RI 7500A Hands on Lab

The RI 7500A's Hands on Lab will lead you through the entire process of building and running test plans. You can use these procedures as examples for creating and running your test plans with your test system. You may find that the procedure for creating and running test plans with your test system may be slightly different from this lab. This is due to the improvements we have made to your software since this lab was prepared.

The RI 7500A System Software will continue to evolve with time and we will continue to update the training material as quickly as possible. We will make these updated copies available to you upon request.

We recommend that you start at the beginning of this lab and go all the way through.   The OS/2 Tutorial is a good starting place even if you have used Window based programs before. Good Luck.

Topic Areas

Understanding OS/2
Starting up the System
Creating a New Test Plan
Saving a Test Plan
Running a Test Plan
Viewing the Test Results Data
Creating Test Limits
Saving Test Limits with the Test Plan
Creating a Test Executive
Running the Test Executive
Using the Test Executive to Test Devices

Understanding OS/2

OS/2 offers an excellent on-screen tutorial for learning how to use the OS/2 Operating System. Use the following procedure to open and view the OS/2 Tutorial.

1) Open the **Assistance Center** Icon by placing the mouse pointer on the Icon & double clicking mouse button 1 (left mouse button).

2) Open the **OS/2 Warp Tutorial** Icon and start the OS/2 tutorial by placing the mouse pointer on the Icon & double clicking mouse button 1. Press the ➢ (play button) to start.

3) Close the **Assistance Center** when you have finished viewing the OS/2 Tutorial by placing the mouse pointer on the miniaturized information icon in the upper left corner of the window and double clicking mouse button 1.

Opening the RI 7500A System Software Application

The RI 7500A System Software is a separate OS/2 Application with its own desktop Icon which is labeled: **Test Exec**. Use the following procedure to open the RI Program application.

1) Open the **Test Exec** Icon by placing the mouse pointer on the Icon & double clicking mouse button 1 (left mouse button). (**Hint**: Look for the desktop Icon with the RI Logo.)

2) The System Computer will display the <u>RI Message Window</u>.

The RI Message Window provides three basic functions. It provides the Log-on user interface, it offers the user access to the top level RI application windows and displays messages sent by the other RI application windows to the user.

User Log-on

The Test System offers the user several levels of accessibility to the System Software depending on the type of user (system administrator, system programmer, test plan developer, test operator, etc.) To obtain the appropriate level of access the user must first log-on to the System Computer with their name and password or use one of the standard access names and passwords. (Talk to your Test System Administrator about adding your name and password to your test system.) If you do not log-on, the System Software will restrict your access level. (You will only be able to view the **Help** text. You will not be able to access any program management, program generation, program execution or system administration functions.) Since we are going to be creating new tests in this lab, we will need the access required by a test engineer.

1) Select the <u>RI Message Window</u>'s menu bar choices: **System** and **Logon...**.

2) The System Computer will open the **Users** Container Window.

3) Select the user name: <u>test engr</u> by placing the mouse pointer on the **test engr** Icon & double clicking mouse button 1 (left mouse button).

4) If the System displays the <u>Password</u> dialog box, use the keyboard to enter the password provided by your instructor. Select the **OK** button.

5) The **test engr** Icon will turn <u>red</u> to indicate that you now have <u>test engr</u> system access.

6) Return to the <u>RI Message Window</u> by selecting the RI Message Window's **title bar** or any other location on the <u>RI Message Window</u>.

7) The title for the RI Message Window will change to **Edit Message Window** or **Admin Message Window** and additional menu bar choices will be displayed.

Opening the Test Plans Container Window

Use the following procedure to open the Test Plans Container Window.

1) Select the RI Message Window's menu bar choices: **Test** and **Plans...**.

2) The System Computer will open the Test Plans Container Window.

Creating a New Test Plan

Use the following procedure to create a new test plan.

1) Select the Test Plans Container Window's menu bar choices: **New** and **Test Plan**.

2) The System Computer will display the following dialog boxes. Provide the following responses to each of the dialog boxes.

Test Plan Title?	Enter a title for your Test Plan & select the **OK** button.
System Definition	
Device	Select the **all duts** device choice. Use the **down arrow** and/or **up arrow** to the right of the Device entry field to select **all duts**. Select the **OK** button to return to the Test Plans Container Window.

3) The Test Plans Container Window will display a new Test Plan icon with the name you selected. The Test Plan icon you have created only contains the basic structure of the test plan. You need to next **Edit** your test plan and add the details.

Opening the Test Plan Editor Window

The Test Plan Editor Window is a second level application window used to edit Test Plans. Use the following procedure to open the Test Plan Editor Window. You will use this window to create and edit the individual tests in your test plan.

1) Place the mouse pointer on your test plan **Icon** and click mouse button 2 (right mouse button).

2) Select the Pop up menu choice: **Edit.**

3) The System Computer will open the Test Plan Editor Window.

4) The Test Plan Editor Window will display in its title bar the test plan name. The window will also display the first 4 lines of the Test Plan Outline in the panel below the menu bar.

The Test Plan Editor Window offers several menu bar choices and functions for editing and saving test plans, and for viewing other related application windows.

Expanding the Size of the Window and Moving the Window Location

Use the following procedure to expand the Test Plan Editor Window by about 20% and move the window to the left side of the CRT screen. (You will be opening some additional windows later. By moving the Test Plan Editor Window to one side you will be able to see multiple windows at the same time.)

1) Place the mouse pointer in the upper left corner of the Test Plan Editor Window. (A mouse pointer with double arrows will be displayed.)

2) Press and hold mouse button 1. Expand the window up and to the left by approximately 20%. Release mouse button 1 when finished.

3) Place the mouse pointer on the Test Plan Editor Window's title bar, press and hold mouse button 1 and drag the window to the left side of the display. Release mouse button 1 when finished.

Adding Buttons to the Global Defaults Panel

Some of the buttons used to define the test system, the test head and the device-under-test must be defined globally or included in each test panel. These buttons can be defined globally (through out the test plan) by adding them to the Global Defaults Panel. You can add additional buttons to the Global Defaults Panel if you want.

Use the following procedure to add the required buttons to the Global Defaults Panel:

1) Select [highlight] the Global Defaults line in the Test Plan Outline.

2) Select the menu bar choices: **Tester** & **View**.

3) The System Computer will open the Tester Viewer Window.

4) Use the Scroll Bar to scroll down the instrument list to find the **Test Head** instrument.

5) Select the **Test Head** instrument from the instrument list & the **RF Setup** button types from the button types list.

6) Select and Copy the button: **INPUT PORT.** (**Hint**: Place the mouse pointer on the **INPUT PORT** button. Click mouse button 2 and select the **Select** function. The **INPUT PORT** button will now be highlighted indicating that it was selected and copied.)

7) Return to the Test Plan Editor Window. **(Hint:** Select the Test Plan Editors' title bar or any other location on the window.)

8) Paste the **INPUT PORT** button on the Global Defaults Panel (below the Test Plan Outline). (**Hint**: Place the mouse pointer on the Global Defaults Panel, click mouse button 2 and select the **Paste Button** function. The copied button will be added to the panel.)

Adding Buttons to the Global Defaults Panel (Continued)

9) Try moving the button to a new location on the panel.

Place the mouse pointer on the **Test Head** Group Button, but **not inside** the **INPUT PORT** button. Press and hold mouse button 2. Drag the button to a new location. Release button 2 when finished.

10) Select and paste the following additional buttons from the Tester Viewer Window into the Global Defaults Panel.

Hint: To return to the Tester Viewer Window select its title bar or any other location on the window. Use steps 4 through 9 above as a guideline for copying and pasting buttons into the Global Defaults Panel.

Hint: Copy all three System buttons at the same time by repeating the select function three times (once for each button). If you accidentally select a button you do not want, just place the mouse pointer on the highlighted button again, click mouse button 2 and select the **Deselect** function. To delete a button from a test panel, place the mouse pointer on the button, select mouse button 2 and select the **Delete** function. (The system will ask you to confirm that you want to delete the button. Select the **Yes** button.)

Please Note: When you perform the paste function the software will paste all of the buttons you have selected in the Tester Viewer Window into the test panel.

Buttons to be Added to the Global Defaults Panel

Instrument	Button Type	Button	Setting
Source1	state	RF STATE	
System	Output Frequency	OUT FREQ SCALE	
System	Output Frequency	OUT FREQ OFFSET	
System	Output Frequency	FREQ REFERENCE	
Test Head	RF Setup	OUTPUT PORT	
DutControl	device power 1 to 8	VCC3	

Changing the Button Settings

The value or setting for each of the instrument settings can be easily modified by the user. To change a specific instrument setting, place the mouse pointer on the button setting you want to change and click mouse button 1. Depending on the button selected, the System Computer will either display a list of choices for you to choose from or display a dialog box and let you enter the value desired. Practice this process by making the following setting changes. Be sure to place the mouse pointer on the specific setting you want to change.
Please Note: The Source RF STATE button's setting is a toggle function. Selecting the setting reverses its value (ON to OFF or OFF to ON).

Buttons Settings to be Changed

Instrument	Setting	Setting Value	Units
Source1	RF STATE	ON	
Test Head	INPUT PORT	Rf3	
Test Head	OUTPUT PORT	Rf6	
System	FREQ REFERENCE	Source1	
DutControl	VCC3	3	Volts

Adding Buttons to the Disconnect Defaults Panel

You can define the specific state of all of the instruments in the test system at the moment the device under test is connected to and disconnected from the test fixture by adding instrument state buttons to the Disconnect Settings Panel. Use the following procedure to define the test system's connect and disconnect state.

1) Select the Disconnect Settings line in the Test Plan Outline.

2) Copy and paste the following buttons from the Tester Viewer Window into the Disconnect Settings Panel.

Buttons to be Added to the Disconnect Settings Panel

Instrument	Button Type	Button	Setting
Source1	state	RF STATE	
DutControl	device power 1 to 8	VCC3	

3) Change the button settings to the following.

Buttons Settings to be Changed

Instrument	Setting	Setting Value	Units
Source1	RF STATE	OFF	

Adding a Test Section

Each Test Plan must have at least one Test Section and each Test Section must have at least one Test. Use the following procedure to add a Test Section.

1) Add a Test Section by selecting the menu bar choices: **Edit** and **Add Test Section**.

2) The System Computer will display the dialog box **Title for New Test Section?**

3) Enter a title for the Test Section & select the **OK** button.

4) The Test Plan Editor will add a <u>Test Section</u> header line, a <u>Conditional Statement</u> line and a <u>Section Defaults</u> line to the Test Plan Outline.

Adding a Test

Use the following procedure to add a Test.

1) Select the <u>Section Defaults</u> line in the test plan outline.

2) Add a test after the <u>Section Defaults</u> line by selecting the menu bar choices: **Edit** and **Add Test**.

3) The System Computer will display the dialog box **Title for New Test?**

4) Enter the title: **RF Gain** (although any title can be entered) & select the **OK** button.

5) The Test Plan Editor will add the line <u>Test: RF Gain</u> to the Test Plan Outline and display a blank Test Panel.

Building a Test

To build a test we need to specify the measurement, the measurement settings/test points and where you want to save the data. Add the following Tester Viewer buttons to the test panel to create a RF Gain test. (Although the placement of the buttons on the test panel is not critical, for convenience place the buttons from left to right on the test panel in the order shown.) Add the Source1 Power and Source1 Frequency buttons separately to the Test Panel. (**Deselect** the Source1 Power button before selecting and pasting the Source1 Frequency button into the test panel. Otherwise you will be pasting the Power and Frequency buttons together under the Source1 group button.)

Buttons to be Added to the Test Panel

Instrument	Button Type	Button	Function
Source1	state	POWER	
Source1	state	FREQUENCY	
vna	measurements	MEAS	GAIN
System	data saves	SAVE FORMAT	

Connecting the MEAS button to the DATA SAVE button to transfer Test Results

To transfer test results from the **MEAS** button to the **DATA SAVE** button we need to add a data flow connection between the two buttons. Use the following procedure to make the connection between the buttons.

1) Place the mouse pointer on the small black square in the **vna MEAS GAIN** button.

2) Press and hold mouse button 2, and drag the outline of the black square over and on top of the small red square in the **System SAVE FORMAT** button. Release mouse button 2.

3) The System Computer will display a line connecting both buttons. This data flow connection indicates that the test results data will now be transferred from the **MEAS** button to the **SAVE FORMAT** button.

Changing the Button Settings

Change the button settings to the following.

Hint: To change a specific instrument setting, place the mouse pointer on the button setting you want to change and click mouse button 1. The System Computer will display a dialog box for the settings value selected. Enter the new settings value desired and select the **OK** button or press the **Enter** key. Be sure to place the mouse pointer on the specific setting you want to change. Practice this process by making the following setting changes.

Buttons Settings to be Changed

Instrument	Setting	Setting Value	Units
Source1	Power	-15	dBm
Source1	Frequency	1500	MHz

Changing the DATA SAVE button's Data Name

Each **System DATA SAVE** button in a test plan must have a unique **Data Name**. Use the following procedure to change the Data Name to **RF Gain**.

1) Place the mouse pointer on the <u>System SAVE FORMAT</u> button's **Data Name**. (Since we are editing the button for the first time the Data Name is still the default name **NoName**.)

2) Click mouse button 2. (If you accidentally click mouse button 1 just click the **OK** button or the **cancel** button to close the dialog box shown.)

3) Select the mouse button 2 function: **Data Name**.

4) Enter the data name: **RF Gain** and select the **OK** button or press the **Enter** key.

Selecting the DATA SAVE button's Data Format

The RI System Software offers you several ways to save the data. The two most common methods are saving the data using a specific data format (**SAVE FORMAT** button) or saving the data without specifying the data format (**SAVE NO FORMAT** button). If you use the SAVE NO FORMAT button, the system will save the data using linear, fundamental units for the measurement performed. We will be using the SAVE FORMAT buttons. Use the following procedure to select the Data Format for **RF Gain**.

1) Place the mouse pointer on the System SAVE FORMAT button's **Data Name**.

2) Click mouse button 2.

3) Select the mouse button 2 function: **Data Format**.

4) Select the data format: **log**. The RF Gain test data will be saved in log format (**dB**).

You have created your first test.

Creating Another Test

To add another test to the test plan (after the RF Gain test you created), use the following procedure.

1) Select [highlight] the <u>Test: RF Gain</u> line in the Test Plan Outline.
    Hint: You can use the scroll bar to the right of the Test Plan Outline to view different portions of the Test Plan Outline.

2) Select the menu bar choices **Edit** and **Add Test**.

3) Enter the title: **Noise Figure** and select the **OK** button.

4) Add the following <u>Tester Viewer</u> buttons to the Noise Figure test panel. Add the **Source1 RF STATE** and **Source1 FREQUENCY** buttons separately to the test panel. (You will be making some changes later to the **Source FREQUENCY** button.)

<u>**Buttons to be Added to the Test Panel**</u>

<u>Instrument</u>	<u>Button Type</u>	<u>Button</u>	<u>Setting/ Function</u>
Source1	state	RF STATE	
Source1	state	FREQUENCY	
noiseFigure	noise figure	MEAS	Noise Figure
System	data saves	SAVE FORMAT	

5) Connect the **noiseFigure MEAS Noise Figure** button to the **System SAVE FORMAT** button.

Creating Another Test (Continued)

6) Change the **Source1 FREQUENCY** button from a single test point button to a range button.

a) Place the mouse pointer inside the **Source1 FREQUENCY** settings button and click mouse button 2. Select the pop-up menu choice: **Range**.

b) The **Source1 FREQUENCY** button will change to a **Source FRE-QUENCY START/STOP/POINTS** button.

7) Change the test settings/parameters to the following:

<u>Buttons Settings to be Changed</u>

<u>Instrument</u>	<u>Setting</u>	<u>Setting Value</u>	<u>Units</u>
Source1	FREQUENCY START	1200	MHz
Source1	FREQUENCY STOP	1500	MHz
Source1	FREQUENCY POINTS	4	MHz
Source1	RF STATE	OFF	

8) Change the **System SAVE FORMAT** button's Data Name to **NF**.

9) Change the **System SAVE FORMAT** button's Data Format to **log**.

Two tests have now been completed.

Creating a Third Test

To add a third test to the test plan (after the Noise Figure test), use the following procedure.

1) Select [highlight] the Test: Noise Figure line in the Test Plan Outline.

2) Select the menu bar choices: **Edit** and **Add Test**.

3) Enter the title: **Input VSWR/Output Match** and select the **OK** button.

4) Add the following Test System Viewer buttons to the test panel.

Hint: **Select** the **Source1 Frequency** button once and paste the button twice into the test panel.

Buttons to be Added to the Test Panel

Instrument	Button Type	Button	Function∕Comments
Source1	state	POWER	
Source1	state	FREQUENCY	
Source1	state	FREQUENCY	
vna	measurements	S Parameters	
System	general calculations	CALC	Copy two (1 Input) **CALC** buttons to the right of the **S Parameters** button
System	data saves	SAVE FORMAT	Copy a **SAVE FORMAT** button to the right of each **CALC** button.

5) Connect the **vna MEAS S Parameters** button to one of **1 Input CALC** buttons and then connect the **CALC** button to one of the **SAVE FORMAT** buttons.

6) Now connect the **vna MEAS S Parameters** button to the other **1 Input CALC** button and then connect the **CALC** button to the other **SAVE FORMAT** button.

7) Change one of the **Source1 FREQUENCY** buttons into a **FREQUENCY START/STOP/POINTS** button.

    Hint: Place the mouse pointer inside the **Source1 FREQUENCY** settings button, click mouse button 2 & select the pop-up menu choice: **Range**.

8) Change the test settings/parameters to the following:

Buttons Settings to be Changed

Instrument	Setting	Setting Value	Units
Source1	POWER	-15	dBm
Source1	FREQUENCY	1300	MHz
Source1	FREQUENCY START	1200	MHz
Source1	FREQUENCY STOP	1500	MHz
Source1	FREQUENCY POINTS	3	

9) Place the mouse pointer inside of one of the **1 Input CALC** buttons & click the right mouse button. Select the pop-up menu choices: **Calculation..** & **s11**. Select the **select** button.

10) Change the **Data Name** of the **DATA SAVE** button connected to the **CALC s11** button to: **IVSWR** and change the **Data Format** to **vswr**.

11) Place the mouse pointer inside of the other **1 Input CALC** button & click the right button. Select the pop-up menu choices: **Calculation..** & **s22**.

12) Change the **Data Name** of the **DATA SAVE** button connected to the **CALC s22** button to: **Output Match.**

13) Change the **Data Format** of the **DATA SAVE** button connected to the **CALC s22** button to: **log mag**.

Creating a Fourth Test

To add a test to the test plan after the RF Gain test and before the Noise Figure test, use the following procedure.

1) Select [highlight] the <u>Test: RF Gain</u> line in the Test Plan Outline.

2) Select the menu bar choices: **Edit** and **Add Test**.

3) Enter the title: **Output Power vs Vcc3 & Frequency**, and select the **OK** button.

4) Add the following Test System Viewer buttons to the test panel.

<u>Buttons to be Added to the Test Panel</u>

<u>Instrument</u>	<u>Button Type</u>	<u>Button</u>	<u>Function</u>
Source1	state	FREQUENCY	
Source1	state	POWER	
DutControl	device power 1 to 8	VCC3	
Receiver	state	Frequency	
Receiver	measurements	Power	
Testhead	RF Setup	PARAMETER	
System	data saves	SAVE FORMAT	

> **Hint**: You will see that there is not enough room to paste all of the buttons from left to right on to the test panel. Don't worry, the test panel automatically rescales so that all of the buttons are visible. If you move a button or paste a button such that it is partly on and partly off the test panel, the System Computer will automatically rescale the test panel to display all of the button. Try moving a button partly off the test panel and see for yourself. The software also offers a maximize function to rescale the test panel such that the buttons are displayed as large as possible. (To use the maximize function, click mouse button 2 on an open space in the test panel and then select the menu choice: **Maximize**.)

5) Connect the **Receiver MEAS Power** button to the **System SAVE FORMAT** button.

6) Change the **Data Name** of the **DATA SAVE** button to: **Output Power**.

7) Change the **Data Format** of the **DATA SAVE** button to: **dBm**.

8) Change the **Source1 FREQUENCY** button and the **DutControl VCC3** button to **START/STOP/POINTS** range buttons.

9) Change the **Receiver FREQUENCY** button to a **Receiver Frequency** Tracking button.

    Hint: Place the mouse pointer inside the **Receiver Frequency** button and click the right mouse button. Select the pop-up menu choice: **Tracking**. The **Receiver Frequency** button will change to a **Receiver FREQUENCY/MASTER/CONFIG/SCALE/OFFSET** button.

10) Change the Receiver test settings/parameters to the following:

<u>**Buttons Settings to be Changed**</u>

<u>Instrument</u>	<u>Setting</u>	<u>Setting Value</u>	<u>Units</u>
Receiver	FREQUENCY MASTER	Source1	
Receiver	FREQUENCY CONFIG	Frequency	
Receiver	FREQUENCY SCALE	1	
Receiver	FREQUENCY OFFSET	0	

The Receiver will now track Source1's frequency. Each time Source1's frequency is changed the Receiver will change its frequency to follow Source1 using the following equation:

Rec. Freq = Source1 Freq x **FREQUENCY SCALE** + **FREQUENCY OFFSET**

11) Change the following additional test settings/parameters to the following:

Buttons Settings to be Changed

Instrument	Setting	Setting Value	Units
Source1	FREQUENCY START	1200	MHz
Source1	FREQUENCY STOP	1500	MHz
Source1	POINTS	4	
Source1	POWER	-15	dBm
DutControl	VCC3 START	3	Volts
DutControl	VCC3 STOP	5	Volts
DutControl	VCC3 POINTS	3	
Testhead	PARAMETER	b2	

You have completed the last test. We will next compile and run your test plan.

Saving Your Test Plan

Now that you have created your first test plan, it is a good idea to save it on to the Hard Disc Drive. Use the following procedure to save your test plan.

1) Select the menu bar choices: **File** and **Save**.

2) The System Computer will save your complete test plan on to the Hard Disc Drive.

Changing to System Simulation Mode

To run your test plan without connecting the System Computer to the test system will require telling the System Software to run your test plan using System Simulation Mode. You enable the System Simulation Mode by disabling the Hardware. Use the following procedure to disable the Hardware for the test system. <u>Your instructor may ask you to use a different procedure for this lab. Please confirm with your instructor as to which procedure you should use.</u>

1) Select the menu bar choice: **Tester**.

2) If a check mark is displayed to the left of the **Enabled** function, the hardware is <u>Enabled</u>. Select the **Enable** function to remove the check mark and disable the Hardware. The System is now in System Simulation Mode.

If the Enabled function does not have a check mark preceding it, then the hardware is already disabled and the system is in System Simulation Mode. Close the Tester pull down menu by selecting any location outside of the pull down menu.

3) In **System Simulation Mode** the RIFL interface is bypassed and test results are provided by an internal pseudo random number generator.

Compiling the Test Plan

Use the following procedure to link your test plan to the tester currently selected, and optimize & compile your test plan into a runnable test plan.

1) From the <u>Test Plan Editor Window</u> select the menu bar choices: **Test Plan** and **Compile**.

2) It typically takes less than 1 minute to link your test plan to the tester and optimize & compile your test plan into a runnable test plan. The **mouse pointer** will change from a hour glass or clock symbol to a pointer symbol when the process is completed.

3) The System Computer will convert the test plan into low level fundamental measurement states. The Optimizer will reorder the low level measurement states for fastest execution time. The optimized test sequence is then compiled into a runnable test plan.

4) If you hear a beep from the System Computer during the compile process, a warning state or error may have been discovered in your test plan by the Compiler. The <u>RI Message Window</u> will display any error and warning messages provided by the Compiler. Correct any errors discovered and repeat steps 1, 2 and 3.

Running the Test Plan

You are now ready to run your test plan. Use the following procedure to run your compiled test plan.

1) From the Test Plan Editor Window select the **Run** button (upper right corner).

2) In just a few seconds the System Computer will run your test plan and place the test results data into the local data cache for viewing. Since the test plan was run in System Simulation Mode, the data sent to the data cache will be random numbers.

3) If an error or warning condition is discovered during the test plan execution, the System Computer will beep and an error or warning message will be sent to the RI Message Window for you to view.

Opening a Data Viewer

You can now view the test results data in the local data cache using one of several data viewers provided with the software. Use the following procedure to open a data viewer and view the test results data generated by the Noise Figure test.

1) Select the test: Noise Figure line in the Test Plan Outline. (You may need to use the scroll bar to the right of the test plan outline to find the test: Noise Figure line.)

2) Place the mouse pointer on the Data Save button's data name: **NF**, click mouse button 2 and select the function **View Data**.

3) The System Computer will display the dialog box: **Select Viewer**. As you can see the software offers you several choices for viewing the test results data. The most used data viewer is the Rectangular view which sorts the test results data and displays the data on an rectangular (X & Y coordinate) plot.

4) Select the data viewer choice **Rectangular** view and select the **Select** button.

5) The System Computer will open the data viewer selected and display the test results. The data viewer will display in its title bar: RI NF vs Frequency to remind you that the Data Name for the DATA SAVE button you selected was NF and the test parameter you varied in the test panel was RF Frequency.

Viewing the Test Results

The data viewer offers you the flexibility to display the test results in many different ways, depending on the X & Y axis data formats, min and max values and the scaling factors you select. The System Computer will initially select for you the Y axis scaling for the test results plot. To tailor your plot to your specific needs you just select the button setting you want to change and either enter the new value or select from the list of choices provided. Use the following procedure to practice changing some of the button settings offered.

1) Select the **Y** axis **FORMAT** button (to the left of the bottom left corner of the plot). Select the Y FORMAT choice **log** to display the Noise Figure measurements in logarithmic units.

2) Select the **Auto** button in the **Y CENTER** group button, to auto-scale the Y axis center line. The setting selected by the System Computer is displayed below the **Auto** button.

3) Select the **Auto** button in the **Y SCALE** group button, to auto-scale the Y axis scale factor. The setting selected by the System Computer is displayed below the **Auto** button.

4) The data viewer offers you the ability to determine the X & Y coordinates of any location or test point on the test results plot. Place the mouse pointer on the test results trace and click mouse button 1. The data viewer will display the X & Y coordinates of the point selected, just above the upper left corner of the test results plot.

5) Ask your Instructor about the other Marker Functions.

Hint: Place the mouse pointer on the test results plot and click mouse button 2. Select the **Marker** Menu choice and select one of the sub-menu choices.

6) Select the **MEMO** button and enter the name of your test plan. Select the **OK** button when finished. The name of your test plan will be displayed in the center of the **MEMO** button.

7) If you don't have a printer connected to the system computer, skip step **8**.

8) To print a copy of the plot you have created, place the mouse pointer outside of the XY plot and click mouse button 2. Select the pop-up menu choice **Print**, or place the mouse pointer on the Data Viewer Window's title bar and select **Print Screen** on the keyboard.

> **Hint**: You can expand the size of the printed plot by expanding the size of the Data Viewer Window.

Overpaint Function: Adding Additional Traces to the Same Plot

If you run the test plan again the data viewer will erase the test results currently displayed and display the new test results. If you want to display multiple sequential traces of test results on the same plot (i.e. both the current test results trace and the future test results trace (or traces) just enable the Overpaint function and run the test plan again. Use the following procedure to display three sets of test results data for the Noise Figure test on the plot you have already created.

1) Place the mouse pointer on the Test Results Plot and click the mouse button 2. Select the **OverPaint** button. (The **OverPaint** button is a toggle function, selecting it once sets the OverPaint function on and selecting it again changes it to off.)

2) Shrink and/or move both the Data Viewer Window and the Test Plan Editor Window so that you can see both windows at the same time. (This will be helpful later when you want to run the test plan again from the Test Plan Editor Window and you are viewing the test results in the Data Viewer Window.)

3) Run the test plan again by selecting the Test Plan Editor Window's **Run** button. The new test results will be added to the plot in the Data Viewer Window.

4) Run the test plan a third time. Again the new test results will be added to the plot.

5) To erase all of the test results traces except the last trace, select the **OverPaint** function again. The **OverPaint** button setting will change from on to off and only the last trace will be displayed on the plot.

6) Return to the Test Plan Editor Window.

Selecting a Multi-Parameter Data Viewer

Let us now look at the test results for the Output Power test which has two independent measurement parameters: Source1 Frequency and VCC3 Voltage. To view these test results we will use a Multi-Parameter Data Viewer Window. The Multi-Parameter Data Viewer Window is a little different from the data viewer window we used previously. The Multi-Parameter Data Viewer displays one of the measurement parameters as the X Axis Independent Variable. A second measurement parameter is displayed as a series of colored traces, with each colored trace representing a different value of the measurement parameter. We refer to this measurement parameter as the Colors Independent Variable. If there are more than 2 independent variables/measurement parameters, each of the remaining measurement parameters must be set equal to a fixed value. (The software provides a list of test point values for you to select from, for each of the remaining independent variables.) Use the following procedure to open a Multi-Parameter Data Viewer Window for displaying the Output Power test results.

1) Select [highlight] the test: Output Power vs Vcc3 & Frequency line in the test plan outline. (You may want to expand the Test Plan Editor's window again. You can leave the data viewer for the Noise Figure test open on the screen. You may want to look at it again later.)

2) Place the mouse pointer on the Data Save button's data name: **Output Power** and select the mouse button 2 function **View Data**.

3) The System Computer will display the dialog box **Select Plotting Axes**. The Select Plotting Axes dialog box lets you select the X Axis Independent Variable, the Colors Independent Variable and lets you set each of the remaining measurement parameters equal to a constant (i.e. converts the remaining independent variables to fixed variables with constant values.)

4) Select **Source1 Frequency** as the X Axis Independent Variable. Source frequency will be displayed along the X axis of the test results plot.

5) Select **DutControl Vcc3** as the Colors Independent Variable. DutControl Vcc3 will be displayed as a series of colored test result traces, with each trace representing a different Vcc3 voltage value. Select the **OK** button.

6) The System Computer will display the dialog box **Select Viewer**.

7) Select [highlight] the data viewer choice **Multiparameter** and select the **Select** button.

8) The System Computer will open the Multi-Parameter viewer and display the test results. The data viewer will display in its title bar: Output Power vs Frequency, colors Vcc3 to remind you that the Data Name for the DATA SAVE button you selected was **Output Power**, the measurement parameter you selected along the X axis was Source1 **Frequency** and the measurement parameter you selected to be displayed by different colored traces was DutControl **Vcc3**.

Viewing the Test Results with the Multi-Parameter Data Viewer

The Multi-Parameter Data Viewer offers you the flexibility to display the test results in many different ways, depending on the data formats, min and max values and the scaling factors you select. The System Computer will initially set the Y Axis Scaling for you and display the test results trace for the highest DutControl Vcc3 voltage value. (The test results may or may not be visible depending on the scaling values selected. We will be using the **Auto** buttons again to auto-scale the test results plot.) To tailor your plot to your specific needs you again select the button setting you want to change and either enter the new value or select from the list of choices provided. Use the following procedure to practice changing some of the button settings offered with the Multiparameter Viewer.

1) Select the Y axis **FORMAT** button (to the left of the bottom left corner of the plot). Select the FORMAT choice **dBm** to display the Output Power in dBm.

2) Select the **Auto** button in the **Y CENTER** group button, to auto-scale the Y axis center line. The setting selected by the System Computer is displayed below the **Auto** button.

3) Select the **Auto** button in the **Y SCALE** group button, to auto-scale the Y axis scaling factor. The setting selected by the System Computer is displayed below the **Auto** button.

4) Select a colored square in the color bar to the left of the plot. The plot will change to show the test results for the Vcc3 voltage setting you selected. The Vcc3 voltage setting is displayed to the right of each colored square. Select another color. As you can see, you can display the Output Power vs Source1 Frequency for each of the Vcc3 voltage settings.

5) To display all of the traces at the same time, place the mouse pointer on the XY plot and select the Mouse Button 2 menu choice: **OverPaint**. The OverPaint function will be enabled.

6) Select the **Auto** or **Redraw** button to redraw all of the traces.

7) Remember: To determine the X & Y coordinates of any location or test point on the test results plot, place the mouse pointer on the location desired and click mouse button 1.

8) Select the **MEMO** button and enter the name of your test plan. Select the **OK** button when finished. The name of your test plan will be displayed in the center of the **MEMO** button. If you do not have a printer connected to the system computer, go to step 10.

9) To print a copy of the plot you have created, place the mouse pointer outside of the XY plot and click mouse button 2. Select the pop-up menu choice: **Print**, or place the mouse pointer on the data viewer window's title bar and select **Print Screen** on the keyboard.

    Remember: The size of the printed plot is a direct function of the size of the <u>Data Viewer</u> window on the System Computer CRT screen.

10) Close the <u>Data Viewer Window</u> by placing the mouse pointer on the **down arrow** in the upper left corner of the <u>Data Viewer Window</u> and double clicking mouse button 1. Repeat this process for all of the other open <u>Data Viewer Windows</u>.

Creating Test Limits

Once you have compiled and run your test plan, you can add test limits (upper and/or lower limit values) to each of the test panels. The limit values can be saved in a separate test limit spec. Each test plan can have more than one set of test limit specs associated with the test plan. Use the following procedure to create a test limit spec for your test plan.

1) Return to the Test Plan Editor Window by selecting the window's title bar or any other location on the window. Increase the size of the Test Plan Editor Window and place the window such that the title bar for the RI Message Window is visible. (You will be needing access to the RI Message Window later in the lab.)

2) Select the Test Plan Editor's menu bar choices: **Limits** and **New**.

3) The System Computer will display the dialog box: **Title?** Enter: **Histogram** for the name of your test limit spec and select the **OK** button. You can use any name for the set of test limits you will be creating, however we want you to enter **Histogram** because we will be using the Histogram tool later in the lab.

4) The System Computer will create a test limit spec with the name you entered and this test limit spec will be saved with your test plan.

Adding Test Limit Values

The test system only performs the test limit checks for those upper or lower test limits which have a limit value. Blank test limit values are ignored. Use the following procedure to add test limits.

1) Select a test in the test plan outline.

2) Place the mouse pointer on the Data Save button's Data Name and select the mouse button 2 function: **Single-valued Limit**.

3) The System Computer will display the dialog box **Set Test Limits**.

4) Select the entry field for the **Minimum** and/or **Maximum** test limit and enter the value desired.

5) Select the **OK** button when finished.

Practice these steps by adding the following test limits to your test plan.

Test Limits to be Added to the Test Plan

Test	Data Name	Min	Max	Format
RF Gain	RF Gain	15	25	log
Output Power	Output Power	0	10	dBm
Noise Figure	NF	0	3.5	log
Input VSWR/Output Match	IVSWR	0	2.7	Vswr
Input VSWR/Output Match	Output Match	-100	-10	log mag

Modifying Individual Test Limit Values

The previous procedure let you set a fixed test limit value for all of the test limits associated with a specific DATA SAVE button. Use the following procedure to set individual test limit values for any test point in any of the tests.

1) Select a test in the test plan outline.

2) Place the mouse pointer on the Data Save button's Data Name and select the mouse button 2 function: **Multi-valued Limit**.

3) The System Computer will display the dialog box **Set Limit Checks**.

4) Select the test point, followed by the entry field for the **Minimum** or **Maximum** test limit value you wish to change and enter the new value desired (or modify the old limit value).

5) Repeat step 4 as required for the other test limits you wish to change.

　　Hint: Use the **scroll bar** to view other test points in the **Settings** list.

6) Select the **OK** button when finished.

Practice these steps by changing the following test limits in your test plan.

Test Limits to be Changed in the Test Plan

Data Name(Setting,Setting)	Value,Value	Min	Max	Format
Output Power(VCC3,Freq)	3.0, 1200	-1.0	9	dBm
Output Power(VCC3,Freq)	3.0, 1300	-1.0	9	dBm
Output Power(VCC3,Freq)	3.0, 1400	-1.0	9	dBm
Output Power(VCC3,Freq)	3.0, 1500	-1.0	9	dBm
NF(Freq)	1200	0	2.8	log
NF(Freq)	1500	0	2.8	log
IVSWR(Freq)	1500	0	2.5	Vswr
Output Match(Freq)	1500	-100	-13	log mag

Saving Your Test Plan with the Test Limits

To save the test plan and the test limits you created, use the following procedure:

1) Select the menu bar choices: **File** and **Save**.

2) The System Computer will save the test limits with your test plan.

Creating Test Executives with the Test Executive Editor

Using the Test Executive Editor Window, you can combine the test plan and test limits you created with a customized Operator Interface (which you are about to create) to build a Test Executive. Use the following procedure to create, build and save a Test Executive.

1) Return to the RI Message Window.

2) Select the menu bar choices: **Test** and **Package Execs...**.

3) The System Computer will open the Package Test Execs Container Window.

4) Select the menu bar choices: **New** and **Test Exec**.

5) Enter the title for your new Test Exec and press the **Enter** key or select the **OK** button.

6) The System Computer will add your new Test Exec to the Package Test Execs Container Window.

7) Place the mouse pointer on your Test Exec and click mouse button 2. Select the pop-up menu choice: **Automatic**.

8) The System Computer will open the <u>Package Test Executive Editor</u> Window for Automatic Testing.

9) Select the menu bar choices: **Test** and **Test Plans and Limits...**.

10) The System Computer will display the dialog box: **Select Test Plans and Limits**. You will use this dialog box to select the test plans and limit files you want to include in the Test Executive you are building.

11) Select the **down arrow** button to the right of the <u>Primary Test Plan's</u> entry field. A list of all of the test plans available will be displayed.

12) Use the **scroll bar** to find your test plan. Select [highlight] your **test plan** as the Primary Test Plan for your test executive. (When you run your test executive, each of the devices-under-test (DUTs) will be tested by the Primary Test Plan you selected.)

13) Select the **down arrow** button to the right of the <u>Base Limits</u> entry field. A list of all of the test limits associated with the <u>Primary Test Plan</u> you selected will be displayed. Since only one set of test limits was created with your test plan, only the set of test limits you created will be displayed.

14) Use the **scroll bar** to find your test limits. Select [highlight] your test limits. Each device tested by the <u>Primary Test Plan</u> will be compared against the <u>Base Limits</u> you selected.

15) You can add a second set of limits to the Test Executive by selecting the **down arrow** button to the right of the <u>Premium Grade Limits</u> entry field and selecting an additional set of limits. If a set of <u>Premium Grade Limits</u> is selected, the device-under-test will be compared against both sets of limit values. If the device passes the <u>Premium Grade Limit</u> values the part is considered to be a premium part and is assigned the <u>Premium Pass Bin</u> number. If the part fails one of the <u>Premium Grade Limit</u> values and passes all of the <u>Base Limit</u> values, the part is considered a good part and is assigned the <u>Standard Pass Bin</u> number. If the device fails at least one <u>Base Limit</u> value, the part is assigned the <u>Default Fail Bin</u> number or a

Special Fail Bin number (depending on which test limit value failed.) (We will be selecting the Special Fail Categories in the next procedure.)

16) You can add a second test plan to the Test Executive by selecting the **down arrow** button to the right of the Auxiliary Test Plan entry field and selecting an additional test plan. If an Auxiliary Test Plan is selected, you must specify what percentage (0% to 100%) of the devices-under-test are to be tested by the Auxiliary Test Plan. Select the **up arrow** or **down arrow** buttons to the right of the Percentage to run entry field to set the percentage of the devices tested by the Auxiliary Test Plan. The devices tested by the Auxiliary Test Plan will be randomly selected. For example if you set the Percentage at 10%, the test system will randomly select 10 percent of the devices to be tested by both the Primary Test Plan and the Auxiliary Test Plan. The remainder will only be tested by the Primary Test Plan.

17) You can also add a Continuity Test Plan and a set of Continuity Limits to your Test Executive. The Continuity Test Plan can be run before the other test plans are run against each device by selecting the **Continuity Test Initially** button. The Continuity Test Plan can be run after a part fails a Base Limit value by selecting the **Continuity Test After Fail** button. If the part fails one of the Continuity Limits, the part is assigned the Continuity Fail Bin number.

18) Select the **OK** button.

19) The System Computer will load the test limits and the test plans selected.

Selecting the Special Fail Criteria

You can specify that certain test limits are Special Fail Limits. If a device fails a Special Fail Limit value, the part is assigned the Special Fail Bin Number you selected. Use the following procedure to select Special Fails Limits.

1) Select the Test Executive menu bar choices: **Test and Special Fails...**.

2) The System Computer will display the dialog box: **Select Special Fail Category.**

3) Select [highlight] **Special Fail 1**. Select [highlight] the **Data Name(s)** for the test limit(s) you want to designated as Special Fail Limit 1 test limits. (The Data Names selected will be reverse highlighted by the System Computer.)

4) Repeat step **3)** for Special Fails 2 & 3.

5) Select the **OK** button to return to the Test Executive Editor Window.

Selecting the Retest Criteria

If a part fails one of the Continuity Test Limits, Base Test Limits and/or one of the Special Fail Test Limits, the test system can be instructed to retest the part. You can also select the number of times the part is re-tested before it is assigned a Fail Bin number. Use the following procedure to select the Retest Criteria.

1) Select the menu bar choices: **Test** and **Retest Criteria...**.

2) The System Computer will display the **Retest Criteria** dialog box.

3) Select the Retest Criteria (**Continuity Fail**, **Standard Fail**, **Special Fail 1**, **Special Fail 2**, **Special Fail 3, etc.**) buttons desired . (More than one choice can be active at a time.)

4) Select the **up arrow** or **down arrow** buttons to the right of the Retry entry field to set the number of times the test plan can be repeated before the part is assigned a Fail Bin number.

5) Select the **OK** button to return to the Test Executive Editor Window.

Selecting the Pause Testing Criteria

The System Software offers you 4 choices for pausing the testing of a part:

Stop testing after __ units have been tested.

Stop testing after __ units have passed.

Stop testing after __ consecutive devices have failed.

Stop testing after __ units have failed the Continuity Test limits.

Use the following procedure to select the criteria for stopping or pausing testing.

1) Select the menu bar choices: **Test** and **Pause Criteria...**.

2) The System Computer will display the **Pause Test Criteria** dialog box. The criteria values will be blank. If you do not enter a value for a criteria, the blank criteria choice is ignored by the test system.

3) Enter the criteria values desired.

4) Select the **OK** button to return to the Test Executive Editor Window.

Printing Test Results

The test system offers several print options.

Sections to Print

Summary - Print a summary of the test data.

Statistics - Print the statistics of the test data.

Auto Print Events - Print the summary and/or statistics data if the following occurs:

Lot Change - **Lot** number changes.

Sub Lot Change - **Sub Lot** number changes.

Stop - **Stop** button is selected.

Close - The Test Executive is closed.

Use the following procedure to select the print options desired:

1) Select the Test Executive menu bar choices: **File** and **Print Options...**.

 2) The Print Options dialog box offers several choices for printing test results. Each of the choices offered is a toggle function. A **check mark** in front of a print menu choice indicates that the function is enabled and active. The absence of a **check mark** indicates that the function is disabled.

 3) Please leave all of the Auto Print Events choices disabled. The System Computer you are currently using is not connected to a printer. Select **OK** to return you to the Test Executive Editor Window.

Saving Test Results Data in the Test System Data Base

You can enable or disable the saving of test results data in the Data Base by selecting the Test Executive's menu bar choices: **Options** and **Data Saving...**. Please leave the **Save Data** buttons disabled. Ask you Lab Instructor to describe the data saving options offered. Select **OK** to return you to the Test Executive Editor Window.

Saving the Test Plans and the Limit Files you Selected with the Custom Test Executive you have created in a Test Executive File

You are now ready to save the test plan and the test limits you selected with the custom Test Executive you have created into a Test Executive file. Use the following procedure to save the files and the changes to the Test Executive, into a Test Executive File.

1) Select the menu bar choices: **File** and **Save**.

2) The System Computer will save your file on to the hard disc.

Plotting Test Results Summary Information

The System Software offers you several data viewer windows for displaying Bar Charts of the test results. You can select and open one or more of the data viewer windows at the same time. The Bar Chart Viewer choices offered are the following:

Tests: Displays the number of parts, which have passed all of the test limits and the number of parts which have failed each specific test limit value.

Categories: Displays the number of parts, which have been assigned to each bin category (Standard Pass, Premium Pass, Standard Fail, Continuity Fail, Special Fail 1, 2, 3, etc.)

Bins: Displays the number of parts, which have been assigned to each bin number.

Use the following procedure to select and display the test results summary plots.

1) Select the Test Executive Editor's menu bar choices: **View** and **Bar Chart**.

2) The System Computer will display the sub menu choices: **Tests**, **Categories** and **Bins**.

3) Select [highlight] one of these sub menu choices.

4) The System Computer will open the Data Viewer selected. The name of the Data Viewer and the current Lot and/or Sub Lot names will be provided in the title bar. The Data Viewer will update each time a part is tested.

5) Adjust the size of the Data Viewer Window and move the window such that it does not cover the Test Executive Editor Window.

6) Repeat steps 1 through 5 if you want to open other Data Viewers.

Plotting Real Time Histograms of the Test Results

The test system software supports Real Time Histograms by utilizing the set of test limits named <u>Histogram</u>. The minimum and maximum test limits for each of the tests performed becomes the upper and lower boundaries for each Histogram.

Use the following procedure to select and display the Histograms:

1) Select the <u>Test Executive Editor</u>'s menu bar choices: **View** and **Histogram**.

2) If the System Computer displays <u>Simulated Handler in use</u>, select the **OK** button.

3) The test system computer will open the <u>Data Viewer</u> for <u>Histograms</u>. The <u>Histograms</u> will be updated each time a part is tested.

4) Increase the size of the <u>Histogram</u> window to see the histograms.

Changing to System Simulation Mode

To run your test exec without connecting the System Computer to the Test
System will require telling the System Software to run your test exec in <u>System
Simulation Mode</u>. You enable the <u>System Simulation Mode</u> by disabling the
Test System hardware. Use the following procedure to disable the Test System
hardware.

1) Select the menu bar choice: **Options**.

2) If a **Check Mark** is displayed to the left of the **Tester Enabled** menu
choice, the hardware is <u>Enabled</u>. Select the **Tester Enabled** menu choice to
remove the **Check Mark** and disable the Hardware. The System is now in
<u>System Simulation Mode</u>.

If the **Tester Enabled** menu choice does not have a **Check Mark** preceding
it, then the hardware is already <u>Disabled</u> and the system is in <u>System
Simulation Mode</u>. Close the **Options** pull down menu by selecting any
location outside of the pull down menu.

3) In **System Simulation Mode** the RIFL interface is bypassed and test
results are provided by an internal pseudo random number generator to the
Test Plan(s) and/or Test Executive.

Selecting the Lot, Sub Lot and Part Number for the Next Part to be Tested

The <u>Test Executive Editor</u> Window provides three entry fields for entering the **Lot** name or number, the **Sub Lot** name or number, and the part number for the **Next Part** you want to test. (You can leave these entry fields blank if you wish. The next part number will be automatically set to 1 if you do not enter a value. The Lot and Sub Lot names will remain blank.) Practice selecting and entering names in the **Lot** and **Sub Lot** entry fields and selecting and entering a number for the next part to be tested.

Running Your Test Executive

You have finished all of the hard parts. Now you can run the test plans and limit files you selected with your custom test executive.

1) To start testing select the green **Start** button on the custom <u>Test Executive</u> you have created. If you have not activated a handler the software will instruct you to select a handler. Follow the procedure displayed by the system computer and activate the <u>Simulated Handler</u>.

2) Each time a new part is tested, the <u>Test Executive</u> will update the test summary data and the summary plots in the <u>Data Viewers</u> you opened.

3) To stop testing select the red **Stop** button or the red **Pause** button.

4) To start testing again select the green **Start** button again or select the green **Resume** button to resume testing.

5) Select the red **Stop** button when you are finished testing.

6) Close the <u>Data Viewers</u> you have opened by placing the mouse pointer on the **down arrow** in the upper left corner of each <u>Data Viewer</u> Window and double clicking mouse button 1. Repeat this process for the other <u>Data Viewer</u> Windows.

7) Close the <u>Test Executive Editor</u> Window by placing the mouse pointer on the **down arrow** in the upper left corner of the <u>Test Executive Editor</u> Window and double clicking mouse button 1.

Test System Shut Down

Use the following procedure to close the RI application and shut down the Test System:

1) Close each of the open windows except the <u>RI Message Window</u> by placing the mouse pointer on the **down arrow** in the upper left corner of each window and double clicking mouse button 1. Repeat this process until all of the windows are closed except for the <u>RI Message Window</u>.

2) Now close the <u>RI Message Window</u> by placing the mouse pointer on the **down arrow** in the upper left corner of <u>RI Message Window</u> and double clicking mouse button 1.

3) The System Computer will display the dialog box: **Please Confirm...**. Select the **Yes** button.

4) Place the mouse pointer on an open area on the CRT screen and click mouse button 2. Select the pop-up menu choice: **Shut down**.

5) The System Computer will display a dialog box asking you if you want to shut down your system**.** Select the **OK** button.

6) The System Computer will begin the System Shutdown process. Do not turn off the computer until the System Computer displays the dialog box:

Shutdown has completed. It is safe to turn off your computer.

7) Turn off the System Computer.

8) Turn off the Test System and the System Computer Peripherals.

9) Shut down is now complete. You have finished the Hands-on-Lab. Thank you for participating in the RI 7100A IFIC/RFIC ATE System Hands-on-Lab.

Testing Procedure for the Production Test Operator

The RI 7500A System Software provides custom <u>Test Executives</u> for testing parts. The Test Executive loads and runs <u>Test Plans and Test Limits</u>. The procedure for starting-up the Test System and running a Test Executive is described below.

1) Turn on the <u>Test System</u> and the <u>System Computer Peripherals</u>.

2) Turn on the <u>System Computer</u>. The System Computer will load the OS/2 Operating System.

3) Place the mouse pointer on the **RI Test Exec** Icon. Double click mouse button 1 (left mouse button.) The System Computer will open the RI System Software and display the <u>RI Message Window</u>.

4) Select the <u>RI Message Window</u>'s menu bar choices: **System** and **Logon...** (Place the mouse pointer on the menu bar choice **System** and click mouse button 1. Place the mouse pointer on the pull down menu choice **Logon...** and again click mouse button 1.)

5) The System Computer will open the <u>Users</u> Container Window.

6) Place the mouse pointer on the **Operator** icon and double click mouse button 1. You are now logged on to the system as an <u>Operator</u>.

7) Return to the <u>RI Message Window</u> by selecting the <u>RI Message Window</u>'s title bar.

8) Select the menu bar choices: **Test** and **Package Execs.**

9) The System Computer will open the <u>Test Execs</u> Container Window.

10) Open the <u>Test Executive</u> desired by placing the mouse pointer on the <u>Test Executive</u> object and double clicking mouse button 1.

11) The System Computer will load the test plans, the limit files and the custom Test Executive saved in the Test Executive file.

12) Use the entry fields provided to enter the **Lot**, **Sublot** and **Part Number** for the next part to be tested.

13) To start testing select the green **Start** button.

14) The Test Executive will update the test summary data each time a new part is tested.

15) To stop testing select the red **Stop** button or the red **Pause** button.

16) To start testing again select the green **Start** button again or select the green **Resume** button to resume testing.

17) Select the red **Stop** button when you are finished testing.