g GE Energy	**Functional Testing Specification**
Parts & Repair Services ***Louisville, KY***	**LOU-GED-IS200EISB**

Test Procedure for an EX2100 Exciter ISBus Board

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

REV.	DESCRIPTION	SIGNATURE	REV. DATE
A	Initial release	Monte Starling	10-13-08
B	Added section 6.3 for testing in the EX2100 exciter	D. Waddy	6/30/2014
C			

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DATE	**DATE**	**DATE**	**DATE**
October 13, 2008	6/30/2014		10/21/2008

1. SCOPE

1.1 This is a functional testing procedure for an IS200EISB 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 N:\Design Folders\IS2\IS200E\EISB

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, 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	H188712	EISB Test Fixture
1		Power Supply, 24Vdc
1		Function Generator
1		Oscilloscope
1		Small Flashlight or Fiber Optic Cable (either will do)
1	H190128	EX2100 Exciter

6. TESTING PROCESS

6.1 Setup

6.1.1 Connect 24Vdc (with power OFF) to the red and black jacks on the back of the EISB test fixture. Red = Positive, Black = Negative.

6.1.2 Set up a function generator for TTL square wave @ 1 KHz and attach to "IN" BNC connector on back of fixture.

6.1.3 Set multi-position dial to position 1.

6.1.4 Attach an O-scope to "OSC OUT" on back of fixture.

6.1.5 Insert card into slot, component side facing the front (towards you).

6.2 Testing Procedure

6.2.1 Apply power. "GROUND DETECT OUT" transmitter on face of card should be illuminated.

6.2.2 Push "RESET" button on face of card. "Reset Active" LED on fixture should light up.

6.2.3 Shine a flashlight, **OR** use a fiber optic cable from the lit transmitter of step 6.2.1, into each of the receivers on the face of the card. Each receiver has a corresponding green LED on the fixture that should light up as soon as its respective receiver is stimulated. When the stimulus is removed, the led should go out immediately.

6.2.4 Set O-scope to 5.0V/div & 500uSec/div. Compare rotary switch positions 1-4 to Fig. 1. Compare rotary switch positions 5 & 6 to Fig. 2. Compare rotary switch positions 7 & 8 to Fig. 3.

6.3 EX2100 Cabinet Testing

6.3.1 Power off the cabinet.

6.3.2 Remove test card and install customer card into desired rack.

6.3.3 Apply power to the cabinet and go online on Toolbox.

6.3.4 Verify that all trips and alarms clear and that the status is a green ***CONTROL/EQUAL*** at the bottom right corner. ***(If the status is not "CONTROL/EQUAL" it may be necessary to perform ACL downloads. To do so go to the DEVICE dropdown, select Download to ACL, select runtime and follow prompts, follow the same steps and select application code, cycle power, once the cabinet has rebooted perform a check/ build/ download.)***

6.3.5 Allow card to burn-in for 12 Hrs.

*6.4 ***TEST COMPLETE ****

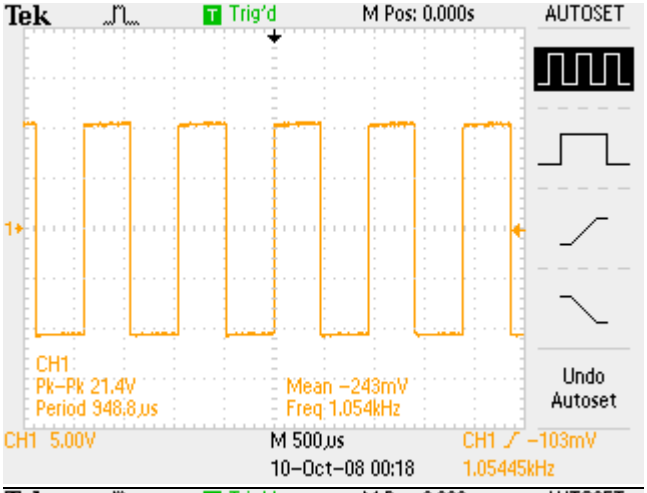
7. **NOTES**

7.1 One card was found to have the five LED outputs “latch on” when receivers were stimulated. They stayed on after stimulus was removed. Initially it was thought that the 74HC14 inverter IC was to blame, since all five circuits went through it. This was not the case. The unit had an apparent bad run of receivers and all five receivers would short out when stimulus was put to them, until power was removed. It was a Salem card.

8. ATTACHMENTS

8.1 See next page for waveforms.

8.2



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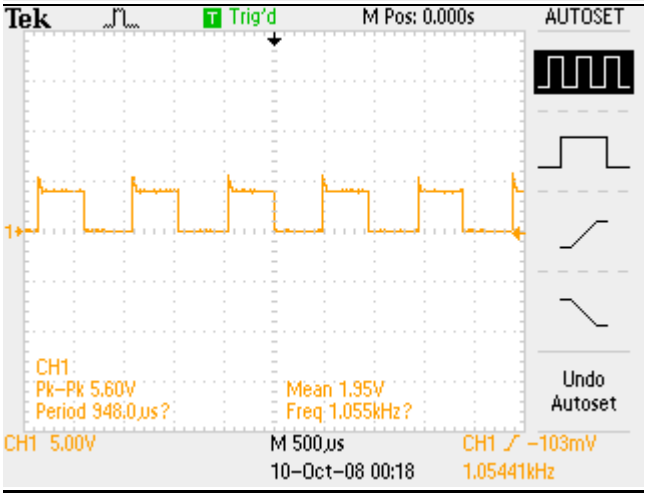

8.4