g GE Energy	**Functional Testing Specification**
Parts & Repair Services ***Louisville, KY***	**LOU-GED-IS200TBAI**

Test Procedure for an IS200TBAIH1B and C cards.

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

REV.	DESCRIPTION	SIGNATURE	REV. DATE
A	Initial release	Scott Cash	7/21/2010
B	Revised to include C revision levels.	Cristyn Edlin	9/8/2010
C	Corrected measured value and pin in step 6.2.8	Frank Howard	5/13/2011

PREPARED BY	REVIEWED BY	REVIEWED BY	QUALITY APPROVAL
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DATE	**DATE**	**DATE**	**DATE**
7/21/2010	9/8/2010		7/23/2010

1. SCOPE

1.1 This is a functional testing procedure for a IS200TBAIH1B and C revision cards.

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		0-60VDC Power Supply

6. TESTING PROCESS

6.1 Setup

6.1.1 Set JP1A-JP10A to 20ma and JP1B-JP10B to Ret.

6.1.2 Connect 25Vcd to JR/S/T pin1 and ground to eyelet E1 or E2. Also ohm out E1 and E2 to verify continuity.

6.2 Testing Procedure

6.2.1 Check following points for 24Vdc.

E1	to	TB1-1
E1	to	TB1-5
E1	to	TB1-9
E1	to	TB1-13
E1	to	TB1-17
E1	to	TB1-21
E1	to	TB2-25
E1	to	TB2-29
E1	to	TB2-33
E1	to	TB2-37

6.2.2 Check value of R21-27 for 1 meg ohm.

6.2.3 Check value of R3 and R4 for 10 ohms.

6.2.4 Verify continuity between following points.

From	To	
JR1-4	JS1-4	JT1-4
JR1-6	JS1-6	JT1-6
JR1-8	JS1-8	JT1-8
JR1-10	JS1-10	JT1-10
JR1-12	JS1-12	JT1-12
JR1-23	JS1-23	JT1-23
JR1-25	JS1-25	JT1-25
JR1-27	JS1-27	JT1-27
JR1-29	JS1-29	JT1-29
JR1-31	JS1-31	JT1-31

6.2.5 Verify 250 ohms between following points.

TB1-2	TB1-4
TB1-6	TB1-8
TB1-10	TB1-12
TB1-14	TB1-16
TB1-18	TB1-20
TB1-22	TB1-24
TB2-26	TB2-28
TB2-30	TB2-32
TB2-34	TB2-36
TB2-38	TB2-40

6.2.6 Check 33V zeners by applying 35-35Vdc in both directs and verify zener conducts by watching current light on power supply. **Have current set to lowest level that will keep red current light off without a load.**

From	To		From	To
TB1-1	SCOM		TB2-36	SCOM
TB1-4	SCOM		TB2-37	SCOM
TB1-5	SCOM		TB2-40	SCOM
TB1-8	SCOM		TB2-45	SCOM
TB1-9	SCOM		TB2-46	SCOM
TB1-12	SCOM		TB2-47	SCOM
TB1-13	SCOM		TB2-48	SCOM
TB1-16	SCOM		JR1-4	SCOM
TB1-17	SCOM		JR1-6	SCOM
TB1-20	SCOM		JR1-8	SCOM
TB1-21	SCOM		JR1-10	SCOM
TB1-24	SCOM		JR1-12	SCOM
TB2-25	SCOM		JR1-23	SCOM
TB2-28	SCOM		JR1-25	SCOM
TB2-29	SCOM		JR1-27	SCOM
TB2-32	SCOM		JR1-29	SCOM
TB2-33	SCOM		JR1-31	SCOM

6.2.7 Check from JT1-13 to JPO-1\4\7\10 for 50 ohms.

6.2.7.1 **Note: For the C revision level, pin 1 should measure 100 ohms.**

6.2.8 Check from TB2-45 to JPO-3\6\9\12 for 5.0 ohms.

6.2.8.1 **Note: For the C revision level, pin 6 should be opened.**

6.2.9 Check from JT1-32 to JT1-33 for 50 ohms (100 ohms for C revision).

6.2.10 Check from TB2-47 to JT1-34 for 50 ohms.

6.2.11 Remove JPO jumper block.

6.2.12 Check from JT1-15 to JPO-8 JPO-11 for 0 ohms.

6.2.13 Check from JT1-14 to JPO-2 for and JPO-5 for 0 ohms.(C revision will have 50 ohms to JPO-5)

6.2.14 Reinstall JPO jumper block.

6.2.15 **CHIP ID:** The three ID chips need to be read to confirm that they have all been programmed properly. The instances of blank or mis-programmed ID chips leaving the factory and seeing service out in the field is higher than you might think. This can cause some problems with equipment, maybe even hard failures, even when nothing else is wrong with the card depending on how the customer's software is set up. Simply take the card over to the CHIP ID pc located in the MARK VI area of the shop and select the correct revision of IS200TBAI from the menu and follow the instructions given to you by the pc. When selecting which IS200TBAI to use, you may see a 5G or 7G next to the number. This refers to the serial number and whether it has 5 or 7 digits in it. Select the proper one, as you will be expected to type this number into the system at a given point. When entering this data, be sure to use all CAPITAL LETTERS as lower case might cause it not to agree with what's programmed in the chip. If the particular revision you need to select doesn't have a 5G or 7G next to it, get with Monte Starling to have it added before proceeding.

6.3 ***TEST COMPLETE ***

7. NOTES

7.1 Changes from a BAA to a BBB include the following.

7.1.1 Changed Sub-D connectors JR1, JS1, JT1 from 323A1065P37=XH1 to 44A717194-936. Added caps C62, C63, C64 (BOM ignored) for Chip ID read problem. See ECN for more information.

8. ATTACHMENTS

8.1 None at this time.