Test Procedure for a DS3800NGRC

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A	Initial release	Steve Pharris	2/15/2011
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DATE 2/15/2011	DATE	DATE	DATE 2/17/2011

1. SCOPE

1.1 This is a functional testing procedure for a DS3800NGRC.

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		DS3800 Power Supply
1		O-Scope
1		Frequency Generator
1		Fluke Volt Calibrator
1		Tenma Dual Power Supply

6. Testing Process

6.1 Setup

6.1.1 Make the following connections

+5V-JH20

+15V-JH40

-15V-JH26

Com-JH22 and JH34.

6.2 Testing Procedure

6.2.1 Apply Power

6.2.2 Verify DB1=15V

6.2.3 Verify DB2=-15V

6.2.4 Apply 1V-JA20

6.2.5 Verify JH27=1V

6.2.6 Verify DA22=1V

6.2.7 Apply 1V-JA22

6.2.8 Verify JH28=1V

6.2.9 Verify DA7=1V

6.2.10 Verify DB25=-1V

6.2.11 Reverse polarity at JA22

6.2.12 Verify DB25=1V

6.2.13 Verify DA3-DA16=Open

6.2.14 Connect JH21-Com

6.2.15 Verify DA3-DA16=50 Ohms

6.2.16 Verify DA9-Com=50 Ohms

6.2.17 Connect JH5-Com

6.2.18 Verify DA9-Com=Open

6.2.19 Apply 1V-DA11

6.2.20 Verify DA10=-15V

6.2.21 Reverse polarity at DA11

6.2.22 Verify DA10=15V

6.2.23 Remove voltage at DA11

6.2.24 Verify DA10-DA28=Open

6.2.25 Connect JH3-Com

6.2.26 Verify DA10-DA28=50 Ohms

6.2.27 Verify DA10-JA33=100 Ohms

6.2.28 Remove Power

6.2.29 Verify DA10-DA29=2M Ohms

6.2.30 Apply Power

6.2.31 Apply 2V-DA29

6.2.32 Verify DA5=2.1V

6.2.33 Connect JH17-Com

6.2.34 Verify DA5=15V

6.2.35 Verify JA34=15V

6.2.36 Reverse polarity at DA29

6.2.37 Verify DA5=-12.8V

6.2.38 Verify JA34=-12.8V

6.2.39 Remove connection at JH17

6.2.40 Increase voltage at DA29 to -5V

6.2.41 Verify DA5=2.4V

6.2.42 Verify JA34=2.4V

6.2.43 Verify DB19=2.4V

6.2.44 Remove voltage from DA29

6.2.45 Verify DA21-JH23=Short

6.2.46 Verify DB7-Com=47.5K Ohms

6.2.47 Verify DB7-DB28=Open

6.2.48 Connect JH16-Com

6.2.49 Verify DB7-DB28=50 Ohms

6.2.50 Verify DB11-Com=47.5K Ohms

6.2.51 Verify DB11-DB22=Open

6.2.52 Verify DB11-DB10=Open

6.2.53 Connect JH6-Com

6.2.54 Verify DB11-DB10=1K Ohm

6.2.55 Connect JH4-Com

6.2.56 Verify DB11-DB22=1K Ohm

6.2.57 Verify JA24-DA23=Short

6.2.58 Verify JH37-JA10=Short

6.2.59 Verify JH37-DB13=100 Ohms

6.2.60 Apply 1V-JH38

6.2.61 Verify DB27=1V

6.2.62 Verify JA4=1V

6.2.63 Verify DB32=0V

6.2.64 Connect JH30-Com

6.2.65 Verify DB32=-1V

6.2.66 Reverse polarity at JH38

6.2.67 Verify DB32=1V

6.2.68 Verify DA33=H

6.2.69 Verify DB39=H

6.2.70 Reverse polarity at JH38

6.2.71 Verify DB39=L

6.2.72 Apply 1V-DB5

6.2.73 Verify DB13=-15V

6.2.74 Reverse polarity at DB5

6.2.75 Verify DB13=15V

6.2.76 Verify U8P16=L

6.2.77 Remove connection at JH30

6.2.78 Connect DB20-Com

6.2.79 Apply -1V-DA14

6.2.80 Verify DB6=15V

6.2.81 Remove DB20

6.2.82 Verify DB6=-15V

6.2.83 Connect DA34-Com

6.2.84 Verify DB6=15V

6.2.85 Reverse polarity at DA14

6.2.86 Verify DB6=-15V

6.2.87 Verify DB6-JA12=100 Ohms

6.2.88 Using function generator with amplitude turned full CW Apply 4hz sine wave to DB18

6.2.89 Verify DB16=Saw tooth waveform

6.2.90 Increase frequency at DB18

6.2.91 Verify amplitude of wave at DB16 Decreases

6.2.92 Remove connection at DB18

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6.2.93 Verify JH29=H

6.2.94 Verify DB17=L

6.2.95 Connect JH12-Com

6.2.96 Verify DB17=H

6.2.97 Remove JH12

6.2.98 Verify JA6-DA30=Short

6.2.99 Apply 2V-JH9

6.2.100 Verify JA21=2V

6.2.101 Verify DB38=2V

6.2.102 Verify DB36=-2V

6.2.103 Reverse polarity at JH9

6.2.104 Verify DB36=2V

6.2.105 Verify DB38=-2V

6.2.106 Verify DB17=H

6.2.107 Verify JA18-DA24=182 Ohms

6.2.108 Verify DB23-DB34=221K Ohms

6.2.109 Apply 1V-DB23

6.2.110 Verify DB33=-13V

6.2.111 Reverse polarity at DB23

6.2.112 Verify DB33=13V

6.2.113 Verify DA24=-13V

6.2.114 Connect DB29-Com

6.2.115 Verify DA24=15V

6.2.116 Reverse polarity at DB23

6.2.117 Verify DA24=-12V

6.2.118 Remove connection at DB29

6.2.119 Verify DA24=13V

6.2.120 Verify DB9=5V

6.2.121 Verify DB26-Com=37 Ohms

6.2.122 Connect JH33-Com

6.2.123 Connect JH14-Com

6.2.124 Verify DB26-Com=Open

6.2.125 Verify DA2-DB12=1M Ohm

6.2.126 Verify JA14=4V

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6.2.127 Remove JH33

6.2.128 Verify DA2-DB12=50 Ohms

6.2.129 Remove JH14

6.2.130 Verify DB12-DB4=91 Ohms

6.2.131 Verify DB4-JA32=182 Ohms

6.2.132 Connect JH14-Com

6.2.133 Apply 1V-DB12

6.2.134 Verify DB4=-15V

6.2.135 Reverse polarity at DB12

6.2.136 Verify DB4=15V

6.2.137 Remove connections at JH14 and DB12

6.2.138 Set function generator for 500Hz@24Vpk-pk Sine wave

6.2.139 Connect to DB24-5V

6.2.140 Apply signal from function generator to JH19

6.2.141 Connect negative lead from scope to DA8

6.2.142 Verify DA12=27Vpk-pksquare wave @ 500Hz

6.2.143 Increase frequency to 1Khz

6.2.144 Verify Frequency at DA12=1Khz (follows input frequency)

6.2.145 Decrease amplitude of signal from function generator while monitoring DA12 until
Vpk-pk=12Vpk-pk

6.2.146 Verify waveform at DA12 is now saw tooth signal

6.2.147 Move connection from JH19 to JH13

6.2.148 Decrease amplitude of signal from function generator while monitoring DA12 until
Vpk-pk=12Vpk-pk

6.2.149 Verify waveform at DA12 is saw tooth signal

6.2.150 Move connection from JH13 to JH18

6.2.151 Verify signal at DA12 has inverted and = 10Vpk-pk

6.2.152 Remove scope from DA8 and DA12

6.2.153 Remove function generator from JH18

6.2.154 Remove connection from DB24

6.2.155 Verify JH19-JA9=Short

6.2.156 Verify JH13-JA15=Short

6.2.157 Verify JH18-JA11=Short

6.2.158 Verify JA11-DB31=Short

6.2.159 Verify JA3-DA20=100K Ohms

6.2.160 Verify DB4-DA18=50 Ohms

6.2.161 Connect JH2-Com

6.2.162 Verify DB4-DA18=Open

6.2.163 Verify JH19-JA9=Short

6.2.164 Verify JA7-DA20=100K Ohms

6.2.165 Verify JA7-DA17=200K Ohms

6.2.166 Remove JH2

6.2.167 Verify JA7-DA17=Open

6.2.168 Apply 1V-JA16

6.2.169 Verify JH31=1V

6.2.170 Verify DA4=1V

6.2.171 Reverse polarity at JA16

6.2.172 Verify DA4=1V

6.2.173 Apply 1V-DB8

6.2.174 Verify DB40=-13V

6.2.175 Reverse polarity at DB8

6.2.176 Verify DB40=14V

6.2.177 Verify JA1=14V

6.2.178 Verify JH35-DB21=100 Ohms

6.2.179 Apply 1V-JA3

6.2.180 Verify DA32=-1V

6.2.181 Verify JA8=-1V

6.2.182 Reverse polarity at JA3

6.2.183 Verify DA32=1V

6.2.184 Verify JA8=1V

6.2.185 Remove Power

6.2.186 Verify DA32-DB35=10K Ohms

6.2.187 Verify DB35-DB8=681K Ohms

6.2.188 Apply Power

6.2.189 Verify DB35-DB40=100 Ohms

6.2.190 Connect JA14-H

6.2.191 Verify DB35-DB40=10K Ohms

6.2.192 Connect JH1-Com

6.2.193 Verify DB35-DB40=Open (meter will jump from open to M ohm. This is due to C105. If meter does not jump C105 is likely defective.)

6.2.194 Remove JH1 and JA14

6.2.195 Connect DA1-Tenma Power Supply set for 0V

6.2.196 Using fluke voltage source apply 1V-JA33

6.2.197 Verify DA25=0V

6.2.198 Increase voltage from tenma power supply to 10V

6.2.199 Verify DA25=-10V

6.2.200 Reverse polarity at JA33

6.2.201 Verify DA25=10V

6.2.202 Decrease voltage from tenma power supply to 5V

6.2.203 Verify DA25=5V

6.2.204 Reverse polarity at JA33

6.2.205 Verify DA25=-5V

6.2.206 Decrease JA33-0V

6.2.207 Verify DA25=0V

6.2.208 Remove connections at DA1 and JA33

6.2.209 Verify JA7-JH24=Short

6.2.210 Verify JA5-JH32=Short

6.2.211 Apply 1V-JH32

6.2.212 Verify DB30=-1V

6.2.213 Reverse polarity at JH32

6.2.214 Verify DB30=1V

6.2.215 Verify JA13-DA19=Short

6.2.216 Verify DA19-JH39=Short

6.2.217 Connect JH7-Com

6.2.218 Verify JA2=-12V

6.2.219 Verify DA27=-12V

6.2.220 Reverse polarity at JH32

6.2.221 Verify DA27=15V

6.2.222 Connect DB9-Com

6.2.223 Increase JH32-5V

6.2.224 Verify DA26=-1V

6.2.225 Connect JH11-Com

6.2.226 Verify DA26=-5V

6.2.227 Reverse polarity at JH32

6.2.228 Verify DA26=5V

6.2.229 Remove connections at JH7 and JH11

6.2.230 Verify DA27=-4.2V

6.2.231 Connect JH15-Com

6.2.232 Verify DA27=-3.4V

6.2.233 Reverse polarity at JH32

6.2.234 Verify DA27=3.4V

> *6.3   ***TEST COMPLETE ****

7. <u>**Notes**</u>

7.1   None at this time.

8. <u>**Attachments**</u>

8.1   None at this time.