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Gravity Probe B Relativity Mission

Operational Procedure for Regression Testing of TCAD

P0950 Rev G

2/08/2005

Approvals

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Required Signatures prior to Execution

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___ Yes ___ No

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1 REVISION HISTORY

REV	DATE	AUTHOR	COMMENTS
-	16 Oct 2002	SAP	initial version
A	30 May 2003	SAP	Updated document to include new features. Included baseline testing in addition to regression. Added definition to test procedure from earlier notes.
B	31 July 2003	SAP	Updated document to include new TCAD graphical features.
C	12 Sept 2003	SAP	Reorganization of Display test case, addition of SN data test cases.
D	13 Nov 2003	JLS	Updated sections 7.1, 10 (test section list), 10.3, 10.4, 10.7, 10.9, 10.19, 10.24, 10.25 and 10.28 to reflect MCR implementation.
E	26 Feb 2004	JLS	Updated sections 10.19, 10.25 and 10.26 to reflect code additions per MCRs.
F	31 Oct 2004	SP	5.1, 5.2 updated network constraints. 7.1, 7.2, updated list of program files. 10.4 Added Baseline test for selecting large time range. 10.7 Added to baseline test to include new checkbox capability. 10.8 Baseline tests added for new data types to display. 10.17, removed 'Analog Data' test (covered in 10.8 now) 10.21 Added test for searching in descriptions.
G	11 Feb 2005	JLS	Updated sections 10.15, 10.16, 10.19, 10.21, 10.23, 10.24, 10.25 and 10.28.

2 SCOPE

This Test Plan Document details the TCAD software package and how to both baseline and regression test it.

3 OPERATIONAL PERSONNEL

Jennifer Spencer
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Qualified QA Rep

4 QUALITY ASSURANCE PROVISIONS

Quality Assurance must be given 24 hour notification before this test is run; presence is at their discretion.

QA Notified Date & Time: _____ By: _____ QA
Initials: _____

5 REQUIREMENTS & CONSTRAINTS

5.1 Hardware and Software Requirements

Operations are performed on the Sun network known as "science". This application require that sybase be running and the GPB_L0, GPB_L1 and GPB_L1A databases are available for reading.

5.2 Configuration Requirements

The operator must be logged into the "science" network as a user in the group 'users' The user should reserve a directory for test data and save this data for QA.

Directory: _____

5.3 Constraints

Constraint	Risk
Graphical display	TCAD is a graphical application and the X-windows DISPLAY environment variable and xhosts file must be set to use the TCAD system. e.g. setenv DISPLAY machinename:0.0
L0 & L1 databases online	This system accesses the GPB_L0, GPB_L1 and GPB_L1A databases. All must be accessible.

6 REFERENCE DOCUMENTS

Document No.	Document
S0331	Data Management Plan
S0401	Stanford Post-Processing Operations for Science Mission Data
S0476	MOC Configuration Control, IONET LAN
S0515	MOC VDD for EVENTget.pl
S0613	TDP/TCAD Software Release (Design Document)
S0634	Snapshot Database Reading Utility
S0638	DBRO Data Retrieval and Display
S0717	TCAD User's Guide
P0827	Displaying APID 100, 300 & 301 Telemetry Data in the Non-Real-Time System
P0832	Event Display in Non-Real-Time System
LMMS/P4799100	LM VDD: Real-time Ground Software

MO-02	MOC Requirements
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7 SOURCE CODE PATH ON SCIENCE

This software is installed under the apps/supported/lasp-X.X/src directory structure at SU on the science network.

7.1 /tcad

Program files and versions are as follows:

File	RCS Version
Tcad	
Tcad.pro	
tcad_analyze_restore.pro	
tcad_analyze_save.pro	
tcad_axis_define.pro	
Tcad_clr_index.pro	
Tcad_dbroget_app_list.pro	
Tcad_display.pro	
Tcad_display_restore.pro	
Tcad_display_save.pro	
Tcad_display_search_list.pro	
Tcad_display_timetype.pro	
tcad_initial_printer.pro	
Tcad_main.pro	
Tcad_model_define.pro	
Tcad_panel_components.pro	
Tcad_plot.pro	
Tcad_plot_col.pro	
tcad_plot_define.pro	
Tcad_plot_function.pro	
Tcad_plot_prepare_print.pro	
tcad_plot_print.pro	
Tcad_plot_rtmnu.pro	
Tcad_plot_setup.pro	
tcad_plot_utils.pro	
Tcad_plot_yscale.pro	
Tcad_preferences.pro	
tcad_structs.pro	
Tcad_table.pro	
Tcad_table_prepare_print.pro	
Tcad_table_setup.pro	
tcad_text_define.pro	
Tcad_time_string.pro	
Tcad_tminfo.pro	
Tcad_values.pro	
Auto_plot	
Auto_plot.pro	
Auto_plot.sh	
Auto_plot_main.pro	
dt_timeaxis.pro	
ldl_startup.pro	
L0_fmtrpt.pro	

L1_fmtrpt.pro	
plot_fmt_select.pro	

7.2 /tcad/analyze

Programs and files are as follows:

File	RCS Version
l0_fmtrpt.pro	
l1_fmtrpt.pro	
snapshot.pro	
Tcad_dbroget.pro	
Tcad_eventget.pro	
Tcad_formatrpt.pro	
Tcad_mroget.pro	
Tcad_ssget.pro	
Time_converter.pro	

7.3 /db

Programs and files are as follows:

File	RCS Version
Gpb_db.pro	
Gpb_time.pro	
Db_routines.so	
Generic_time.pro	
Time_lib.pro	

7.4 SCRIPTS for TCAD

File	RCS Version
/apps/supported/scripts/tcad → /apps/supported/lasp-x.x/scripts/tcad	

8 TEST ENVIRONMENT

This software is tested on the science server at SU under the following configuration:

Software Configurations	Configuration Number (fill in)
IDL Version	
Sybase ASE	

9 OPERATING SYSTEM

This section describes the other software that is required to be in place for implementation of this delivery.

Operating System	Minimum Version	Description
Solaris Operating System	2.8	SUN's UNIX operating system.

10 TEST CASES FOR TCAD

If the date or RCS Version on any of the following files has changed, the tests in the corresponding section number must be run and checked off for verification. Throughout all phases of testing, all constraints (specified in section 4 of this document) must be met. Additional constraints may be set on an individual test case basis as noted in the Test Sections below. The objective of testing in TCAD is to confirm that the data displayed is accurate to the contents of the database and that this data is easy to access and display via the GUI. As such, the focus of testing for TCAD is about the presentation of the data.

LASP version being tested: _____

VERIFICATION REQUIRED <ul style="list-style-type: none"> • Baseline (B) • Regression(R) 	File	Test Name	Verified By <i>(initials)</i>	Date
	Tcad	TCAD MAIN		
	Tcad.pro	TCAD MAIN		
	Tcad_main.pro	TCAD MAIN		
	Tcad_tminfo.pro	TMINFO		
	Tcad_display.pro	DISPLAY, DISPLAY TIME, DISPLAY MENU, DISPLAY HOT, DISPLAY WILD, DISPLAY FMTS, DISPLAY OUT		
	Tcad_display_save.pro	SAVE RESTORE		
	Tcad_display_restore.pro	SAVE RESTORE		
	Tcad_display_timetype.pro	CYCLE SEL		
	Tcad_initial_printer.pro	INIT PRINT		
	Tcad_panel_components.pro	DISPLAY TIME		
	Tcad_table_setup.pro	TABLE SETUP		
	Tcad_table_prepare_print.pro	TABLE PRINT		
	Tcad_table.pro	TABLE		
	Tcad_plot_setup.pro	PLOT SETUP		
	Tcad_plot.pro	PLOT		
	Tcad_plot_prepare_print.pro	PLOT PRINT		
	Tcad_plot_rtmnu.pro	PLOT RTMENU		
	Tcad_plot_function.pro	PLOT RTMENU		
	Tcad_plot_yscale.pro	PLOT RTMENU		
	Tcad_plot_col.pro	PLOT RTMENU		
	Tcad_preferences.pro	USER PREF		
	Tcad_display_search_list.pro	MNE SEARCH		
	Tcad_eventget.pro	EVENT GET		
	Tcad_mroget.pro	MRO GET		
	Tcad_dbroget.pro	DBRO GET		
	Tcad_dbroget_app_list.pro	DBRO GET		
	snapshot.pro	SNAPSHOT		
	Tcad_formatrpt.pro	FMTRPT		
	Tcad_ssget.pro	SSGET		
	Tcad_values.pro	CORE2		
	Gpb_db.pro	CORE2		
	Gpb_time.pro	CORE2		
	Db_routines.so	CORE2		
	Auto_plot	AUTOPLOT		
	Auto_plot.pro	AUTOPLOT		
	Auto_plot.sh	AUTOPLOT		
	Auto_plot_main.pro	AUTOPLOT		

10.1 TCAD MAIN: TCAD Main Menu (B) (R)

Test Case Verification Number: TCAD MAIN

INTRODUCTION

This test case is used for verifying initialization of TCAD and the functionality of the main menu. All further testing is based on the success of this screen initializing correctly. No additional testing may be performed until this step completes successfully.

APPROACH

Point and click. Baseline and regression tests for this section are identical.

FEATURES TO BE TESTED

- Generation of Analyze menu.
- Access to child windows.
- Termination of child windows on application exit.

FEATURES NOT TO BE TESTED

- The Check menu.

BASLINE TESTS

- i. Login on science server and type 'tcad' at Unix command line.
- ii. Right-click on the 'Analyze' menu. Record the list of applications in the menu. Exit the application and create a dummy file in the analyze directory TCAD test code with a command like 'echo nothing > test_files.pro'. Reload the application and this file should now appear in the analyze menu. If all files are removed from the analyze directory, this menu item should disappear.
- iii. Click each item in each menu. Every sub-window should open when called.
- iv. With multiple child windows open, select 'Quit' from the file menu. All windows should close except the window from which TCAD was run.

BASLINE TEST PASS CRITERIA

Passes if TCAD initializes, no error messages are displayed in the startup screen and all menu options are accessible and close properly.

REGRESSION TESTS

- i. Load current version of TCAD and visually compare screen with previous version.

REGRESSION TEST PASS CRITERIA

Windows appear similar and respond similarly.

RESULT: PASS FAIL (circle one)

_____ initials

10.2 TMINFO: TM Info screen. (B) (R)

Test Case Verification Number: TMINFO

INTRODUCTION

Tests the validity of the information displayed by this GUI. The TM Info screen allows the user to fetch information about a particular mnemonic including but not limited to, its TMID, latest MSS version, units, limits, and calibrations.

APPROACH

For the baseline test, fetch data via GUI, compare against the MSS database. The regression test may simply compare a screen snapshot of the previous version with the current version.

FEATURES TO BE TESTED

- Verifies that the information requested is the information displayed.

FEATURES NOT TO BE TESTED

- Validity of contents of the MSS database.

BASELINE TESTS

- i. Select a mnemonic from a subsystem.
- ii. Select the information on the same mnemonic from the current MSS database
- iii. Compare the values in the display area with the information selected from the MSS database or screen shots from prior version. *
- iv. Take no less than three samples of mnemonics with different data types in different subsystems.

BASELINE TEST PASS CRITERIA

Passes if TM Information screen appears, mnemonics can be selected, and data displayed matches the data from the current MSS database loaded on the science system.

REGRESSION TESTS

- i. Display a mnemonic in the previous version of TCAD. Visually compare it with the same mnemonic in the current version of TCAD.

REGRESSION TEST PASS CRITERIA

Display for mnemonics is identical between versions.

ATTACHMENT(S): _____**RESULT:** PASS FAIL (circle one) _____ initials

10.3 DISPLAY: TCAD Display data window : telemetry selection components (B) (R)

Test Case Verification Number: DISPLAY

INTRODUCTION

Test cases for the subsystems, available telemetry items, and telemetry items selected components of the TCAD Display Data screen.

APPROACH

Point and click, visual inspection.

FEATURES TO BE TESTED

- Subsystems selection
- Available Telemetry Items Selection
- Removal of selected items
- Recall last session time & cycle choice

FEATURES NOT TO BE TESTED

- Cycle and time components
- Wildcard mnemonic selection
- Displaying data
- Configuring displays
- Format selection

BASELINE TESTS

- i. Select a subsystem from the selected list by clicking on it.
- ii. Select a telemetry item from the available telemetry items list by clicking on it.
- iii. Repeat previous steps for 4 different subsystems.
- iv. Double-click a mnemonic in the 'Telemetry Items Selected' section.
- v. Single-click a mnemonic in the 'Telemetry Items Selected' section and click 'Remove Selected Item Only'
- vi. Single-click 'Remove All Items From List'.
- vii. Make note of cycle number and time: _____ and any mnemonics selected: _____.
- viii. Exit TCAD
- ix. Restart TCAD and call up the Display Data screen.
- x. Compare listed cycle number and time and mnemonics with those written above.

BASELINE TEST PASS CRITERIA

- i. When subsystem is selected, a list of corresponding mnemonics appears.

- ii. When a telemetry item is selected, it appears in the 'Telemetry Items Selected' area.
- iii. When a telemetry item in the 'Telemetry Items Selected' list is double-clicked, it is removed from the list.
- iv. Clicking 'Remove Selected Item Only' removes the currently selected item from the 'Telemetry Items Selected' list.
- v. Clicking 'Remove All Items From List' removes all items in the selection list.
- vi. Comparison of written cycle, time and mnemonics above is exact against the cycle, time and mnemonics that appear when TCAD's Display Data window is shown at startup.

REGRESSION TESTS

- i. Select a telemetry item.
- ii. Select a cycle and time and telemetry item, then close Display Data window

REGRESSION TEST PASS CRITERIA

- Item is added to list.
- Restoring Display Data window shows cycle, time & telemetry item are the same as before.

RESULT: PASS FAIL (circle one) _____ initials

10.4 DISPLAY TIME: Cycle and time panel components.

(B) (R)

Test Case Verification Number: SAVE RESTORE

INTRODUCTION

This section details testing of time-entry routines. This code represents a common block of data that is reused by the Display Screen, and subscreens called from the analyze menu such as DBRO get, MRO get, Event get, and Snap read. Repeat testing is not required as the same code is being used in each section however, concurrency should be tested.

APPROACH

FEATURES TO BE TESTED

- Selection of cycle.
- Window resize.
- Autofill time button
- Time Range Warning

FEATURES NOT TO BE TESTED

- Cycle data validation.

BASELINE TESTS

- i. Input cycle and time range from Display Data, DBRO get, Event get, or MRO get (or other subscreens from the analyze menu).
- ii. Select various combinations of time ranges. Date format, numeric formats, +hours, outside cycle range, inside cycle range, with good and bad formatting of text and numbers.
- iii. Clear times and press the Autofill Times button. Select the full time range and compare with the information for the cycle in the cycle selection window.
- iv. Select 'Last N hours' time ranges and watch start and stop time fields update.
- v. Select a time range greater than 5 days.

BASELINE TEST PASS CRITERIA

- Program should pop-up dialog when submitting bad data and prevent user from moving forward until the offending field is corrected.
- Open two windows that use panel components then close one. The other should still operate correctly.
- Autofill time for the entire range roughly corresponds to the stated time range in the cycle information, unless the cycle selected predates the Files table in which case a popup-dialog will notify the user that they cannot use autofill for this section. In that event, chose a new cycle and retest.
- Changing hours to view modifies the start time accordingly except in the case where the number of hours chosen would make the start time earlier than the start of the cycle in which case the start time is set to the minimum for the cycle.
- Warning box appears for large time range.

REGRESSION TESTS

- i. Select a cycle.

REGRESSION TEST PASS CRITERIA

- Cycle is selected.

RESULT: PASS FAIL (circle one)

_____ initials

10.5 DISPLAY MENU: Menu items in the TCAD DISPLAY screen

(B)

Test Case Verification Number: DISPLAY MENU

INTRODUCTION

Test cases for all items accessible from the menus in the TCAD display window.

APPROACH

Point and click, visual inspection.

FEATURES TO BE TESTED

- Menu access to sub-screens

FEATURES NOT TO BE TESTED

- Functionality of sub-screens

TESTS

- i. Make changes to the display (input times, select a cycle, choose mnemonics, etc) Select 'File|Clear Configuration'
- ii. Click 'File|Restore Configuration'
- iii. Click 'File|Save Configuration'
- iv. Click 'Option|Cycle Select'
- v. Click 'Option|Preferences'
- vi. Click 'PLOT' under 'DISPLAY AS' on screen.
 - a. Click 'File|Print'
 - b. Click 'Option|Display Options'
- vii. Click 'TABLE' under 'DISPLAY AS' on screen.
 - a. Click 'File|Print'
 - b. Click 'Option|Display Options'
- viii. Click 'File|Close'

TEST PASS CRITERIA

- Changes made on screen are cleared.
- The restore file window appears.
- The save file window appears.
- The cycle selection window appears.
- The user preferences screen appears.
- The print window for plots appears; the display options for plots appears.
- The print window for tables appears; the display window for tables appears.
- The display window (and any open child windows) close.

RESULT: PASS FAIL (circle one)

_____ initials

10.6 DISPLAY HOT: Display Data Screen Hotkey functions

(B)

Test Case Verification Number: DISPLAY HOT

INTRODUCTION

This test case is a verification for hotkeys in the TCAD DISPLAY DATA screen.

APPROACH

Point and click, visual inspection.

FEATURES TO BE TESTED

- Hotkey functionality

FEATURES NOT TO BE TESTED

- Functionality of sub-screens.

TESTS

- Enter data on screen, press CTRL-N
- Press CTRL-O
- Press CTRL-W
- Press CTRL-P
- Press CTRL-D
- Press CTRL-Q

TEST PASS CRITERIA

- Changes made on screen are cleared.
- The restore file window appears.
- The save file window appears.
- The print window appears.
- The current settings are displayed to plot or table accordingly.
- The display window (and any open child windows) close.

RESULT: PASS FAIL (circle one)

_____ initials

10.7 DISPLAY WILD: Wildcard lookup of mnemonics

(B)

Test Case Verification Number: DISPLAY WILD

INTRODUCTION

The 'Enter Mnemonic' panel of the TCAD_DISPLAY screen is an independent component which may be reused in other windows and tested independently.

APPROACH

Point and click, visual inspection.

FEATURES TO BE TESTED

- Lookup of mnemonics
- Handling of many mnemonics
- Handling of few mnemonics
- Handling of no mnemonics
- Handling of too few characters entered

FEATURES NOT TO BE TESTED

- Available telemetry items screen

BASELINE TESTS

- i. Enter a pattern when will not match any database mnemonics such as the word 'Eggplant'
- ii. Enter a pattern which will match less than 5 database mnemonics such as 'BC_SA_*_Deploy'
- iii. Re-enter this pattern as all-capitals and again as all lower-case.
- iv. Enter a pattern which will match many mnemonics such as 'rf_force*'
- v. Enter one or zero characters in the search text box
- vi. Run steps i-v with the "Search Descriptions" check-box checked, then unchecked.

TEST PASS CRITERIA

- When no mnemonics match, a message window stating this appears.
- When less than 5 mnemonics match the query they are automatically added to the selection list.
- Changes in the case of the query do not change the number of mnemonics selected.
- When 5 or more mnemonics match the query the 'Available telemetry items' screen appears.
- If fewer than two characters are entered as a search criterion, a message window requests more characters.

RESULT: PASS FAIL (circle one) _____ initials

10.8 DISPLAY FMFS: Display Data Screen Data Rates and Averaged Data outputs

(B)

Test Case Verification Number: DISPLAY FMFS

INTRODUCTION

1K/2K and 32K data are separate entities and are displayed overlaid in the plot window or side by side in the table display. This section tests the checkboxes that toggle output for each.

APPROACH

Point and click, visual inspection.

FEATURES TO BE TESTED

- Selection of 1K/2K, 32K, Averaged, Min, and Max data

FEATURES NOT TO BE TESTED

- Correct plotting of 1K/2K and 32K, Averaged, Min and Max data

TESTS

- i. Select a cycle that contains separated 1K/2K and 32K data and a valid time range.
- ii. Select a mnemonic that has only 32K data.
- iii. Select a mnemonic that has only 1K/2K data.
- iv. Select a mnemonic that has both 1K/2K and 32K data.
- v. Select a mnemonic with averaged data, Toggle the averaged checkbox.
- vi. Select a mnemonic with min data. Toggle the min checkbox.
- vii. Select a mnemonic with max data. Toggle the max checkbox.
- viii. Display the data.
- ix. Toggle 1K/2K data and redisplay.
- x. Toggle 32K data and redisplay.

TEST PASS CRITERIA

- When plotted, mnemonics with mixed 1K/2K and 32K data are displayed as overlaid plots.
- When 1K/2K data is disabled, mnemonics that contain only 1K/2K data are blank. Mnemonics that contain mixed formats display only 32K data.
- When 32K data is disabled, mnemonics that contain only 32K data are blank. Mnemonics that contain mixed formats display only 1K/2K data.
- When Averaged, min, and max data are checked and data is available for these sets, data displays. When the box is not checked or no data is available, no plots for these items are drawn.

RESULT: PASS FAIL (circle one)

_____ initials

10.9 DISPLAY OUT: Display Data Output controls

- (B) (R)

Test Case Verification Number: DISPLAY OUT

INTRODUCTION

This test case handles the output controls on the TCAD Display Data screen. These controls include Plot/Table, Update Plot, New Plot, Display Table, Print, and Setup.

APPROACH

Point and click, visual inspection.

FEATURES TO BE TESTED

- DISPLAY AS Plot/Table selection
- The 'New Plot' button
- The 'Update Plot' button
- The 'Display Table' button
- The 'Print' button
- The 'Setup' button

FEATURES NOT TO BE TESTED

- 1K/2K 32K selection (See DISPLAY FMTS test case)
- Functionality of child windows.

BASLINE TESTS

- i. Select a valid cycle and time range.
- ii. Set 'Display As' to PLOT
 - Press 'New Plot'
 - Press 'Update Plot'
 - Press 'Print'
 - Press 'Setup'
- iii. Set 'Display As' to TABLE
 - Press 'Display Table'
 - Press 'Print'
 - Press 'Setup'

BASELINE TEST PASS CRITERIA

- When in plot mode, the data is displayed graphically.
- When in plot mode, if no plot windows exist, both 'New Plot' and 'Update Plot' bring up a new plot window.
- When in plot mode, if other plot windows exist, 'New Plot' brings up a new plot window.
- When in plot mode, if other plot windows exist, 'Update Plot' changes the displayed data in the plot window that had the last mouse-over.
- When in plot mode, the printer interface for plotting is displayed.
- When in plot mode, the plot setup screen appears when a 'Setup' is clicked.
- When in table mode, the data is as tab-delimited text.
- When in table mode, the printer interface for tables is displayed.
- When in table mode, the table setup screen appears when a 'Setup' is clicked.

REGRESSION TESTS

- i. Select a valid cycle and time range.
- ii. Set 'Display As' to PLOT. Click 'New Plot' and 'Update Plot'
- iii. Set 'Display As' to TABLE. Click 'Display Table'

REGRESSION TEST PASS CRITERIA

- When in plot mode, the data is displayed graphically.
- When in table mode, the data is as tab-delimited text.

RESULT: PASS FAIL (circle one) _____ initials

10.10 SAVE RESTORE: TCAD Save and Restore screens.

(B) (R)

Test Case Verification Number: SAVE RESTORE

INTRODUCTION

The baseline for this test verifies that the data saved by the user is the same as the data restored by the user. The regression test simply verifies that older versions of the save file can be loaded with the current tool.

APPROACH

Save a file and restore it or open a previously saved file.

FEATURES TO BE TESTED

- Generation of save file.
- Preservation of cycle and date/time selection.
- Storage of selected mnemonics
- Preservation of plot options.
- Preservation of user preferences.
- Restoration of individual plot settings if user setting is 'preserve'.

FEATURES NOT TO BE TESTED

- Use of save files in auto_plot

BASELINE TESTS

- i. Select a cycle, time range, and mnemonics in the display screen.
- ii. Select 'Save' from the display screen's File menu.
- iii. Give the configuration file a name and save it.
- iv. Exit the display screen, then re-enter it.
- v. Select 'Restore' from the display screen's File menu.
- vi. Load the previously saved file.

BASELINE TEST PASS CRITERIA

- File is created and now appears in 'Restore' list.

- Cycle, times, mnemonics, and plot and table configuration options should be restored exactly as they were set before the save.
- Settings in the plot setup screen are preserved.
- The user preferences for color and saving individual plot settings are preserved.
- If individual plot settings are preserved, the settings accessible from the right-click menu in the plot display are preserved.

REGRESSION TESTS

- i. Load a saved file.
- ii. Save the file with a different name.

REGRESSION TEST PASS CRITERIA

- The unix tool 'diff' shows the two files are identical.

RESULT: PASS FAIL (circle one)

_____ initials

10.11 CYCLE SEL: Cycle Selection Screen

(B)

Test Case Verification Number: CYCLE SEL

INTRODUCTION

This section details testing of time selection window.

APPROACH

Point and click/visual inspection.

FEATURES TO BE TESTED

- Selection of a cycle.

FEATURES NOT BEING TESTED

- N/A

TESTS

- i. Select 'cycle' from Option menu in Display Data screen.
- ii. Select real time or space-craft time.
- iii. For spacecraft time, select a cycle.

TEST PASS CRITERIA

- Cycle item on Display Data screen reflects cycle number selected (Or real time)

- Selecting and displaying mnemonics for this cycle matches database content on a manual select from Sybase.

RESULT: PASS FAIL (circle one) _____ initials

10.12 INIT PRINT: TCAD printer list generation.

(B) (R)

Test Case Verification Number: INIT PRINT

INTRODUCTION

This section details testing of printer list generation.

APPROACH

Visual inspection.

FEATURES TO BE TESTED

- Generation of printer list.

FEATURES NOT TO BE TESTED

- Printer status.

BASELINE TESTS

- Select cycle, time range, and mnemonic.
- Click 'Print' button in Display Data screen.
- Select drop-down list of printers.
- Change mode from plot to table and print the data a second time.

BASELINE TEST PASS CRITERIA

- All printers configured for this system should be displayed in the list.
- Print to each printer.

BASELINE TESTS

- Select cycle, time range, and mnemonic.
- Click 'Print' button in Display Data screen.
- Select drop-down list of printers.
- Change mode from plot to table and print the data a second time.

BASELINE TEST PASS CRITERIA

- All printers configured for this system should be displayed in the list.
- Print to each printer.

RESULT: PASS FAIL (circle one) _____ initials

10.13 TABLE: Output to Table (B) (R)

Test Case Verification Number: TABLE

This section details testing of configuration for outputting data to table format and provides criteria for validation of displayed data and retrieval times.

APPROACH

Select a short time range for a single mnemonic for data validation. Select a long time range for several mnemonics for speed verification.

FEATURES TO BE TESTED

- Data display
- Retrieval speed

FEATURES NOT TO BE TESTED

- Data Integrity

BASELINE TESTS

- i. Select a small range of data for a single analog mnemonic, set output to table and under 'Setup' set the table time output to 'Spacecraft Time' and display data as raw DN. Run the query and save the table data
- ii. Use the following SQL statement: `select SCT_VTCW, Value FROM GPB_L1A..Tmanalog WHERE TMID=<Your TMID> AND SCT_Cycle=<YOURCYCLE> AND SCT_VTCW BETWEEN <YOURSTARTTIME> AND <YOURSTOPTIME>` In this statement <YOURCYCLE>, <YOURSTARTTIME>, and <YOURSTOPTIME> are the values input into TCAD.
- iii. Compare this output line-by-line to the table data generated in step i. Only the headers should be different.
- iv. Timing: Set up a large query (multiple mnemonics, large time range). In a separate Unix window, use 'date' to get the current time, then return to the TCAD window and click 'Display Data'. Return to the command-line window and type 'date' again when the data is displayed.
- v.

BASELINE TEST PASS CRITERIA

- Data displayed in table matches data retrieved by SQL select.
- Retrieval time falls within specification, under 1 hour

REGRESSION TESTS

- i. Select the same range of data for the previous version of TCAD and the current version of TCAD.

REGRESSION TEST PASS CRITERIA

- Comparison of the two outputs is identical.

RESULT: PASS FAIL (circle one) _____ initials

10.14 TABLE SETUP: Setup screen for output to table.

(B)

Test Case Verification Number: TABLE SETUP

INTRODUCTION

This section details inspection of output to table. Table output is used in several test cases to verify that the dataset retrieved is what the user requested.

APPROACH

Visual comparison

FEATURES TO BE TESTED

- Output of raw versus calibrated data.
- Output of standard date/time versus spacecraft VTCW.

FEATURES NOT TO BE TESTED

- Text editor.

TESTS

- Select a mnemonic that is known to have calibration coefficients.
- Enter Setup Table screen and display data as a Raw DN and as EU/State data.
- Display data with Date/Time stamps and Spacecraft Time stamps.

TEST PASS CRITERIA

- In 'Raw DN' mode, a floating point value is displayed for this mnemonic.
- In 'EU/State' mode the calibrated value of this mnemonic is displayed.
- In 'Date/Time' mode, timestamps take the form of YYYY/DOY-HH:MM:SS.n
- In 'Spacecraft Time' mode, timestamps take the form of a long integer.

RESULT: PASS FAIL (circle one) _____ initials

10.15 TABLE PRINT: Setup screen for output to table.

(B) (R)

Test Case Verification Number: TABLE PRINT

INTRODUCTION

Test printing the table output.

APPROACH

Point and click.

FEATURES TO BE TESTED

- Output to printer
- Output to ASCII file
- Output to MATLAB File

FEATURES NOT TO BE TESTED

- Data quality

BASELINE TESTS

- i. Load a very small data set.
- ii. In TABLE mode, press the 'Print' button.
- iii. Print to a printer.
- iv. Print to an ASCII file.
- v. Print to a MATLAB file.

BASELINE TEST PASS CRITERIA

- When in 'Printer' mode, a dropdown list of available printers is present.
- OK outputs to selected printer. Cancel aborts.
- When in 'To ASCII File' mode, there is an entry box.
- When in 'To MATLAB File' mode, there is an entry box, and upon completion there is a message box instructing how to access the file.
- OK outputs to the filename requested (relative to user's home directory). Cancel aborts.

REGRESSION TESTS

- i. Load a very small data set.
- ii. In TABLE mode, press the 'Print' button.
- iii. Print to a printer.
- iv. Print to an ASCII file.
- v. Print to a MATLAB file.

REGRESSION TEST PASS CRITERIA

- OK outputs to selected printer, ASCII file and MATLAB file.

RESULT: PASS FAIL (circle one)

_____ initials

10.16 PLOT: TCAD plot display screen

(B) (R)

Test Case Verification Number: PLOT

INTRODUCTION

This screen graphically displays the selected mnemonics.

APPROACH

Point and click.

FEATURES TO BE TESTED

- Display of 1K/2K and 32K data.
- Mouse-over of plot data.
- Z-Order of plot drawings
- Right-click menu access.
- Zooming in on a plot.
- Resizing the plot window.

FEATURES NOT TO BE TESTED

- Right-click menu display modifiers.

TESTS

- i. Select a known cycle, time range, and mnemonic for each type of data: analog, discrete, no data, with limits, without limits, with calibrations, and without calibrations. USE 'Restore Configuration' to load file named /home/tdp/regression/display_test.tcad.
- ii. Output data to as a table.
- iii. Output data to screen as a plot.
- iv. Mouse-over the data and compare the snap-to values displayed at the bottom of the screen with the visual appearance of cursor location on the screen and with the values in the generated table for the time index displayed on the screen.
- v. Resize the window and repeat the previous step to verify that values are the same.
- vi. Choose an option on pull-down menu for 32K, 1K/2K, Min, Max, Avg and Std. Check that graphing order of plot changes upon selection and that mouse-over values are correct for that data selection by comparing against table values.
- vii. Left-click once to begin a rubber-band zoom region. Click a second time to mark the far corner of the zoom rectangle and start the zoom. Again, verify the displayed values with the table values.

- viii. Right-click on a plot to activate the right-click menu.
- ix. In the plot setup screen, select all plots to single plot.

TEST PASS CRITERIA

- No error messages are generated as pop-ups or in the TCAD startup window.
- Data points on screen match those of table.
- Mouse-over of data points shows a value matching the value for the time index in the table data.
- Screen resize does not alter accuracy of data points for mouse-over.
- Screen resize does not create video artifacts.
- Screen resize does not make text illegible (Except in cases of becoming too small to read)
- Zooming does not alter accuracy of data points for mouse-over.
- Zooming does not make text illegible.
- Right-click on a plot brings up the right-click menu.
- Legend accurately reflects settings for mnemonics in plot area on a single plot.
- Legend is not displayed in multi-plot mode.
- In all plots to single plot mode, a legend is displayed on the left side of the screen.
- When a plot which contains only 1K/2K data or when only 1K/2K mode is selected, the mouse-over values reflect the 1K/2K values instead of the 32K values.
- When zooming, the resulting plot has x and y axis boundaries very close to the user's zoom selection, not padded by more than 5% of overall plot range.
- Pull-down menu causes correct data type to be displayed "on top" of plot
- Pull-down menu causes correct data type to correspond to appropriate mouse-over values.

RESULT: PASS FAIL (circle one)

_____ initials

10.17 PLOT SETUP: General configuration of TCAD plots.

(B) (R)

Test Case Verification Number: PLOT SETUP

INTRODUCTION

The plot setup screen controls the appearance of all plots in the TCAD plot window and in the printed output.

APPROACH

Plot a set of data, make modifications of the plot settings and click the 'Apply' button to compare the previous screenshot with the current screen.

FEATURES TO BE TESTED

- Plot As
- Plot Layout
- Date Format
- Show VTCW
- Limit display
- Y-Axis scaling

FEATURES NOT TO BE TESTED

- OK, Apply, and Cancel buttons.
- Save/Restore of settings.

BASELINE TESTS

- Select a known cycle, time range, and mnemonics.
 - i. Select Setup from the Display Data screen or Display Options from the Option menu in plot mode.
 - ii. Individually test each control using the 'Apply' button to redraw the plotted data.

BASELINE TEST PASS CRITERIA

- Display screen initiates.
- No error messages are displayed in pop-up dialogs or in TCAD start-up window during operation.
- Display setting changes affect data as expected. IE: limits displayed match limit settings for this mnemonic in database, Display VTCW time displays numeric time instead of date time and time ranges match expectations, and adding a margin displays in the screen.

REGRESSION TESTS

- Select a known cycle, time range, and mnemonics.
 - i. Select Setup from the Display Data screen or Display Options from the Option menu in plot mode.
 - ii. Press the APPLY button.

REGRESSION TEST PASS CRITERIA

- Display screen initiates.

RESULT: PASS FAIL (circle one)

_____ initials

10.18 PLOT PRINT: Printing TCAD plots

(B) (R)

Test Case Verification Number: PLOT PRINT

INTRODUCTION

TCAD plots are more complex than tables and have more printing options.

APPROACH

Plot the same set of data to the various output mechanisms and compare.

FEATURES TO BE TESTED

- Printer output
- File output
- Web output

FEATURES NOT TO BE TESTED

- Data quality.

BASELINE TESTS

- i. Load a dataset and press 'print'.
- ii. Output to each file type.
- iii. Push a plot to the web.
- iv. Print in color.
- v. Print in black and white.
- vi. Print in Landscape mode.

BASELINE TEST PASS CRITERIA

- Each of the saved file types can be opened and viewed in xv, photoshop or some other graphical application.
- Requested file is pushed to the web (assuming proper user permissions)
- Portrait and landscape mode print accordingly.
- B&W versus color prints print accordingly.
- The printer list dropdown contains the list of printers accessible to the test user.

REGRESSION TESTS

- Print a plot.

REGRESSION TEST PASS CRITERIA

- Plot prints.

RESULT: PASS FAIL (circle one)

_____ initials

10.19 PLOT RTMENU: Plot Customization via right-click menu. (B)

Test Case Verification Number: PLOT RTMENU

INTRODUCTION

This section details validation of right-click menu items.

APPROACH

Visual inspection.

FEATURES TO BE TESTED

- X and Y-Axis Range
- Function Overplot
- Remove Outliers
- Color/Symbol settings
- Print
- Plot to new Window
- Zoom out to Max.
- Clear settings for plot
- Close all plots
- Mnemonic Info

FEATURES NOT TO BE TESTED

- None.

TESTS

- i. Select a cycle and time range, display data as a table and as a plot. Right-click on a plot to bring up the menu.
- ii. Select 'Axis Range', alter X axis values, and press the 'Update Plot' button. Plot should resize the X-Axis accordingly. Do the same for the Y-Axis. Mouse-over of data should display the same values as the table data.
- iii. Repeat step ii, above, and choose the 'apply (X or Y) to all plots' option when more than one plot is displayed. The plots should resize accordingly, and mouse-over should work properly for all plots.
- iv. Select 'Function Overplot'
- v. Select 'Remove Outliers'. After selecting whether to apply to one or all plots, appearance of plot should change as expected. Plot should be labeled as one that has had its outliers removed from the display.
- vi. Select 'Color/Symbol Settings'. Change appearance of the plot.
- vii. Select 'Zoom out to Max.'
- viii. Select 'Print'
- ix. Select 'Mnemonic Info'

- x. Select 'Plot to new Window'
- xi. Select 'Clear all settings'
- xii. Select 'Close all plots'

TEST PASS CRITERIA

Requested modifications displayed as expected, plot(s) output to printer, mnemonic info given matches that shown on TMinfo screen. Repeated use of right-mouse button screen(s) should cause no errors.

RESULT: PASS FAIL (circle one)

_____ initials

10.20 USER PREFS: User preferences screen

(B) (R)

Test Case Verification Number: USER PREFS

INTRODUCTION

This test case outlines procedures for testing the user preferences window and verifying its effect on related windows.

APPROACH

Point and click, visual inspection.

FEATURES TO BE TESTED

- Preservation of plot settings.
- Default mode for printing.

FEATURES NOT TO BE TESTED

- Setting plot options.

BASLINE TESTS

- i. Load a data set to plot.
- ii. Select 'Preferences' from the 'Option' menu.
- iii. Check 'Preserve user preferences' if it is unchecked.
- iv. Display the plot and make alterations to its appearance using options from the right-click menu (such as scaling and changing the plot color)
- v. Close the plot window and reopen it.
- vi. Select 'Preferences' from the 'Option' menu again and uncheck 'Preserve user preferences'.
- vii. Close the plot window and reopen it a second time.
- viii. Toggle the 'Print in Color' checkbox in the 'User Preferences' window, press 'Okay' and click the 'print' button on the Display Data screen.

BASELINE TEST PASS CRITERIA

- When 'preserve user preferences' is selected, right-menu optional modifiers to the plot are preserved between redisplay of the data. When it is unchecked, the default settings are used.
- The 'Print in Color' on the 'Plot Print' screen is defaulted to match the setting in the preferences.

REGRESSION TESTS

- i. Turn on 'preserve user preferences' and make changes to plot color from the right-click menu and reload the plot.

REGRESSION TEST PASS CRITERIA

- Color change is preserved.

RESULT: PASS FAIL (circle one) _____ initials

10.21 MNE SEARCH: Select list of mnemonics and/or descriptions matching wildcard

(B) (R)

Test Case Verification Number: MNE SEARCH

INTRODUCTION

The Mnemonics Found screen can be accessed both from Display Data and from the TM Info screen. Behavior is slightly different depending on the calling application.

APPROACH

Point and click, visual inspection.

FEATURES TO BE TESTED

- Select of mnemonic(s)
- Entry from different applications.
- Search by name and by description.

FEATURES NOT TO BE TESTED

- Application of returned mnemonic(s).
- Activation of mnemonic list by calling routines.

BASLINE TESTS

- i. Open The 'TM Info' window and type in a valid wildcard pattern to activate the Mnemonics Found screen.
- ii. Hold down the SHIFT key and attempt to select multiple mnemonics.
- iii. Select a mnemonic and press 'OK'.
- iv. Press the RETURN key when selecting search as well as using button.

- v. Re-enter the selection screen and press 'CANCEL'.
- vi. Open the 'Display Data' screen and enter a pattern that will match 5 or more mnemonics to activate the 'Mnemonics Found' screen.
- vii. Select 1 mnemonic and press 'OK'.
- viii. Re-enter the screen, and select 2 or more mnemonics (by holding down SHIFT or CNTRL) and press 'OK'
- ix. Re-enter the screen and press 'CANCEL'
- x. Selecting the 'Description' checkbox should find this search pattern in data descriptions.
- xi. Press the RETURN key when selecting search as well as using button.

BASELINE TEST PASS CRITERIA

- Multiple-mnemonic selection is disallowed from the TMinfo screen.
- The selected mnemonic in TMinfo is returned and the data for this mnemonic is displayed.
- The single selected Mnemonic is returned to the Display Data screen.
- The multiple selected Mnemonics are returned to the Display Data screen.
- The CANCEL button returns to the parent window without making any changes to the parent screen.
- Searches match valid strings for both mnemonic names and descriptions.

REGRESSION TESTS

- i. Enter the mnemonic selection screen from either TMinfo or Display Data, select a mnemonic and press OK.

REGRESSION TEST PASS CRITERIA

- The selected mnemonic is returned.

RESULT: PASS FAIL (circle one) _____ initials

10.22 EVENT GET: Tcad GUI wrapper to Event Get application.

(B)

Test Case Verification Number: EVENT GET

INTRODUCTION

This section details testing of IDL wrapper to Perl Event-Get program.

APPROACH

Visual inspection.

FEATURES TO BE TESTED

- Activation of the Event-get Perl script by the GUI.

FEATURES NOT TO BE TESTED

- Data integrity of the event get program. (This is handled in P0832)

TESTS

- i. Select EventGet from the Analyze menu.
- ii. Select cycle and time range.
- iii. Click Okay

TEST PASS CRITERIA

- By visual inspection of the data retrieved by the event get program, verify that the dates and cycle range entered by the user were the ones passed to the event get application.

RESULT: PASS FAIL (circle one) _____ initials

10.23 MRO GET: Tcad GUI wrapper to MRO Get application.

(B)

Test Case Verification Number: MRO GET

INTRODUCTION

This section details testing of IDL wrapper to Perl MRO-Get program.

APPROACH

Visual inspection.

FEATURES TO BE TESTED

- Activation of the MRO-get Perl script by the GUI.

FEATURES NOT TO BE TESTED

- Data integrity of the event get program.

BASELINE TESTS

- i. Select MROGet from the Analyze menu.
- ii. Select cycle and time range.
- iii. Click Okay
- iv. Select a large time range to generate more than 20K of data.

BASELINE TEST PASS CRITERIA

- By visual inspection of the data retrieved by the MRO get program, verify that the dates and cycle range entered by the user were the ones passed to the MRO get application.
- Program is able to display more than 20K of data.

(R)**REGRESSION TESTS**

- i. Select MROGet from the Analyze menu of released code.
- ii. Select cycle and time range.
- iii. Click Okay
- iv. Select a large time range to generate more than 20K of data.
- v. Exit TCAD
- vi. Rename files written by MROget in /home/~username/OFILE/MRO/ in step iv
- vii. Run steps i – iv again with the same cycle & time range using new code.
- viii. Compare new files in /home/~username/OFILE/MRO with those renamed in step vi. There should be no differences.

REGRESSION TEST PASS CRITERIA

- There should be no differences between MRO files generated and referenced in steps vi and viii above.

RESULT: PASS FAIL (circle one)

_____ initials

10.24 DBRO GET: Tcad GUI wrapper to DBRO Get application. (B)

Test Case Verification Number: DBRO GET

INTRODUCTION

This section details testing of IDL wrapper to Perl DBRO-Get program.

APPROACH

Visual inspection, independent verification via a more detailed discussion in S0638

FEATURES TO BE TESTED

- Activation of the DBROget Perl script by the GUI.
- Ability to select desired Application ID from list of SW Applications or by typing one into the Application ID text box.

FEATURES NOT TO BE TESTED

- Data integrity of the DBROget program. (This is handled in S0638)

BASELINE TESTS

- i. Select tcad_dbroget from the Analyze menu.
- ii. Select cycle and time range.

- iii. Enter an Application ID or select one using the “Select Application by Name” button.
- iv. Click Okay

BASELINE TEST PASS CRITERIA

- By visual inspection of the data retrieved by the DBROget program, verify that the application ID, dates and cycle range entered by the user were the ones passed to the DBRO get application.

(R)

REGRESSION TESTS

- i. Select DBROGet from the Analyze menu of released code.
- ii. Select cycle and time range.
- iii. Click Okay
- iv. Select a large time range to generate more than 20K of data.
- v. Exit TCAD
- vi. Rename files written by DBROget in /home/~username/OFILE/DBRO/ in step iv
- vii. Run steps i – iv again with the same cycle & time range using new code.
- viii. Compare new files in /home/~username/OFILE/DBRO with those renamed in step vi. There should be no differences.

REGRESSION TEST PASS CRITERIA

- There should be no differences between DBRO files generated and referenced in steps vi and viii above.

RESULT: PASS FAIL (circle one) _____ initials

10.25 SNAPSHOT: TCAD Snapshot Display tool.

(B)

Test Case Verification Number: SNAPSHOT

INTRODUCTION

This section details testing of IDL Snapshot display program.

APPROACH

Visual inspection.

FEATURES TO BE TESTED

- Launch of snapshot routine with proper parameters.

- Selecting Subsystem changes snapshot options
- Typing into Snapshot ID returns expected data
- Choosing 'Send all to printer' will print data
- Entering data into 'Show Snapshots' boxes returns only desired number of snapshots.
- Selecting Snapshot sub-type options returns expected data
- Right-click menu options display
- Right-click "print" option prints plots
- Right-click "Close all plots" option closes all plots

FEATURES NOT TO BE TESTED

- Data matrix generated.
- Locating snapshot data.

TESTS

- i. Select snapshots from the Analyze menu.
- ii. Select cycle and time range.
- iii. Check to see if time is stored from previous run of program
- iv. Select Subsystem
- v. Select 'Show Snapshots' as directed by message windows, as needed
- vi. Select sub-type options in snapshot information box such as "Snapshot Type"
- vii. Click Okay
- viii. Make sure the tick labels on the x axis are not squeezed together
- ix. Use right-click menu to print a plot
- x. Try printing in color and black and white
- xi. Use right-click menu to close all plot windows

TEST PASS CRITERIA

- By visual inspection of the data retrieved by snapshot, verify that the dates and cycle range entered by the user were the ones requested.
- By visual inspection verify that subsystem, type, and number of snapshots sent agree with those entered.
- Paper print arrived at printer
- Right-click menu options behave as expected

RESULT: PASS FAIL (circle one) _____ initials

10.26 FMTRPT: Tcad GUI wrapper to the L1 and L0 Fmt Report applications.

(B)

Test Case Verification Number: FMTRPT

INTRODUCTION

This section details testing of IDL L0 and L1 Format Report programs.

APPROACH

Visual inspection.

FEATURES TO BE TESTED

- Activation of the L0 Format Report by the GUI.
- Activation of the L1 Format Report by the GUI.

FEATURES NOT TO BE TESTED

- Data integrity of the Format Report programs.

TESTS

- i. Select I0_fmtreport from the Analyze menu.
- ii. Select cycle and time range.
- iii. Click Okay
- iv. Once report is displayed to the screen, proceed with next step.
- v. Select I1_fmtreport from the Analyze menu.
- vi. Select cycle and time range.
- vii. Click Okay

TEST PASS CRITERIA

- By visual inspection of the data retrieved by the two Format Report programs, verify that the dates and cycle range entered by the user were the ones passed to the Format Report applications.

RESULT: PASS FAIL (circle one) _____ initials

10.27 SSGET: Tcad GUI wrapper to Snapshot Get application.

(B)

Test Case Verification Number: SSGET

INTRODUCTION

This section details testing of IDL wrapper to Perl Snapshot-Get program.

APPROACH

Visual inspection.

FEATURES TO BE TESTED

- Activation of the Snapshot-get Perl script by the GUI.

FEATURES NOT TO BE TESTED

- Data integrity of the event get program.

TESTS

- Select SSGet from the Analyze menu.
- Select cycle and time range.
- Click Okay

TEST PASS CRITERIA

- By visual inspection of the data retrieved by the Snapshot get program, verify that the dates and cycle range entered by the user were the ones passed to the Snapshot get application.

RESULT: PASS FAIL (circle one)

_____ initials

10.28 AUTO PLOT: Command-line plotting tool. (B) (R)

Test Case Verification Number: SSGET

INTRODUCTION

The auto_plot tool is a stand-alone script that generates a dummy structure set for the TCAD plotting routines and passes in a series of TCAD save files with an alternate cycle and time range specified. Its purpose is to generate plots identical to those in TCAD but from a command-line scriptable interface.

APPROACH

Entry of command-line parameters, visual inspection of printed plots.

FEATURES TO BE TESTED

- Use of plot settings and user preferences stored in the saved TCAD file.
- Generation of plots
- Use of specific printer

FEATURES NOT TO BE TESTED

- Save file generation
- Formatting of time strings.
- Printer settings

BASELINE TESTS

- From the command-line run auto_plot with the following syntax:
Auto_plot <cycle> <starttime> <endtime> <tcadfile> <-Pprintername>

(Consult the TCAD User's Guide SO717 for more information on these parameters)

ii. From the command-line run `auto_plot` with the following syntax:
`Auto_plot <cycle> <starttime> <endtime> <tcadfile> -JPG`
(Consult the TCAD User's Guide SO717 for more information on these parameters)

iii. From the command-line run `auto_plot` with the following syntax:
`Auto_plot <cycle> <starttime> <endtime> <tcadfile> -JPG -WEB`
(Consult the TCAD User's Guide SO717 for more information on these parameters)

iv. From the command `Auto_plot <cycle> <starttime> <endtime> <tcadfile> -MAT -TAB`
(Consult the TCAD User's Guide SO717 for more information on these parameters)

BASELINE TEST PASS CRITERIA

- First plot is printed to printer specified with the `-P` parameter.
- Second Plot is sent to a file in the user's home directory named, `<tcadfile.JPG>`. Validate JPG file using unix tool 'xv'
- Third plot is sent to the <https://gpbops.stanford.edu/reports/tcad> directory and named `<tcadfile.JPG>`
- Fourth plot is sent to two files in user's home directory named `<tcadfile.m>` and `<tcadfile.tab>`. The first is readable by running `l1tcadread.m` in MATLAB and the second is a tab-delimited data file.
- The plot visually matches the plot on the screen when the same `.tcad` file is loaded and run to display output.
- User preferences such as plot symbols and color/B&W printing correctly appear in the printed plot.

REGRESSION TESTS

i. From the command-line run `auto_plot` with the following syntax:
`Auto_plot <cycle> <starttime> <endtime> <tcadfile>`
(Consult the TCAD User's Guide SO717 for more information on these parameters)

REGRESSION TEST PASS CRITERIA

- Plot is printed to printer.

RESULT: PASS FAIL (circle one)

_____ initials

Successful Completion of P0950:

RUN BY (signature) _____ Date: _____

Print Name: _____

ALL TESTING PASSED (CIRCLE ONE): YES – PASSED NO – MCR FILED

QA Review of process _____ Date: _____

11 GLOSSARY

This section contains an alphabetic list and definitions of all acronyms used in the document, all proper nouns, and any words used in a non-standard way.

Word	Detail
CSCI	Computer Software Configuration Item
LASP	Laboratory for Atmospheric and Space Physics, University of Colorado
moc-server	Host name of the SUN computer that is the primary server for the MOC.
science server	Host name of the SUN computer which is the primary server for science LAN
SAFS	Standard Autonomous File Server (GSFC facility)
TCAD	Telemetry Checking, Analysis, and Display
TDP	Telemetry Data Processing
Startup window	The window containing the Unix command line from which TCAD was started