g GE Energy	**Functional Testing Specification**
Parts & Repair Services ***Louisville, KY***	**LOU-GED-DS200STBAG1A**

Test Procedure for a terminal board

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

REV.	DESCRIPTION	SIGNATURE	REV. DATE
A	Initial release	Scott Cash	8/18/2010
B	Added line COMPL20 to page four, added CPIPL-2 to step 6.2.28, and CI1PL-1 to step 6.2.63	G. Chandler	10/12/2011
C			

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DATE	**DATE**	**DATE**	**DATE**
8/18/2010	11/12/2011		8/18/2010

1. SCOPE

1.1 This is a functional testing procedure for a DS200STBAG1ACx and DS200STBAG1ADx 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		Dual 0-30 VDC power supply
1		Box containing STBAG test cables
1		115VAC Variac

6. TESTING PROCESS

6.1 Setup

6.1.1 Make jumper setting per the following table.

JP4	1-2 & 3-4
JP10	1-2 & 3-4
JP12	1-2
JP14	1-2
JP15	1-2
JP17	1-2
JP18	1-2
JP24	2-3
JP25	1-2
JP26	1-2
JP27	1-2
JP28	1-2
JP29	1-2
JP30	1-2
JP31	1-2
JP32	2-3
JP33	1-2
JP34	1-2
JP35	1-2
JP36	1-2
JP37	1-2
JP38	1-2
JP39	1-2

6.2 Testing Procedure

6.2.1 Check the following point for the resistance listed. If you find one wrong check jumpers before moving on to troubleshooting.

Point A	Point B	Resistance
8PL-6	STBA-1	0
8PL-7	STBA-3	330
8PL-6	STBA-3	2.7K
8PL-8	STBA-5	0
8PL-9	STBA-6	330
8PL-8	STBA-6	2.7K
6PL-38	STBA-41	47.5K
6PL-37	STBA-43	47.5K
6PL-40	STBA-46	22.1K
6PL-39	STBA-49	22.1K
6PL-40	STBA-49	22.6K
COMPL-3	6PL-31	0
COMPL-2	6PL-32	0
COMPL-4	STBA-40	1K
COMPL-5	STBA-40	1K
COMPL-6	STBA-40	1K
COMPL-10	STBA-44	1K
COMPL-7	COMPL-10	0
COMPL-9	2PL-5	0
COMPL-7	STBA-7	0
4PL-1	STBA-51	0
4PL-2	STBA-52	0
4PL-3	STBA-53	0
4PL-4	STBA-54	0
4PL-5	STBA-55	0
2PL1	STBA-47	0
2PL-2	STBA-48	0
2PL-3	TP1	0
2PL-6	TP1	0
STBA-45	TP1	0
STBA-44	TP1	0
STBA-39	2PL-5	0
2PL-7	STBA-40	0
COMPL-20	STBA-40	1K

Point A	Point B	Resistance
2PL-8	STBA-42	0
6PL-24	STBA-34	0
6PL-25	STBA-35	0
6PL-26	STBA-36	0
6PL-27	STBA-37	0
6PL-30	STBA-38	0
STBA-2	2PL-7	0
STBA-4	TP1	0
STBA-24	2PL-2	0
STBA-24	8PL-12	0
STBA-26	8PL-12	0
STBA-9	8PL-13	0
STBA-9	CI1PL-2	0
CI1PL-1	CI5PL-1	0
CI1PL-1	CI7PL-1	0
CI1PL-1	STBA-24	0
STBA-17	8PL-17	0
STBA-17	CI5PL-2	0
STBA-21	8PL-19	0
STBA-21	CI7PL-2	0
STBA-50	8PL-20	0
CP1PL-1	CP2PL-1	0
CP1PL-1	CP3PL-1	0
CP4PL-1	STBA-56	0
CP1PL-2	CP2PL-2	0
CP1PL-2	CP3PL-2	0
CP1PL-2	CP4PL-2	0
Y11PL-1	STBA-56	0
Y11PL-2	Y12PL-1	0
STBA-61	6PL-19	47K
STBA-63	6PL-18	47K
STBA-63	6PL-35	47K
STBA-65	6PL-36	47K

6.2.2 Check all bridge rectifiers and zener diodes for shorts before moving on with relay tests.

6.2.3 **We will be using high voltage to check the relays so make all connections to meter before powering up or use appropriate PPE (gloves, glasses, FR clothing) to check resistance reading in live circuit.**

6.2.4 **To check relay K1** connect a 24 VDC supply + to 2PL-1 and – to 6PL-10 and wait to power up when instructed.

6.2.5 Check for continuity from STBA-8 to STBA-10.

6.2.6 Check for an open circuit from STBA-8 to STBA-12.

6.2.7 Now power up 28 VDC supply for K1.

6.2.8 Check for an open circuit from STBA-8 to STBA-10.

6.2.9 Check for continuity from STBA-8 to STBA-12.

6.2.10 If all is well power down K1 and remove connections.

6.2.11 **To check relay K2** connect a 115 VAC from a switched variac between STBA-57 and CP1PL-2 and wait to power up when instructed.

6.2.12 Check for an open circuit from STBA-14 to STBA-18.

6.2.13 Check for continuity from STBA-14 to STBA-16.

6.2.14 Check for an open circuit from STBA-24 to 8PL-14.

6.2.15 Now power up 110 VAC for K2.

6.2.16 **IF NOT WEARING GLOVES REMEMBER TO POWER DOWN WHILE CHANGING CONNECTIONS ON RELAY TO BE PPE COMPLIANT.**

6.2.17 Check for continuity from STBA-14 to STBA-18.

6.2.18 Check for an open circuit from STBA-14 to STBA-16.

6.2.19 Check for continuity from STBA-24 to 8PL-14.

6.2.20 If all is well power down K2 and remove connections.

6.2.21 **To check relay K28** connect a 115 VAC from a switched variac between STBA-64 and STBA-66 and wait to power up when instructed.

6.2.22 Check for an open circuit from 6PL-1 to 6PL-2.

6.2.23 Check for an open circuit from Y19PL-2 to Y19PL-1.

6.2.24 Now power up 110 VAC for K28.

6.2.25 **IF NOT WEARING GLOVES REMEMBER TO POWER DOWN WHILE CHANGING CONNECTIONS ON RELAY TO BE PPE COMPLIANT.**

6.2.26 Check for continuity fromY19PL-2 to Y19PL-1.

6.2.27 Now when we move on to relay K3 leave K28 connected.

6.2.28 **To check relay K3** which ties through K28 connect a 115 VAC from a switched variac between Y12PL-2 and CPIPL-2 power up.

6.2.29 **IF NOT WEARING GLOVES REMEMBER TO POWER DOWN WHILE CHANGING CONNECTIONS ON RELAY TO BE PPE COMPLIANT.**

6.2.30 With K3 and K28 powered up check for continuity from 6PL-1 to 6PL-2.

6.2.31 Now remove power from K28 STBA-64\65, leave K3 powered up.

6.2.32 Check for continuity from STBA-20 to STBA-13.

6.2.33 Check for an open circuit from STBA-20 to STBA-22.

6.2.34 Remove power from K3.

6.2.35 Check for an open circuit from STBA-20 to STBA-13.

6.2.36 Check for continuity from STBA-20 to STBA-22.

6.2.37 If all went well power down K3 and remove connections.

6.2.38 **To check K4** connect a 115 VAC from a switched variac between STBA-59 and CP1PL-2 and wait to power up when instructed.

6.2.39 Check for an open circuit from STBA-25 to STBA-28.

6.2.40 Check for continuity from STBA-25 to STBA-27.

6.2.41 Check for an open circuit from STBA-24 to 8PL-16.

6.2.42 Now power up 110 VAC for K4.

6.2.43 **IF NOT WEARING GLOVES REMEMBER TO POWER DOWN WHILE CHANGING CONNECTIONS ON RELAY TO BE PPE COMPLIANT.**

6.2.44 Check for continuity from STBA-25 to STBA-28.

6.2.45 Check for an open circuit from STBA-25 to STBA-27.

6.2.46 Check for continuity from STBA-24 to 8PL-16.

6.2.47 If all went well remove power from K4 and remove connections.

6.2.48 **To check K5** 24 VDC + to 2PL-1 and – to 6PL-14 and wait to power up when instructed.

6.2.49 Check for continuity from STBA-29 to STBA-30.

6.2.50 Check for an open circuit from STBA-29 to STBA-31.

6.2.51 Check for an open circuit from Y21PL-2 to Y19PL-1.

6.2.52 Now power up 24 VDC supply for K5.

6.2.53 Check for an open circuit from STBA-29 to STBA-30.

6.2.54 Check for continuity from STBA-29 to STBA-31.

6.2.55 Check for continuity from Y21PL-2 to Y19PL-1.

6.2.56 If all went well remove power from K5 and remove connections.

6.2.57 To check K6 connect a 115 VAC from a switched variac between STBA-62 and CP1PL-2 and wait to power up when instructed.

6.2.58 Check for an open circuit from STBA-32 to STBA-33.

6.2.59 Check for an open circuit from STBA-25 to 8PL-18.

6.2.60 Now power up 110 VAC for K6.

6.2.61 IF NOT WEARING GLOVES REMEMBER TO POWER DOWN WHILE CHANGING CONNECTIONS ON RELAY TO BE PPE COMPLIANT.

6.2.62 Check for continuity from STBA-32 to STBA-33.

6.2.63 Check for continuity from CI1PL-1 to 8PL-18.

6.2.64 If all went well remove power from K6 and remove connections.

6.3 ******TEST COMPLETE ******.

7. NOTES

7.1 None at this time.

8. ATTACHMENTS

8.1 None at this time.