g GE Industrial Systems	**Functional Testing Specification**
Renewal Services ***Louisville, KY***	**LOU-GED-DS3800HISA**

Test Procedure for a DS3800HISA Card

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

REV.	DESCRIPTION	SIGNATURE	REV. DATE
A	Initial release	Monte Starling	08/22/2002
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C			

PREPARED BY	REVIEWED BY	REVIEWED BY	QUALITY APPROVAL
Monte Starling	John Madden		Robert Durell
DATE	**DATE**	**DATE**	**DATE**
08/22/2002	08/13/2003		09/03/02

Functional test procedure for a Card

1. SCOPE

1.1 This is a functional testing procedure for a DS3800HISA Card.

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

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 or cracked
4.2.1.2 Terminal strips / connectors broken or cracked
4.2.1.3 Loose wires
4.2.1.4 Components visually damaged
4.2.1.5 Capacitors leaking
4.2.1.6 Solder joints damaged or cold
4.2.1.7 Circuit board burned or de-laminated
4.2.1.8 Printed wire runs 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 85 DMM (or Equivalent)
1		Rainbow Interface Box
1		DS3800 Connector Box w/ switches
1		DS3800 Power Supply Box
1		Logic Probe
2		1K ohm ½ Watt Resistors

6. TESTING PROCESS

6.1 Setup

6.1.1 Connect Rainbow Box, DS3800 Connector Box w/switches and DS3800 Power Supply together. Connect power cord to Power Supply. If you are using a Rainbow Box that does not say (Do not use on ATE) make sure switch 95 and 96 on DS3800 Connector Box are in the center position. These switches should not be moved during the test, a short might result.

6.1.2 Connect Banana Jumpers on Rainbow Box from **PA1** (DCOM) to **PA41** (PCOM) and **PA80** (XCOM).

6.1.3 Using Banana Jumpers, make the following connections on Rainbow Box.

PA81 to PA6 (1BLRST)	**PA84 to PA56 (0BLA1)**
PA82 to PA8 (0CS)	**PA85 to PA4 (0RDD)**
PA83 to PA60 (0BLA2)	**PA86 to PA2 (0WRD)**

6.1.4 Set switches on front of DS3800 Connection Box to the following positions.

81	82	83	84	85	86
0	0	1	1	0	0

6.2 Testing Procedure

6.2.1 Stack 8 Banana Jumpers together and plug into **PA75** (P28).

6.2.2 Connect the other side of Banana Jumpers at **PA75** to the following locations.

PA59	PA62	PA63	PA65	PA67	PA69	PA71	PA78

6.2.3 Turn power switch on DS3800 Power Supply **ON**.

6.2.4 Verify LED's **I00-I07** on front edge of HISA card are glowing.

6.2.5 Using a Logic Probe set switches and check the output nodes for correct logic levels per table below. **NOTE: If after power up, when 83 & 84 are both 0, and PA72 stays 0, try cycling power and re-reading PA72. It should return to 1.**

SWITCH		NODE							
83	84	PA70	PA72	PA61	PA76	PA64	PA74	PA66	PA68
0	**0**	0	1	1	1	1	1	1	1
0	**1**	1	1	1	1	1	1	1	1
1	**0**	1	1	1	1	1	1	1	1

1	**1**	0	0	0	0	0	0	0	0

6.2.6 Turn power switch on DS3800 Power Supply **OFF**.

6.2.7 Connect the other side of Banana Jumpers at **PA75** to the following locations.

PA48	**PA50**	**PA52**	**PA53**	**PA54**	**PA55**	**PA57**	**PA58**

6.2.8 Turn power switch on DS3800 Power Supply **ON**.

6.2.9 Verify LED's **I08-I0F** on front edge of HISA card are glowing.

6.2.10 Using a Logic Probe set switches and check the output nodes for correct logic levels per table below.

SWITCH		**NODE**							
83	**84**	**PA70**	**PA72**	**PA61**	**PA76**	**PA64**	**PA74**	**PA66**	**PA68**
0	**0**	0	1	1	1	1	1	1	1
0	**1**	1	1	1	1	1	1	1	1
1	**0**	0	0	0	0	0	0	0	0
1	**1**	1	1	1	1	1	1	1	1

6.2.11 Turn power switch on DS3800 Power Supply **OFF**.

6.2.12 Connect the other side of Banana Jumpers at **PA75** to the following locations.

PA26	**PA25**	**PA22**	**PA21**	**PA18**	**PA17**	**PA14**	**PA13**

6.2.13 Turn power switch on DS3800 Power Supply **ON**.

6.2.14 Verify LED's **I10-I17** on front edge of HISA card are glowing.

6.2.15 Using a Logic Probe set switches and check the output nodes for correct logic levels per table below. **NOTE: If after power up, when 83 & 84 are both 0, and PA72 stays 0, try cycling power and re-reading PA72. It should return to 1.**

SWITCH		**NODE**							
83	**84**	**PA70**	**PA72**	**PA61**	**PA76**	**PA64**	**PA74**	**PA66**	**PA68**
0	**0**	0	1	1	1	1	1	1	1
0	**1**	0	0	0	0	0	0	0	0
1	**0**	1	1	1	1	1	1	1	1
1	**1**	1	1	1	1	1	1	1	1

Turn power switch on DS3800 Power Supply **OFF**.

6.2.16 Connect the other side of Banana Jumpers at **PA75** to the following locations.

PA38	PA37	PA34	PA33	PA30	PA29

6.2.17 Turn power switch on DS3800 Power Supply **ON**.

6.2.18 Verify LED's **I18-I1D** on front edge of HISA card are glowing.

6.2.19 Using a Logic Probe set switches and check the output nodes for correct logic levels per table below.

SWITCH		NODE							
83	**84**	**PA70**	**PA72**	**PA61**	**PA76**	**PA64**	**PA74**	**PA66**	**PA68**
0	**0**	0	1	0	0	0	0	0	0
0	**1**	1	1	1	1	1	1	1	1
1	**0**	1	1	1	1	1	1	1	1
1	**1**	1	1	1	1	1	1	1	1

6.2.20 Turn power switch on DS3800 Power Supply **OFF**.

6.2.21 Remove all Banana Jumpers from **PA75** and their connection points.

6.2.22 Turn power switch on DS3800 Power Supply **ON**. Using a Logic Probe, set switches and check the output nodes for correct logic levels per table below. (X = Don't Care)

SWITCH						NODE							
81	**82**	**83**	**84**	**85**	**86**	**PA70**	**PA72**	**PA61**	**PA76**	**PA64**	**PA74**	**PA66**	**PA68**
0	1	X	X	X	0	1	1	1	1	1	1	1	1
0	X	X	X	1	0	1	1	1	1	1	1	1	1
1	X	X	X	X	0	1	1	1	1	1	1	1	1

6.2.23 Set switches on front of DS3800 Connection Box to the following positions.

81	82	83	84	85	86
0	0	0	0	0	0

6.2.24 Using a Banana Jumper tie **PA76** to **PA1** (DCOM).

6.2.25 Toggle switch **86** to **HIGH** and then back to **LOW**. Verify **IMOK** LED on front edge of HISA card comes **ON**.

6.2.26 Toggle switch **82** to **HIGH** and then back to **LOW**. Verify **IMOK** LED on front edge of HISA card goes **OFF**.

6.2.27 Install a 1K ohm resistor between **PA75** (P28) and **PA44** (TSTLO). Install a 1K ohm resistor between **PA75** (P28) and **PA46** (TSTHI).

6.2.28 Using a Banana Jumper tie **PA70** and **PA72** to **PA1** (DCOM).

6.2.29 Using a DMM set to measure DC volts monitor **PA44** with respect to **DCOM**. Voltage reading should be approx. **24 VDC**.

6.2.30 Toggle switch **86** to **HIGH** and then back to **LOW**. Voltage at **PA44** should drop to nearly **0 VDC**.

6.2.31 Toggle switch **82** to **HIGH** and then back to **LOW**. Voltage at **PA44** should return to approx. **24 VDC**.

6.2.32 Using a DMM set to measure DC volts monitor **PA46** with respect to **DCOM**. Voltage reading should be approx. **24 VDC**.

6.2.33 Toggle switch **86** to **HIGH** and then back to **LOW**. Voltage at **PA46** should drop to nearly **0 VDC**.

6.2.34 Toggle switch **82** to **HIGH** and then back to **LOW**. Voltage at **PA46** should return to approx. **24 VDC**.

6.2.35 Turn OFF power to DS3800 Power Supply.

6.3 ***TEST COMPLETE ***