g GE Energy	**Functional Testing Specification**
Parts & Repair Services ***Louisville, KY***	**LOU-GED-IS200TDBTH6Axx**

Test Procedure for a

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PREPARED BY	REVIEWED BY	REVIEWED BY	QUALITY APPROVAL
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DATE	**DATE**	**DATE**	**DATE**
11/3/2017			11/3/2017

1. SCOPE

1.1 This is a functional testing procedure for a 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 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		Tenma Dual output supply

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6. Testing Procedure

6.1 Initial Testing

6.1.1 Begin testing by inspecting the card for shorted MOV's, damaged parts, or any other visible defects.

6.1.2 Verify continuity at the following points illustrated below in **Table 1.**

From	To
JE1-1	TB2-1
JE1-1	TB2-3
JE1-1	TB2-5
JE1-1	TB2-7
JE1-1	TB2-9
JE1-1	TB2-11
JE1-1	TB2-13
JE1-1	TB2-15
JE1-1	TB2-17
JE1-1	TB2-19
JE1-1	TB2-21
JE1-1	TB2-23
JE1-1	TB2-25
JE1-1	TB2-27
JE1-1	TB2-29
JE1-1	TB2-31
JE1-1	TB2-33
JE1-1	TB2-35
JE1-1	TB2-37
JE1-1	TB2-39
JE1-1	TB2-41
JE1-1	TB2-43
JE1-1	TB2-45
JE1-1	TB2-47

Table 1

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6.1.3 Perform resistance checks using the following points listed below in **Table 2.**

From	To	Output
JE1-3	JT1-1	492k ohm
JE1-3	JT1-3	492k ohm
JE1-3	JT1-4	492k ohm
JE1-3	JT1-5	492k ohm
JE1-3	JT1-6	492k ohm
JE1-3	JT1-7	492k ohm
JE1-3	JT1-8	492k ohm
JE1-3	JT1-9	492k ohm
JE1-3	JT1-10	492k ohm
JE1-3	JT1-11	492k ohm
JE1-3	JT1-12	492k ohm
JE1-3	JT1-13	492k ohm
JE1-3	JT1-14	492k ohm
JE1-3	JT1-15	492k ohm
JE1-3	JT1-16	492k ohm
JE1-3	JT1-17	492k ohm
JE1-3	JT1-18	492k ohm
JE1-3	JT1-19	492k ohm
JE1-3	JT1-24	492k ohm
JE1-3	JT1-25	492k ohm
JE1-3	JT1-26	492k ohm
JE1-3	JT1-27	Open
JE1-3	JT1-28	Short
JE1-3	JT1-29	455k ohm
JE1-3	JT1-30	455k ohm
JE1-3	JT1-31	455k ohm
JE1-3	JS1-1	492k ohm
JE1-3	JS1-3	492k ohm
JE1-3	JS1-4	492k ohm

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From	To	Output
JE1-3	JS1-5	492k ohm
JE1-3	JS1-6	492k ohm
JE1-3	JS1-7	492k ohm
JE1-3	JS1-8	492k ohm
JE1-3	JS1-9	492k ohm
JE1-3	JS1-10	492k ohm
JE1-3	JS1-11	492k ohm
JE1-3	JS1-12	492k ohm
JE1-3	JS1-13	492k ohm
JE1-3	JS1-14	492k ohm
JE1-3	JS1-15	492k ohm
JE1-3	JS1-16	492k ohm
JE1-3	JS1-17	492k ohm
JE1-3	JS1-18	492k ohm
JE1-3	JS1-19	492k ohm
JE1-3	JS1-24	492k ohm
JE1-3	JS1-25	492k ohm
JE1-3	JS1-26	492k ohm
JE1-3	JS1-27	Open
JE1-3	JS1-28	Short
JE1-3	JS1-29	455k ohm
JE1-3	JS1-30	455k ohm
JE1-3	JS1-31	455k ohm
JE1-3	JT1-1	492k ohm
JE1-3	JT1-3	492k ohm
JE1-3	JT1-4	492k ohm
JE1-3	JT1-5	492k ohm
JE1-3	JT1-6	492k ohm
JE1-3	JT1-7	492k ohm
JE1-3	JT1-8	492k ohm
JE1-3	JT1-9	492k ohm

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From	To	Output
JE1-3	JT1-10	492k ohm
JE1-3	JT1-11	492k ohm
JE1-3	JT1-12	492k ohm
JE1-3	JT1-13	492k ohm
JE1-3	JT1-14	492k ohm
JE1-3	JT1-15	492k ohm
JE1-3	JT1-16	492k ohm
JE1-3	JT1-17	492k ohm
JE1-3	JT1-18	492k ohm
JE1-3	JT1-19	492k ohm
JE1-3	JT1-24	492k ohm
JE1-3	JT1-25	492k ohm
JE1-3	JT1-26	492k ohm
JE1-3	JT1-27	Open
JE1-3	JT1-28	Short
JE1-3	JT1-29	455k ohm
JE1-3	JT1-30	455k ohm
JE1-3	JT1-31	455k ohm
JE1-3	TB2 -2	50k ohm
JE1-3	TB2 -4	50k ohm
JE1-3	TB2 -6	50k ohm
JE1-3	TB2 -8	50k ohm
JE1-3	TB2 -10	50k ohm
JE1-3	TB2 -12	50k ohm
JE1-3	TB2 -14	50k ohm
JE1-3	TB2 -16	50k ohm
JE1-3	TB2 -18	50k ohm
JE1-3	TB2 -20	50k ohm
JE1-3	TB2 -22	50k ohm
JE1-3	TB2 -24	50k ohm
JE1-3	TB2 -26	50k ohm

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From	To	Output
JE1-3	TB2 -28	50k ohm
JE1-3	TB2 -30	50k ohm
JE1-3	TB2 -32	50k ohm
JE1-3	TB2 -34	50k ohm
JE1-3	TB2 -36	50k ohm
JE1-3	TB2 -38	50k ohm
JE1-3	TB2 -40	50k ohm
JE1-3	TB2 -42	50k ohm
JE1-3	TB2 -44	50k ohm
JE1-3	TB2 -46	50k ohm
JE1-3	TB2 -48	50k ohm

Table 2

6.2 TMR testing

6.2.1 Connect positive 28V DC to pin JW2-Z2 using one output of the Tenma power supply.

6.2.2 Connect the COM from that supply to pin JW2-Z4.

6.2.3 Apply power to the card at this time.

6.2.4 Verify “TMR” relay functionality. Connect an ohm meter between TB1-1 (K1NC1) and TB1-2 (K1COM1) which should read as a short on the ohm meter. Energize K1 by grounding two of the three inputs JR1-32, JS1-32, and JT1-32. Verify that the ohm meter transitions to read as an open when the relay is energized. While leaving the meter lead connected to TB1-2 (K1COM1), move the other meter lead from TB1-1 (K1NC1) to TB1-3 (K1NO1) which should read as a short until the relay is de-energized and TB1-3 (K1NO1) should return to its “normally open” state. Repeat these steps on the remaining relays using **Table 3**, listed below.

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Relay	KxNC	KxCOM	KxNo	Inputs
K1	TB1-1	TB1-2	TB1-3	JR1-32, JS1-32, JT1-32
K2	TB1-5	TB1-6	TB1-7	JR1-33, JS1-33, JT1-33
K3	TB1-9	TB1-10	TB1-11	JR1-34, JS1-34, JT1-34
K4	TB1-13	TB1-14	TB1-15	JR1-35, JS1-35, JT1-35
K5	TB1-17	TB1-18	TB1-19	JR1-36, JS1-36, JT1-36
K6	TB1-21	TB1-22	TB1-23	JR1-37, JS1-37, JT1-37
K7	TB1-25	TB1-26	TB1-27	JR1-38, JS1-38, JT1-38
K8	TB1-29	TB1-30	TB1-31	JR1-39, JS1-39, JT1-39
K9	TB1-33	TB1-34	TB1-35	JR1-40, JS1-40, JT1-40
K10	TB1-37	TB1-38	TB1-39	JR1-41, JS1-41, JT1-41
K11	TB1-41	TB1-42	TB1-43	JR1-42, JS1-42, JT1-42
K12	TB1-45	TB1-46	TB1-47	JR1-43, JS1-43, JT1-43

Table 3

6.2.5 Read and verify the ID chip.

6.2.6 Post Testing Burn-in Required ___ Yes _*X*__ No

6.3 ***TEST COMPLETE ***

7. Notes

7.1 None at this time?

8. Attachments

8.1 None at this time?

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