GE Energy	**Functional Testing Specification**
Parts & Repair Services ***Louisville, KY***	**LOU-TOFFEE-IS220PSCAH1A**

Test Procedure for a IS220PSCA Mark VIe Serial Communications Module

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REV.	DESCRIPTION	SIGNATURE	REV. DATE
A	Initial release	E Rouse	02/23/2010
B	Transferred procedure from a general group to a specific single document. Also added asset numbers to section 5.	F. Howard	06/28/2010
C	Added a functional test on the Mark Vie Simplex rack	J. Francis	3/7/2014

PREPARED BY	REVIEWED BY	REVIEWED BY	QUALITY APPROVAL
Eric Rouse	F. Howard	J. Francis	Charlie Wade
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Functional test procedure for IS220PSCA Mark VIe Serial Communications Module

1. SCOPE

1.1 This is a functional testing procedure for the IS220PSCAH1A IO Pack Serial Communications module.

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 or cracked
4.2.1.2 Terminal strips / connectors broken or cracked
4.2.1.3 Loose wires
4.2.1.4 Components visually damaged
4.2.1.5 Capacitors leaking
4.2.1.6 Solder joints damaged or cold
4.2.1.7 Circuit board burned or de-laminated
4.2.1.8 Printed wire runs 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	H188818	Toffee Test System #14
1	H188895	Toffee test fixture for IS220PSCAH1A
1	H188922	Mark VIe Simplex Test Rack

6. TESTING PROCESS

6.1 TOFFEE Testing

6.1.1 Install IS220PSCA fixture H188895 onto TOFFEE test System.

6.1.2 Install Unit Under Test into test fixture.

6.1.3 Testing Procedure

6.1.3.1 Double click on the OPERATOR INTERFACE icon on screen.

6.1.3.2 On the user name dialogue box, choose either administrator or technician. If administrator password is NGTF2008*, technician password is KISS, case sensitive. The next window should say configuration management and you should always click on no.

6.1.3.3 Screen will flicker and box marked single pass will be highlighted. Click on it and it should put up another dialogue box that says Orange book is old. Click o.k. If Orange book needs to be updated, there is an icon for that but I would let Paul or Eric do it until user is familiar with system.

6.1.3.4 The next dialogue box should say select DUT (device under test) . Detected fixture should have the model number being tested and family name should say MVIe. Click the drop down box DUT and your model number should be the only option. Select it and it should appear in the DUT model number. Put your revision level of unit being tested in DUT REV and click ok.

6.1.3.5 A delay dialogue box appears, counts down and then asks for a serial number, enter 14 and check the boxes marked RUN UPLOADS and DELETED LOGS. Click ok. If you logged on as an administrator, you will not get this dialogue box. The test will automatically run these.

6.1.3.6 A delay dialog box appears and counts down, do not stop it and then system runs test. You will get either a pass or fail message. If system passes continue on to next section, otherwise troubleshoot the unit.

6.2 Functional Testing

✍ **Note: The following tests assume you are familiar with using ToolboxST. You will need to perform downloads at least twice for UUT to be setup fully. You must also wait for approximately 3 minutes in between downloads for rack and UUT to reboot.**

6.2.1 Turn “OFF” Rack Power Switch on front of test rack.

6.2.2 Remove test card (GOLD card) from test rack and install Unit Under Test (UUT) into test rack.

6.2.3 Turn “ON” Rack Power Switch on front of test rack. Wait for approximately 5 minutes for rack to fully boot.

6.2.4 Open **ToolboxST** and open “**UCSAH1A_Simplex_Vle**” by double-clicking on it and click the “ONLINE” button in the toolbar.

6.2.5 Click on the “HARDWARE” tab, then click on the “+” sign next to the “Simplex” group under the “Distributed IO” icon. This will show you all of the modules setup in the rack. The PSCA module should have a red circle with an X through it, indicating no communications.

6.2.6 From the menu, Download Controller Setup by going to **Device->Download->Download Wizard.** Follow instructions in dialog boxes that follow.

6.2.7 After all downloads completed successfully, bring unit online in ToolboxST and check that the red circle with an X through it is gone and ToolboxST will communicate with PSCA Module.

6.2.8 Click on the “+” tab to the left of the PSCA icon. Should display 6 “Port# - ModbusMasterSerial Station 1” that are attached to the PSCA.

6.2.9 Click on “Port 1 – ModbusMasterSerial – Station 1”. Then click on the “COIL” tab in the window to the right. Should display 1 through 16 coils attached to the unit. The first column of variables (LIVE VALUES)) should all be “FALSE” (GREEN). The second column to the right (I/O LIVE VALUE) should all be “FALSE” (RED).

6.2.10 Turn the “PSCA COM PORTS” selector switch to “1”.

6.2.11 From the desktop, start the “mod_RSsim.exe” program by double clicking on the icon.

6.2.12 The program should start flashing and may start communicating. If not, then click the “Toggle Port Open/Close” to stop communications, then click on it again to re-start communications. Both lights in the top center of the program should start blinking after approximately 30 seconds. Also, at bottom left of program a YELLOW box should be around Port 1.

6.2.13 In ToolboxST, all of the variables in both the “LIVE VALUES” column and the “I/O LIVE VALUE” column should alternate from “FALSE” to “TRUE”. Let unit run awhile and communicate to verify operations.

6.2.14 Turn the “PSCA COM PORTS” selector switch to “2”.

6.2.15 The “mod_RSsim.exe” program should start flashing and may start communicating. If not, then click the “Toggle Port Open/Close” to stop communications, then click on it again to re-start communications. Both lights in the top center of the program should start blinking after approximately 30 seconds. Also, at bottom left of program a YELLOW box should be around Port 1.

6.2.16 In ToolboxST, all of the variables in both the “LIVE VALUES” column and the “I/O LIVE VALUE” column should alternate from “FALSE” to “TRUE”. Let unit run awhile and communicate to verify operations.

6.2.17 Turn the “PSCA COM PORTS” selector switch to “3”.

6.2.18 The “mod_RSsim.exe” program should start flashing and may start communicating. If not, then click the “Toggle Port Open/Close” to stop communications, then click on it again to re-start communications. Both lights in the top center of the program should start blinking after approximately 30 seconds. Also, at bottom left of program a YELLOW box should be around Port 1.

6.2.19 In ToolboxST, all of the variables in both the “LIVE VALUES” column and the “I/O LIVE VALUE” column should alternate from “FALSE” to “TRUE”. Let unit run awhile and communicate to verify operations.

6.2.20 Turn the “PSCA COM PORTS” selector switch to “4”.

6.2.21 The “mod_RSsim.exe” program should start flashing and may start communicating. If not, then click the “Toggle Port Open/Close” to stop communications, then click on it again to re-start communications. Both lights in the top center of the program should start blinking after approximately 30 seconds. Also, at bottom left of program a YELLOW box should be around Port 1.

6.2.22 In ToolboxST, all of the variables in both the “LIVE VALUES” column and the “I/O LIVE VALUE” column should alternate from “FALSE” to “TRUE”. Let unit run awhile and communicate to verify operations.

6.2.23 Turn the “PSCA COM PORTS” selector switch to “5”.

6.2.24 The “mod_RSsim.exe” program should start flashing and may start communicating. If not, then click the “Toggle Port Open/Close” to stop communications, then click on it again to re-start communications. Both lights in the top center of the program should start blinking after approximately 30 seconds. Also, at bottom left of program a YELLOW box should be around Port 1.

6.2.25 In ToolboxST, all of the variables in both the "LIVE VALUES" column and the "I/O LIVE VALUE" column should alternate from "FALSE" to "TRUE". Let unit run awhile and communicate to verify operations.

6.2.26 Turn the "PSCA COM PORTS" selector switch to "6".

6.2.27 The "mod_RSsim.exe" program should start flashing and may start communicating. If not, then click the "Toggle Port Open/Close" to stop communications, then click on it again to re-start communications. Both lights in the top center of the program should start blinking after approximately 30 seconds. Also, at bottom left of program a YELLOW box should be around Port 1.

6.2.28 In ToolboxST, all of the variables in both the "LIVE VALUES" column and the "I/O LIVE VALUE" column should alternate from "FALSE" to "TRUE". Let unit run awhile and communicate to verify operations.

6.3 Burn-In

6.3.1.1 Let unit run for at least 48 hours.

6.3.1.2 Cycle power to UUT.

6.3.1.3 Repeat steps through.

6.3.1.4 If successful testing is complete.

6.3.1.5 After testing has been completed successfully, remove UUT, reinstall GOLD card, and verify successfully operation in ToolboxST.

*6.4 ***TEST COMPLETE ****

7. NOTES

7.1 Changes to the electronic Toffee test are recorded in the Software Control Database.

8. ATTACHEMENTS

8.1 Picture of the Toffee Test System