g	GE Energy	**Functional Testing Specification**
	Parts & Repair Services *Louisville, KY*	**LOU-GED-IS215ACLEH1B**

Test Procedure for a IS215ACLEH1B		
DOCUMENT REVISION STATUS: Determined by the last entry in the "REV" and "DATE" column		

REV.	DESCRIPTION	SIGNATURE	REV. DATE
A	Initial release	M. Starling	7-10-2012
B			
C			

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DATE 7-10-2012	DATE	DATE	DATE 7/20/2012

1. SCOPE

1.1 This is a functional testing procedure for a IS215ACLEH1B board

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	H190023	EX2100 Test Fixture – SIM150

6. Modifications/Upgrades

6.1 Check Orange Book for any modifications or upgrades.

7. Testing Process

7.1 Setup

7.1.1 Remove shop ACLE unit from test rack.

7.1.2 Insert extender card in ACLE slot making sure all the switches on extender card are in the closed position.

7.1.3 Install the 512MB DataLight test CompactFlash on the unit to be tested.

7.1.4 Place unit to be tested onto the extender card.

7.1.5 From this point forward reference to the "ACLE Card" will indicate the base ACLE card. Reference to the "Controller Card" will indicate the embedded controller card residing on the ACLE Card and reference to the "Unit or ACLE Unit" Will indicate the assembly in its entirety.

7.1.6 Remove the ribbon cable from the ACLE Card and move it back out of the way to expose the 10 pin connector underneath.

7.1.7 Remove the 10 pin connector from the Controller Card and push it back out of the way. You do not need to dis-connect it from the ACLE Card.

7.1.8 Install the grey 10 pin keyboard ribbon cable to the connection on the Controller Card from the previous step. The red stripe should be closest to the P1 connector on the ACLE Card.

7.1.9 Reconnect the Ribbon cable you removed from the ACLE Card in step 7.1.6.

7.1.10 Install the video adapter onto the Controller card.

7.1.11 Connect a secondary keyboard to the keyboard adapter and connect the video adapter to the blue video cable on the left hand side of the test fixture.

7.1.12 Turn the switch on the front panel of the fixture to the Processor Test position.

7.1.13 Install the 2 loopback connectors to COM1 and COM2 on the ACLE Card.

7.2 Testing Procedure

7.2.1 Turn on the power switch and press F2 while the unit is booting to enter the Setup Screen.

7.2.2 Once in setup press F9 to load defaults. Then Save and Exit Setup.

7.2.3 During Boot-up press F2 once again to enter the Setup Screen and make the following changes.

7.2.4 Move cursor to Primary Master and press <Enter>.

7.2.5 Change TYPE from AUTO to USER by pressing the + or – button.

7.2.6 Move the cursor to "LBA Mode Control:" and change it to [Disabled]

7.2.7 Move the cursor to "Transfer Mode:" and change it to [Fast PIO 1]

7.2.8 Move the cursor to "Ultra DMA Mode:" and change it to [Disabled]

7.2.9 Press Escape, and exit setup saving settings.

7.2.10 Allow Controller to boot. You should be presented a C:\ prompt.

7.2.11 Type TIME and enter the correct time. Then type DATE and enter the correct date. NOTE: After entering the Time and Date, if you need to reboot for some reason, do so by pressing ALT,CTRL,DEL. The controller card is not battery backed, so if you turn off power to reboot you will need to re-enter your Time and Date settings. Turning off power will not affect the BIOS settings.

7.2.12 At the C:\ prompt type "CD AMIDIAG" <Enter>

7.2.13 You should now be in the directory of C:\AMIDIAG\ now type "DEL AMIDIAG.LOG" <Enter>. NOTE: If you get a "File Not Found" message, check your spelling; if it is correct just continue. Probably just means whoever ran the test last didn't make it any farther.

7.2.14 While still at the directory of C:\AMIDIAG\ type "AMIDIAG" <Enter>.

7.2.15 Wait for the program to load.

7.2.16 Move the cursor to the "OPTIONS" menu.

7.2.17 Under the OPTIONS menu select "LOAD BATCH PARAMETERS" <Enter>.

7.2.18 Move the cursor to "GENERATE REPORT" press <Enter>, select "FILE", you should see C:\AMIDIAG\AMIDIAG.LOG press <Enter>. When the cursor moves to "HEADING" just press <Enter>. Move the cursor to "CONTINUE" and press<Enter>.

7.2.19 In the OPTIONS menu, move the cursor to "RUN SELECTED TESTS" press <Enter>.

7.2.20 Wait for all tests to finish. NOTE: Tests are complete when the OPTIONS menu pops back up. During the tests, you can see any errors that occur in the Total Errors Window on the right side of the screen. You can see the test being performed on the left side of the screen.

7.2.21 When all tests are complete, move the cursor to "DISPLAY ERROR LOG" press <Enter>. You will see C:\AMIDIAG\AMIDIAG.LOG press <Enter>.

7.2.22 Look through the ERROR LOG for any failures. All tests in that were performed should say TEST PASSED, TEST ENDED. Any failures will be indicated. All failures must be resolved before continuing beyond this point. NOTE: You do not have to run the whole

batch to test the failed portion, you can run the failed portion only until the issue if corrected. **NEVER SAVE ANYTHING YOU DO AS C:\AMIDIAG\AMIDIAG.INI**.

7.2.23 Once all tests have passed, press ALT,CTRL,DEL to reboot and press F2 to enter Setup. Press F9 to load defaults, then "Exit Saving Settings".

7.2.24 Turn power off.

7.2.25 Remove Loopback connectors, video adapter card and keyboard adapter cable.

7.2.26 Remove ACLE Unit from extender card and remove extender card from fixture.

7.2.27 Stole DataLight 512MB CompactFlash, loopback connectors, keyboard, extender card, keyboard cable and video adapter in a safe place.

7.2.28 Remake the 10 pin connector to the Controller Card you removed earlier to install the keyboard cable. Reconnect the ribbon cable to the ACLE Card.

7.2.29 Turn switch on front panel of the test fixture to the ToolBox position.

7.2.30 You should now see the Windows Logon screen. Logon and open Control System ToolBox.

7.2.31 Open "SHOPFLOOR\SIMULATORS\SIM150_EX2100_REG\SIM150.ECB"

7.2.32 The unit under test should have come with a 128MB CompactFlash installed. Part number 336A4940FDP1. Install 128MB CompactFlash into the flash writer located under the monitor.

7.2.33 In ToolBox select "Device / Download to the ACL / Compact Flash" when download window comes up click "Write" and wait for write and verify to complete. **Please do not program the DataLight 512MB CompactFlash.**

7.2.34 Install the newly programed CompactFlash into the ACLE Card and insert the ACLE Unit into the rack.

7.2.35 Place com cable with 1 pink dot into COM1 on ACLE.

7.2.36 Insert the green Ethernet cable into ENet1 and the orange Ethernet cable into ENet2.

7.2.37 Turn on power

7.2.38 Once unit has booted (wait for flash LED to go out) select "Device / Download to the ACL / Product Code (Runtime)" click "Open", then click "OK".

7.2.39 When download is complete you will be asked if you want to reboot. Select "NO" and then cycle power on the test fixture.

7.2.40 Wait for unit to reboot and flash LED to go out.

7.2.41 Download "Application Code" by clicking on the RED ARROW. When the selection box opens, uncheck "Download to Memory" then click "OK".

7.2.42 When download is complete, reset the ACLE via the Reset button on the ACLE faceplate.

7.2.43 When the unit has finished booting up, the eight Status LED's on the faceplate of the ACLE should be going in a counter-clockwise pattern. Then the flash LED should go out.

7.2.44 Go online. You should now have a green M1, CONTROLand EQUAL at the bottom of the ToolBox screen.

7.2.45 Download the Application Code again. This time do not un-check the Download To Memory box. Click "OK", click "YES".

7.2.46 When download is complete, you will see a red "DSP Trip" at the bottom of the ToolBox screen. Double click the red box and a fault list window will pop up. Click "RESET FAULTS". The "DSP Trip" should clear.

7.2.47 Minimize ToolBox.

7.2.48 On the Windows Desktop, there are two files. Eth0.bat and Eth1.bat. These files will ping Ethernet 1 and 2 on the ACLE Unit. Open these two files and verify communications.

7.2.49 Allow unit to burn in for at least 2 hours, verify no faults or failures occur.

7.2.50 Go offline.

7.2.51 Turn off power to fixture.

7.2.52 Close SIM150.ECB and open E1_IP0.ECB This is to install default Core Load.

7.2.53 Remove ACLE Unit from rack. Remove CompactFlash from ACLE card and insert it into the Flash writer.

7.2.54 Select "DEVICE" then "DOWNLOAD TO THE ACL" then "COMPACT FLASH" click "Write".

7.2.55 Allow the CompactFlash to download and verify.

7.2.56 Re-install CompactFlash into the ACLE Card. Testing is now complete and unit is at factory default.

7.2.57 Close ToolBox.
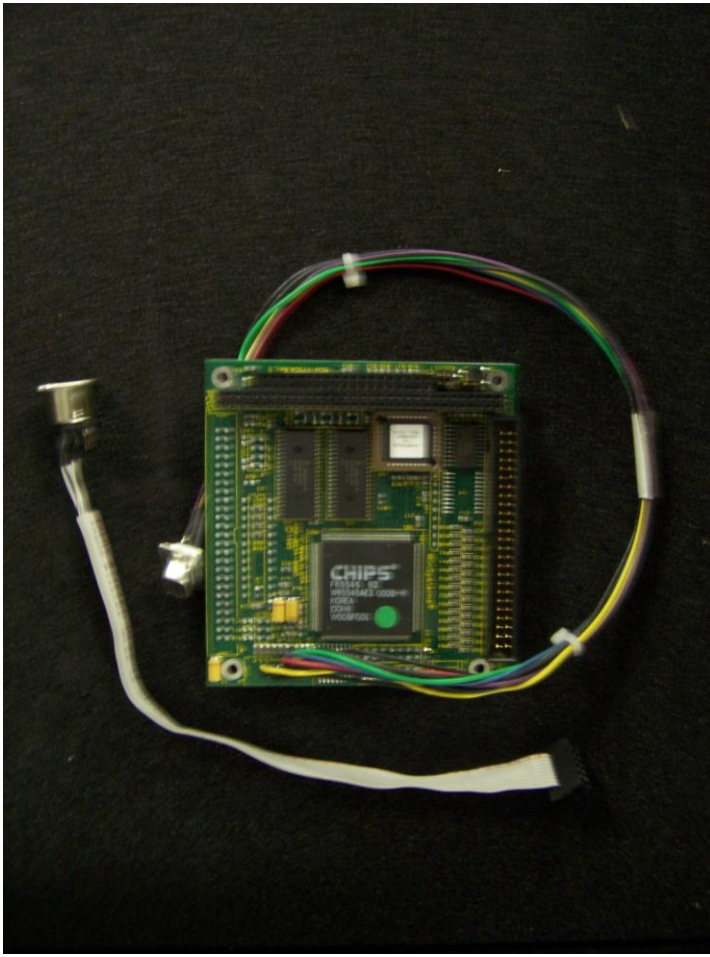
7.3 Post Testing Burn-in   Required   _x_ Yes   ___ No

7.4 ***TEST COMPLETE ***

8. Notes

8.1 None at this time.

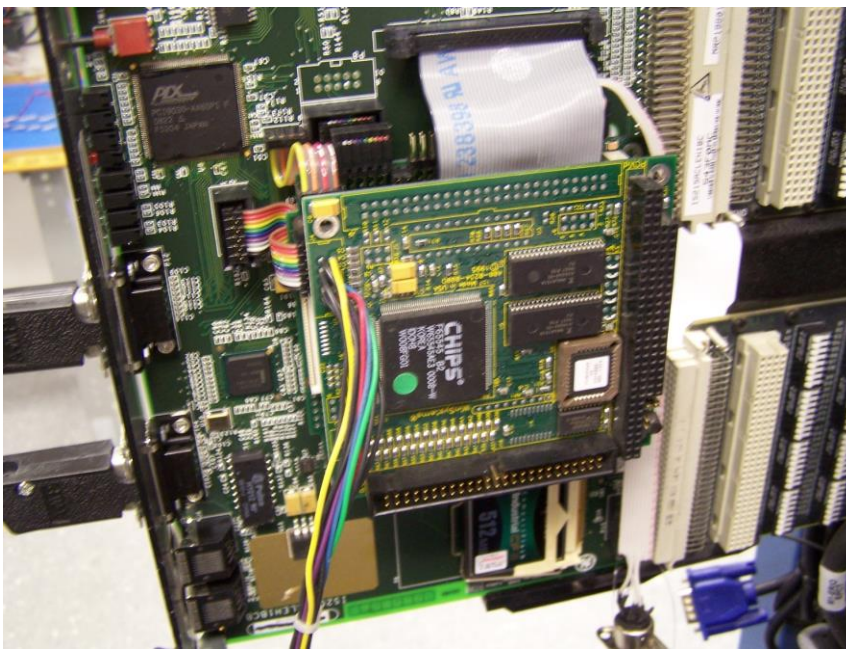## 9. Attachments

Video adapter and keyboard cable

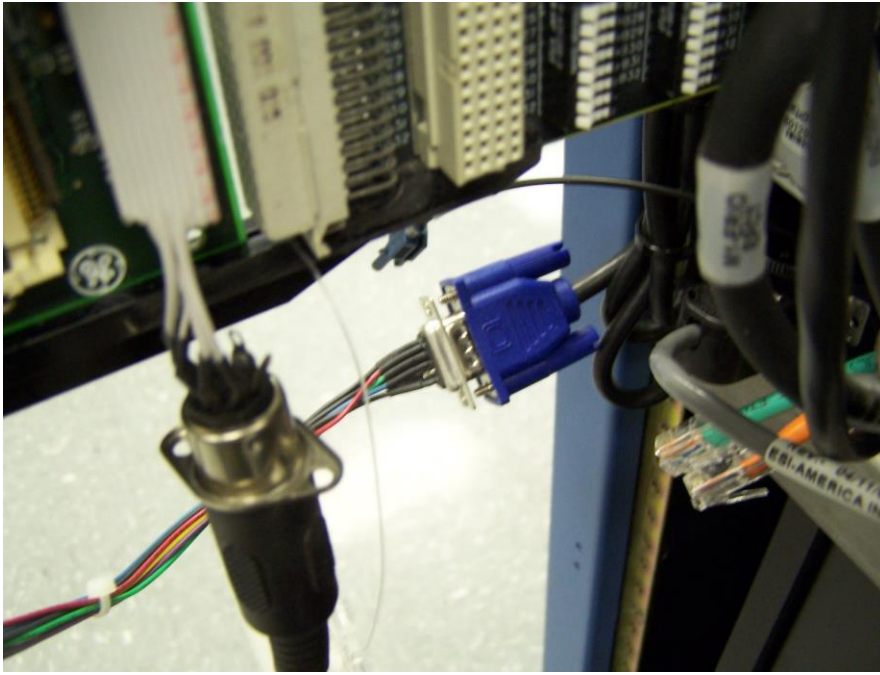**COM1 and COM2 with loopback connectors installed**
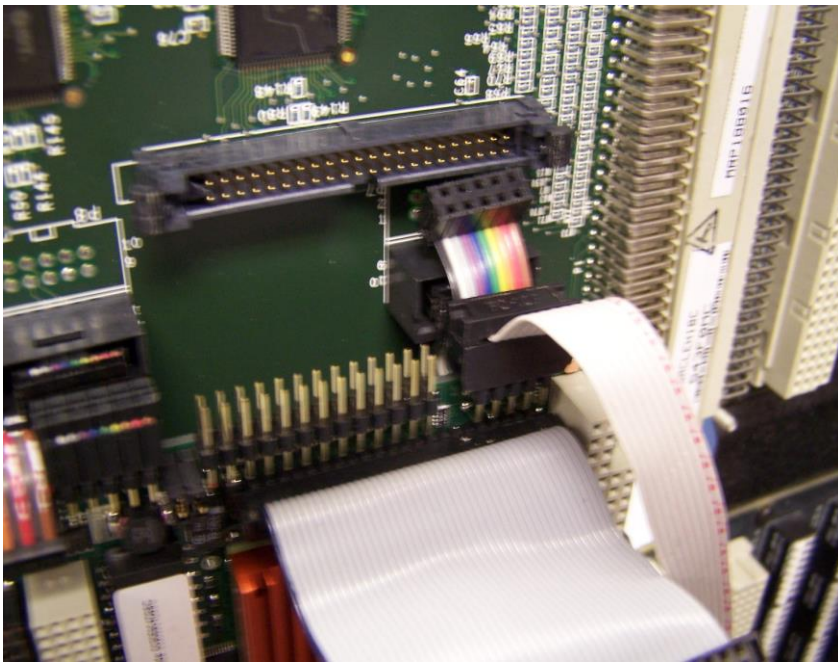
Installation of keyboard cable
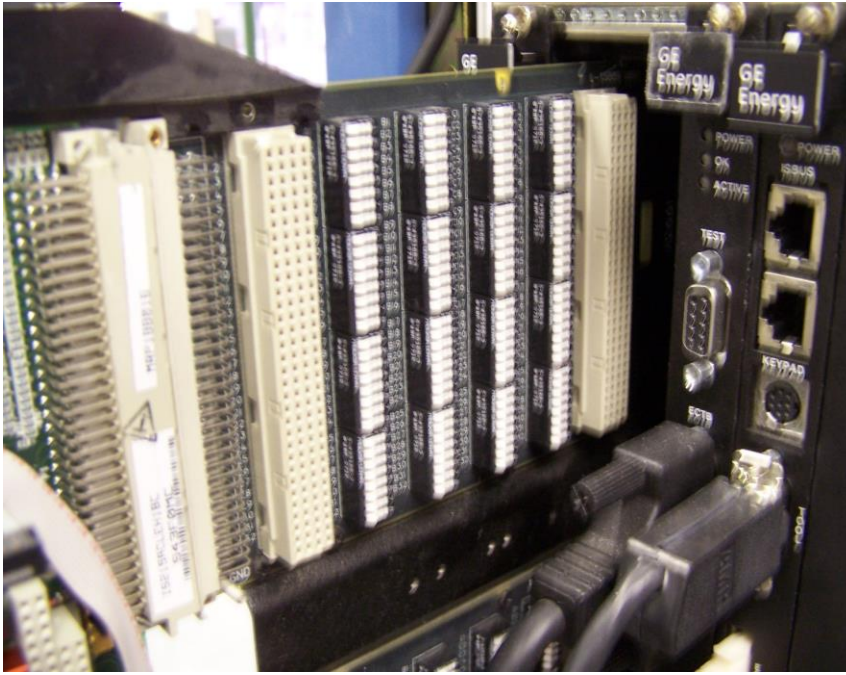
Extender card installed in rack with all switches closed

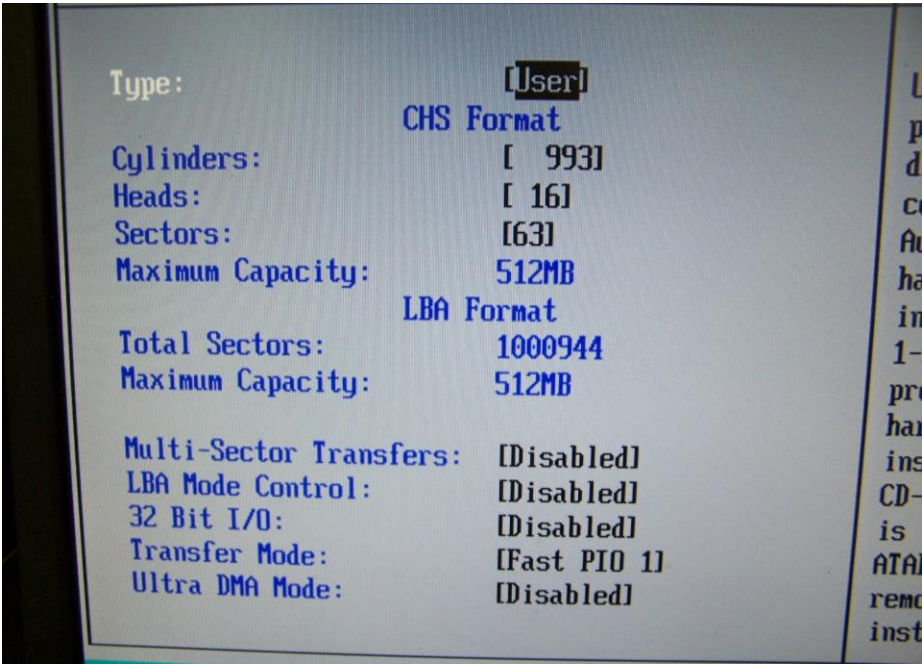**Video adapter and 512MB DataLight CompactFlash installed.**

Video and secondary keyboard connections made

ToolBox / Processor Tests video selector on front of fixture

CMOS settings for running Amidiag processor tests.