7.2.222 Verify PA69 = L

7.2.223 Remove PA4

7.2.224 Verify PA69 = H

7.2.225 Apply -1V-JA16

7.2.226 Make the following connections

PA63-H

PA37-H

PA44-L

7.2.227 Set jumpers as follows

J15-A

J16-A

7.2.228 Verify PA78 = -1V

7.2.229 Verify JA14 = -15V

7.2.230 Connect PA4-COM

7.2.231 Verify JA14 = 15V

7.2.232 Remove PA4

7.2.233 Verify JA14 = -15V

7.3 ***TEST COMPLETE ***

8. Notes

8.1 None at this time.

9. Attachments

9.1 None at this time.