

emPower®

**Test Reference
Manual**



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1. THE TEST DIALOG WINDOW

1.1 Running a Test Program with TEST

In this section I'm assuming that your Test Program has no bugs, and you're either running your Test Program in Offline mode, or your UUT has nothing wrong with it. See the *emPower*® Utilities Reference Manual for more on the Offline mode.

Open the Test Program you want to run with TEST – instructions on page 15.



Figure 1 – The TEST toolbar

In the TEST toolbar, Figure 1:

Click the Start Program icon – a Test Information Entry dialog window like Figure 2, opens:

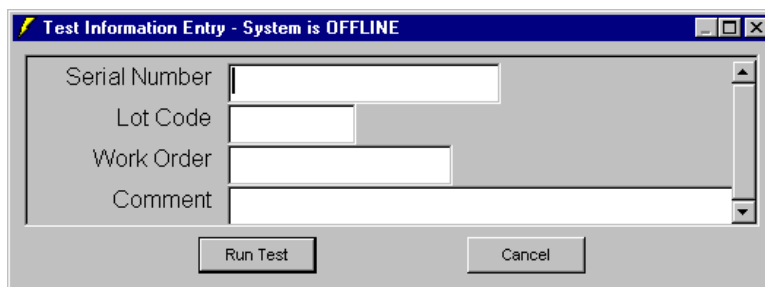


Figure 2 – The Test Information Entry dialog window

Enter the appropriate information in each field.

Click the Run Test button – TEST will run your Test Program.

While your Test Program is running, its data is logged to the TEST dialog window, Figure 3.

At the end of the first run, the Test Information Entry dialog window will re-open, and wait until you click the Run Test button again.

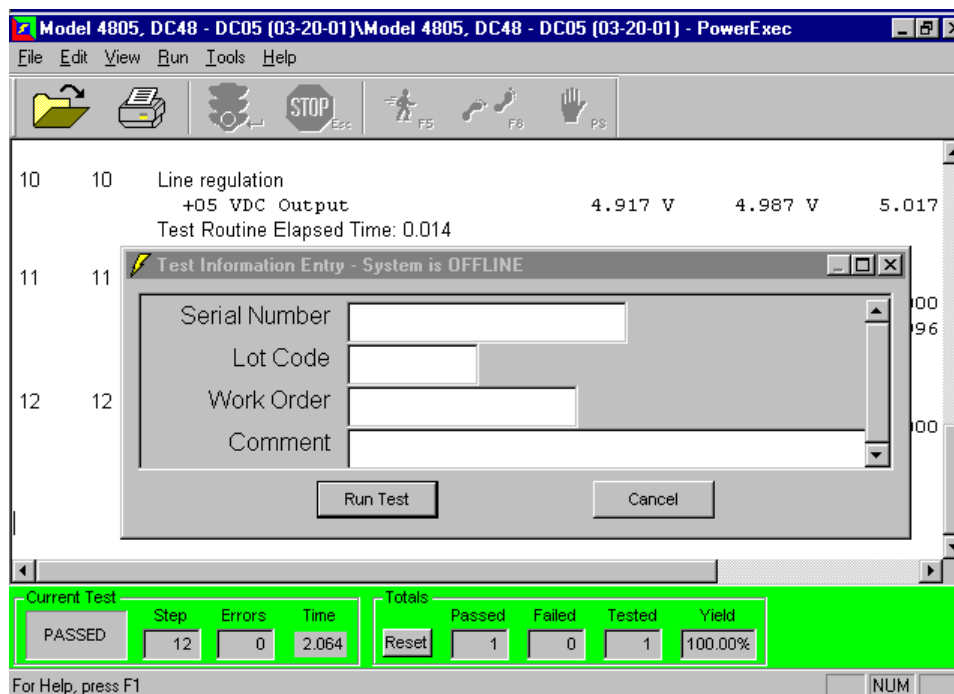


Figure 3 – The TEST dialog window

1.2 The TEST dialog window (Current Test frame)

The values that appear in the fields of the Current Test frame, only apply to the current/previous run of a Test Program. In the Current Test frame, Figure 4, there are four fields:



Figure 4 – The TEST Current Test frame

The Passed/Failed field -

When a UUT is passed by a Test Program, the word Passed will appear in this field.
When a UUT is failed by a Test Program, the word Failed will appear in this field.

This field is reset for each Test Program run.

The Step field -

When a Test Program is running, or has completed running, the Step field contains the number of the last Test Step run.

This field is reset for each Test Program run.

The Errors field -

When a Test Program is run there are two ways that an error could be generated, they are:

- 1 When a Test Routine makes a measurement, and the measured value is outside the expected range**
- 2 When a Test Step tries to set a hardware device to a setting beyond its specifications, such as telling a Load to draw more current than it can**

The value that appears in the Errors field is incremented each time an error is generated.

This field is reset for each Test Program run.

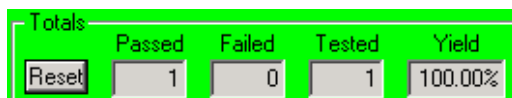
The Time field -

When a Test Program is running, the Time field shows the time in seconds it's been running. When a Test Program is finished running, the Time field shows the time in seconds the Test Program took to run.

This field is reset for each Test Program run.

1.3 The TEST dialog window (Totals frame)

The values that appear in the fields of the Totals frame are the accumulated totals for all runs of the Test Program currently loaded in TEST.



Totals	Passed	Failed	Tested	Yield
Reset	1	0	1	100.00%

Figure 5 – The TEST Totals frame

The Reset button -

Clicking the Reset button resets the fields in the Totals frame.

The Passed field -

When a UUT is passed by a Test Program, the value in this field is incremented by one.

The Failed field -

When a UUT is failed by a Test Program, the value in this field is incremented by one.

The Tested field -

The value in this field is the total number of UUTs tested by the Test Program currently loaded in TEST.

The Yield field -

The value in this field is the percentage of UUTs tested that have been passed by the Test Program currently loaded in TEST. For example, if 90 UUTs in every 100 UUTs are passed, the value shown in the Yield field will be 90%.

1.4 The TEST File menu

The Print Report... option -

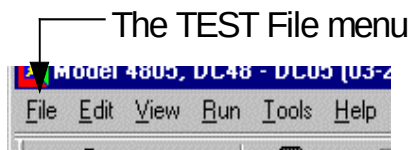


Figure 6 – The TEST File menu

After you have run a Test Program once, the data logged about the tested UUT appears in the TEST dialog window. You can print a copy of this report.

Printing a Test Program report

Left-click the TEST File menu, Figure 6 – the File menu, Figure 7, opens:

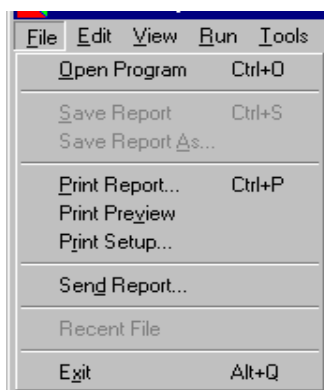


Figure 7 – The TEST File menu

Select the Print Report... option – the standard Print dialog window opens.

Click the OK button – the Test Program report is sent to the default printer.

The Send Report... option:

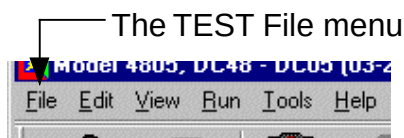


Figure 8 – The TEST File menu

After you have run a Test Program once, the data logged about the tested UUT appears in the TEST dialog window. You can e-mail a copy of this report to any e-mail address. The e-mailed report is sent as an *.rtf (Rich Text Format) file, and can be opened by the recipient using the standard MS-Windows program WordPad.

E-mailing a Test Program report

Left-click the TEST File menu, Figure 8 – the File menu, Figure 9, opens:

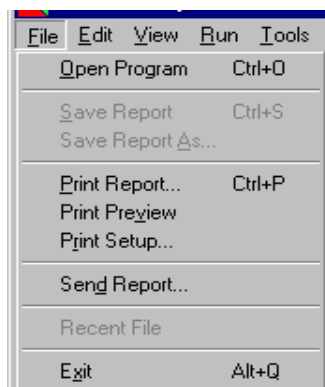


Figure 9 – The TEST File menu

Select the Send Report... option – your installed mailer's dialog window opens with the report file as an attachment.

In the To: field -

Enter the e-mail address of the person to be e-mailed

In the Subject: field -

Enter an appropriate subject

In the Message: field -

Enter an appropriate message.

Click the Send button/icon – the Test Program report is sent to the e-mail address.

1.5 The TEST Run menu

The Offline Pass Percentage option -

When running in Offline mode, the Test Routines aren't taking measurements directly from a UUT (even if one is connected).

The minimum/maximum value for a specific measurement is known by emPower®, and it generates a randomized value between the minimum/maximum values, and supplies that as the measured value to the Test Routine.

Since the randomized value (for each measurement) will always be between the minimum/maximum values, every measurement taken by a Test Program run in Offline mode will pass.

To force some measurements to fail when running in Offline mode, you reduce the Offline Pass Percentage value, Figure 10, from its default value of 99%.

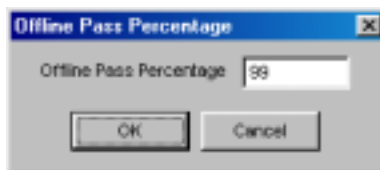


Figure 10 – The Offline Pass Percentage dialog window

Reducing the Offline Percentage Value

With a Test Program loaded in TEST -

Left-click the Run menu – the Run menu, Figure 11, opens:

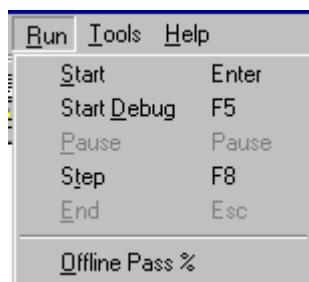


Figure 11 – The Run menu

Click the Offline Pass % option – the Offline Pass Percentage dialog window, Figure 12, opens:

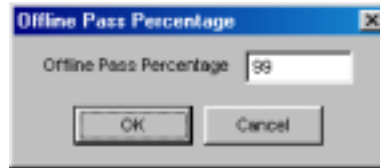


Figure 12 – The Offline Pass Percentage dialog window

In the Offline Pass Percentage field -

Enter the Offline Pass Percentage rate you want.

An Offline Pass Percentage value of 90% means that 10% of ALL measurements made by the Test Program will fail.

This value must be:

- 1 An integer**
- 2 Greater-than 0, and less-than 101**

1.6 Opening a Test Program with TEST

The emPower® shortcut icon below, should be on your desktop:



Figure 13 – The emPower® desktop icon

Double-click the emPower® desktop icon – emPower® starts.



Figure 14 – The emPower® toolbar (Test button)

In the emPower® toolbar, Figure 14 -

Left-click the Test button – TEST starts, and the Program Browser dialog window, Figure 15, opens:

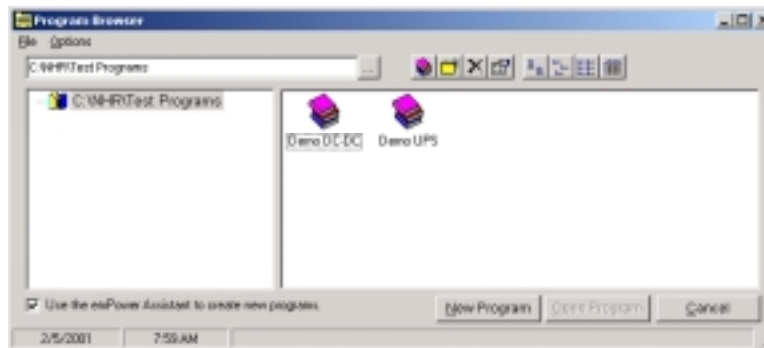


Figure 15 – The emPower® Program Browser

Select, by single-clicking, the Test Program you want to open.

Click the Open Program button – the TEST dialog window, Figure 16, opens:

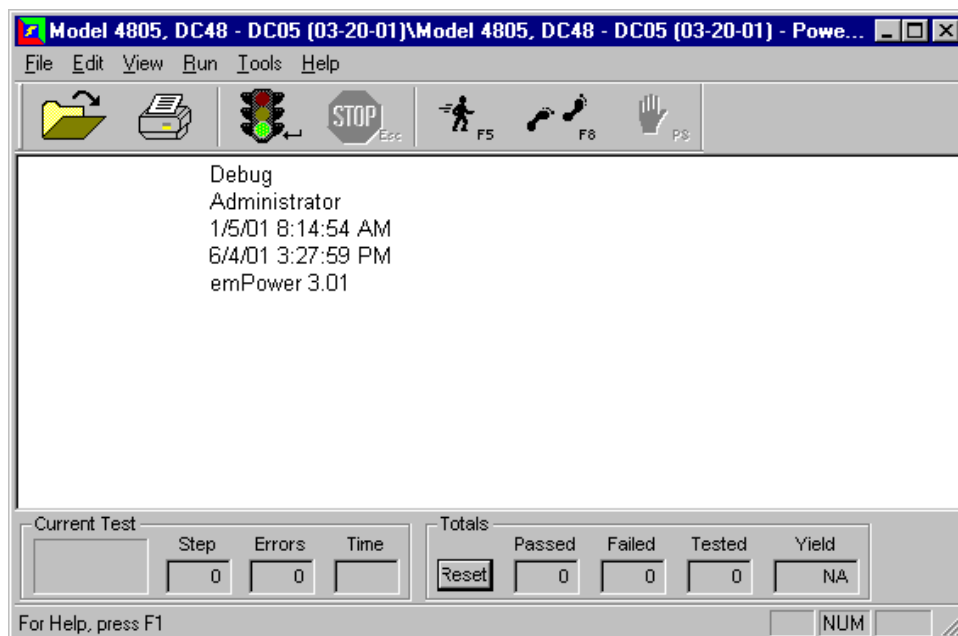


Figure 16 – The TEST dialog window

2. THE TEST DEBUG MODE

Some *emPower*® Test Routines have a capability to output detailed information about what's happening when they are running. They will only output this detailed information when TEST is running in Debug mode.

2.1 Entering Debug mode



Figure 17 – The TEST toolbar

With a Test Program loaded in TEST -

Single-click the Start Debug icon, Figure 17, the Select Test Steps to Execute dialog window, Figure 18, opens:

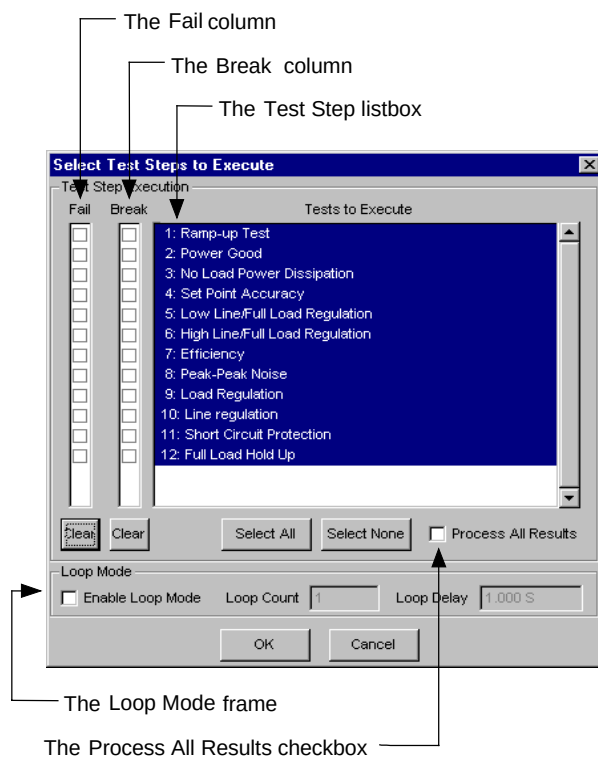


Figure 18 – The Select Test Steps to Execute dialog window

2.2 The Fail column

By checking a checkbox in the Fail column opposite a Test Step, you force that Test Step to fail when it's run, but only when *emPower*® is in the Offline mode.

When *emPower*® is Online, the Fail column is disabled.

See the *emPower*® Utilities Reference Manual for more on the Offline mode.

The Break column -

By checking a checkbox in the Break column opposite a Test Step, you force the Test Program to pause after setting up the Test Step vectors, but before it runs the Test Routine.

When running a Test Program after checking the Break checkbox opposite the Test Step named Power Good (the 2nd Test Step), the Program Break dialog window, Figure 19, will open after the Test Program sets up the vectors of the second Test Step.

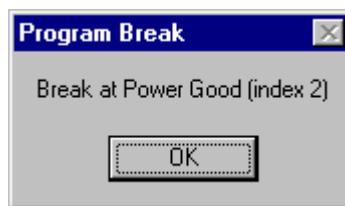


Figure 19 – The Program Break dialog window

With the Program Break dialog window open, the Test Program is paused. At this point, you could -

- 1 Use CONTROL (or hardware device) to take measurements from the UUT
- 2 Use CONTROL to manually simulate the running of the Test Step
- 3 Use CONTROL (or hardware device) to check if the Test Step's vectors have been setup correctly
- 4 Use CONTROL (or hardware device) to check if the Test Fixture is connected/setup correctly

See the *emPower*® Control Reference Manual for more information on *emPower*® Control.

2.3 The Test Step listbox

In the Test Step listbox, all the Test Steps in the loaded Test Program are shown. By default, they are all selected when the Select Test Steps to Execute dialog window, Figure 20, opens.

Only selected Test Steps will be run by TEST when running in Debug mode.

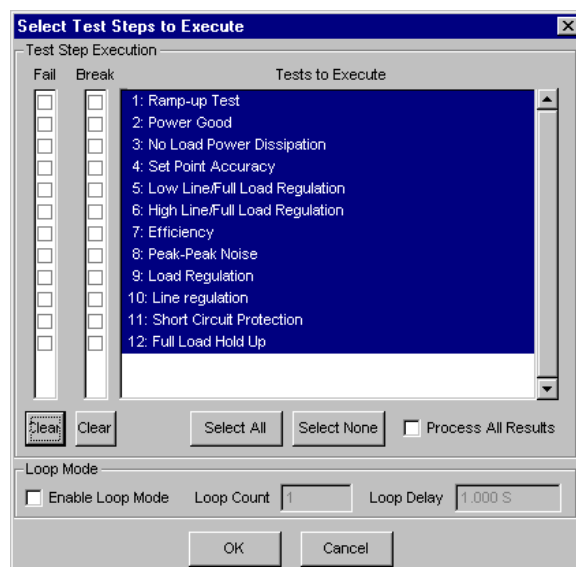


Figure 20 – The Select Test Steps to Execute dialog window

Selecting a single Test Step in the Test Step listbox -

- Click the Select None button
- Left-click the Test Step you want to select

Selecting a block of Test Steps in the Test Step listbox -

- Click the Select None button
- Left-click the first Test Step you want in your selected block
- Hold down the Shift button
- Left-click the last Test Step you want in your selected block

Selecting individual Test Steps in the Test Step listbox -

- Click the Select None button
- Hold down the Ctrl button
- Left-click each Test Step you want to be selected

2.4 The Process All Results checkbox

In the Sequence Control dialog window, Figure 21 (and the Advanced Sequence Control dialog window) there are a number of Send results to data loggers checkboxes.

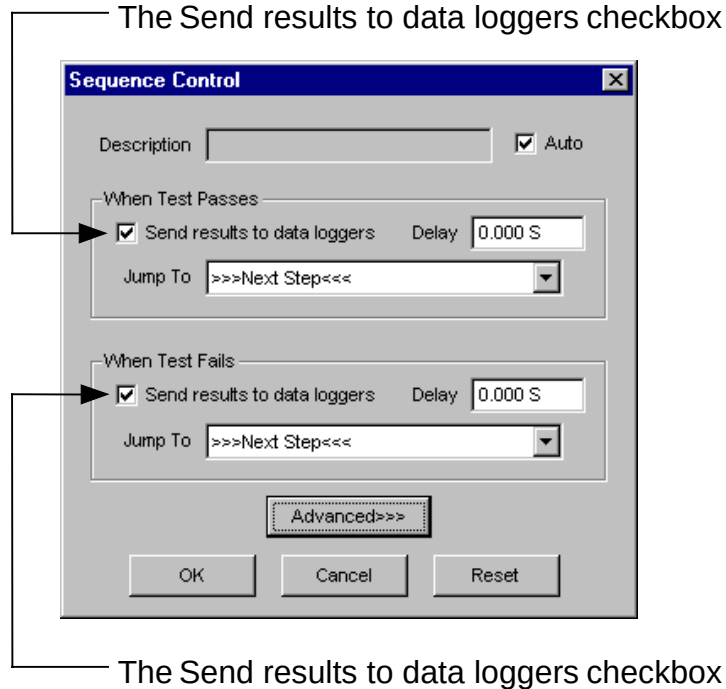


Figure 21 – The Sequence Control dialog window

See the *emPower*® EDIT Reference Manual for more on the Sequence Control dialog window.

Checking the Process All Results checkbox -

In some Test Programs, some of the Send results to data loggers' checkboxes may be unchecked. Checking the Process All Results checkbox (in the Select Test Steps to Execute dialog window) overrides the unchecked state of the Send results to data loggers' checkboxes in both the Sequence Control dialog window, and the Advanced Sequence Control dialog windows.

2.5 The Loop Mode frame

The Enable Loop Mode checkbox -

Checking the Enable Loop Mode checkbox, Figure 22, will cause the selected Test Steps in the Select Test Steps to Execute dialog window, Figure 18, to be executed repeatedly.

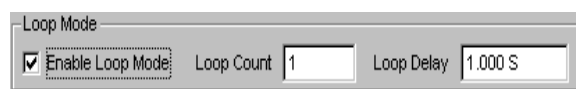


Figure 22 – The Loop Mode frame

The Loop Count field -

The value you enter in the Loop Count field is the number of times the selected Test Steps (in the Select Test Steps to Execute dialog window) will be executed.

This value must be an integer, greater-than 0.

The Loop Delay field -

The value you enter in the Loop Delay field is the number of seconds between the execution of each loop.

This value must be a positive real number.

2.6 Running the selected Test Steps in Debug mode

With a Test Program loaded in TEST -

Enter Debug mode – see page 17 for instruction.

In the Select Test Steps to Execute dialog window -

Select the Test Steps you want to execute in Debug mode – see page 19 for instructions.

Click the OK button – the Test Information Entry dialog window, Figure 23, opens:

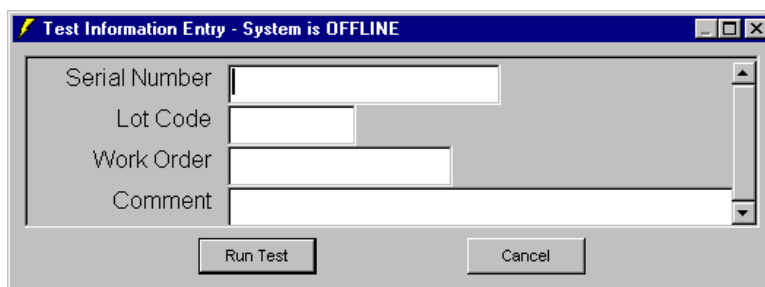


Figure 23 – The Test Information Entry dialog window

Click the Run Test button.

The Test Program appears to run normally, but it's in Debug mode, and will follow the settings chosen in the Select Test Steps to Execute dialog window.

3. THE TEST STEP MODE

Running in Step mode allows you to run each selected Test Step (in the Select Test Steps to Execute dialog window) one at a time.

3.1 Entering Step mode



Figure 24 – The TEST toolbar

With a Test Program loaded in TEST -

Single-click the Step icon, Figure 24, the Select Test Steps to Execute dialog window, Figure 25, opens:

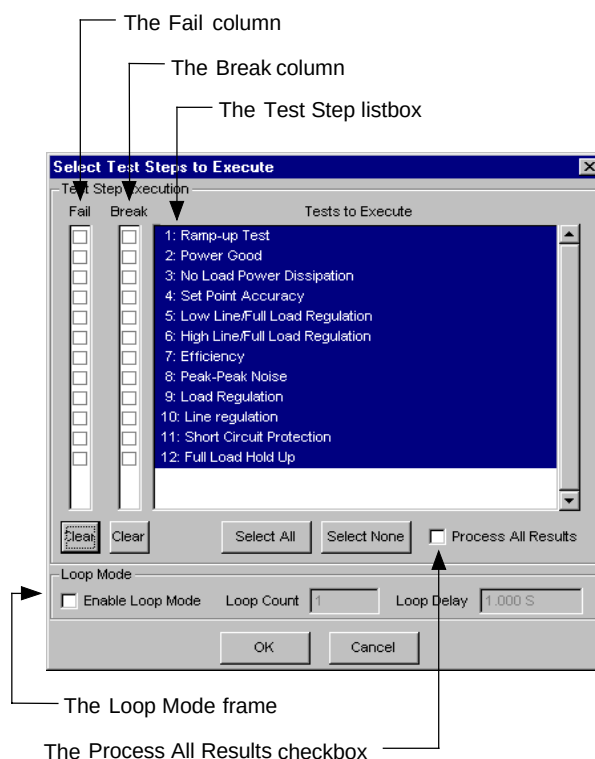


Figure 25 – The Select Test Steps to Execute dialog window

3.2 The Fail column

By checking a checkbox in the Fail column opposite a Test Step, you force that Test Step to fail when it's run, but only when *emPower*® is in the Offline mode.

When *emPower*® is Online, the Fail column is disabled.

See the *emPower*® Utilities Reference Manual for more on the Offline mode.

3.3 The Break column

By checking a checkbox in the Break column opposite a Test Step, you force the Test Program to pause after setting up the Test Step vectors, but before it runs the Test Routine.

When a running Test Program reaches a Test System with a checked Break checkbox, the Program Break dialog window, Figure 26, will open after the Test Step's vectors are set up.

The Program Break dialog window, Figure 26, was generated at the Test Step named Power Good, the 2nd in the Test Program.

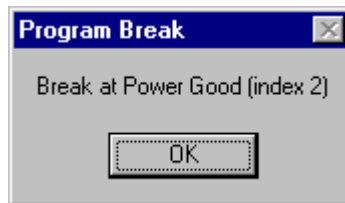


Figure 26 – The Program Break dialog window

With the Program Break dialog window open, the Test Program is paused. At this point, you could:

- 1 Use **CONTROL** (or hardware device) to take measurements from the UUT
- 2 Use **CONTROL** to manually simulate the running of the Test Step
- 3 Use **CONTROL** (or hardware device) to check if the Test Step's vectors have been setup correctly
- 4 Use **CONTROL** (or hardware device) to check if the Test Fixture is connected/setup correctly

See the *emPower*® Control Reference Manual for more information on *emPower*® Control.

3.4 The Test Step listbox

In the Test Step listbox, all the Test Steps in the loaded Test Program are shown. By default, they are all selected when the Select Test Steps to Execute dialog window, Figure 27, opens.

Only selected Test Steps will be run by TEST when running in Step mode.

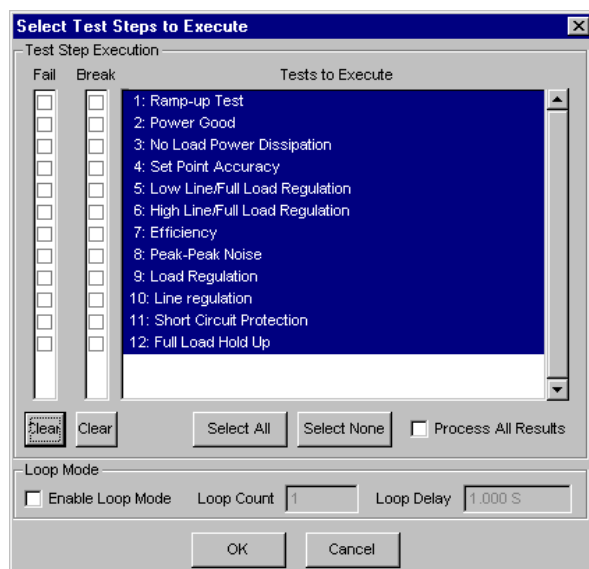


Figure 27 – The Select Test Steps to Execute dialog window

Selecting a single Test Step in the Test Step list box -

- Click the Select None button

- Left-click the Test Step you want to select

Selecting a block of Test Steps in the Test Step list box -

- Click the Select None button

- Left-click the first Test Step you want in your selected block

- Hold down the Shift button

- Left-click the last Test Step you want in your selected block

Selecting individual Test Steps in the Test Step list box -

- Click the Select None button

- Hold down the Ctrl button

- Left-click each Test Step you want to be selected

3.5 The Process All Results checkbox

In the Sequence Control dialog window, Figure 28 (and the Advanced Sequence Control dialog window) there are a number of Send results to data loggers checkboxes.

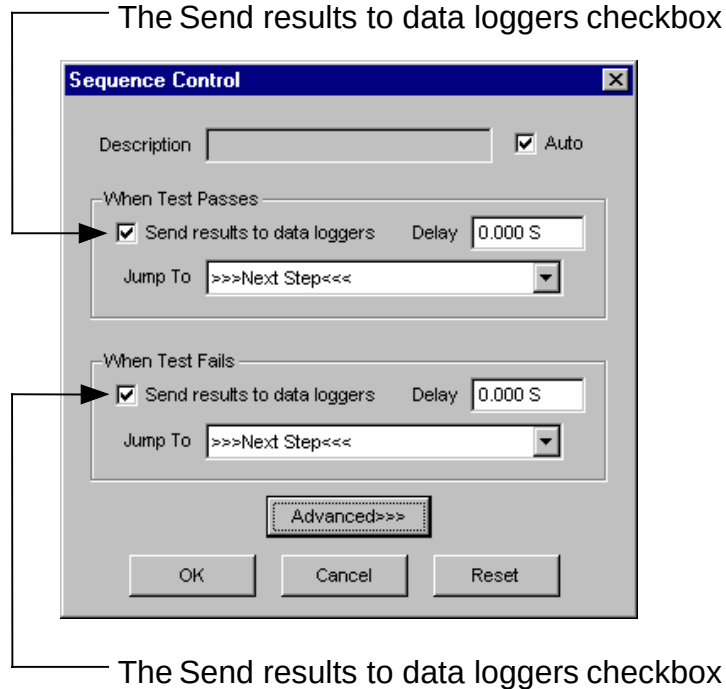


Figure 28 – The Sequence Control dialog window

See the EDIT Reference Manual for more on the Sequence Control dialog window.

Checking the Process All Results checkbox -

In some Test Programs, some of the Send results to data loggers' checkboxes may be unchecked. Checking the Process All Results checkbox (in the Select Test Steps to Execute dialog window) overrides the unchecked state of the Send results to data loggers' checkboxes in both the Sequence Control dialog window, and the Advanced Sequence Control dialog windows.

3.6 The Loop Mode frame

The Enable Loop Mode checkbox -

Checking the Enable Loop Mode checkbox, Figure 29, will cause the selected Test Steps in the Select Test Steps to Execute dialog window, Figure 25, to be executed repeatedly.

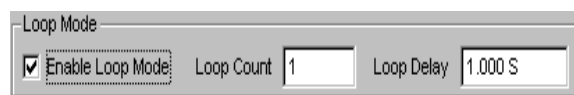


Figure 29 – The Loop Mode frame

The Loop Count field -

The value you enter in the Loop Count field is the number of times the selected Test Steps (in the Select Test Steps to Execute dialog window) will be executed.

This value must be an integer, greater-than 0.

The Loop Delay field -

The value you enter in the Loop Delay field is the number of seconds between the execution of each loop.

This value must be a positive real number.

3.7 Running the selected Test Steps in Step mode

With a Test Program loaded in TEST:

Enter Step mode – see page 23 for instruction.

In the Select Test Steps to Execute dialog window:

Select the Test Steps you want to execute in Step mode – see page 25 for instructions.

Click the OK button.

In the TEST dialog window:

Click the Step icon again – the first selected Test Step will be executed.

Click the Step icon for each selected Test Step.

The Test Information Entry dialog window, Figure 30 will re-open, and wait until you click the Run Test button again.

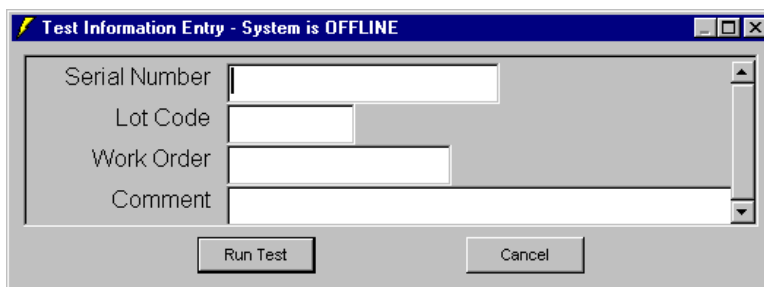


Figure 30 – The Test Information Entry dialog window

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