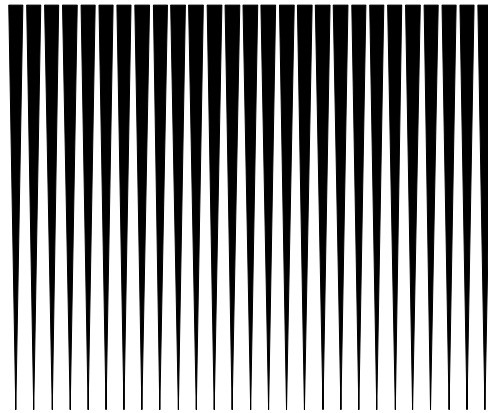




S P E C T R A L  
D Y N A M I C S



**PUMA**



**Viewer  
Operating Manual**

**2400-0103A**



# Spectral Dynamics Viewer

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# Spectral Dynamics Viewer

## Chapter 1

# Introduction

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## 1.1 Spectral Dynamics – The Company

Spectral Dynamics, Inc. has enjoyed a continuous and prosperous operation since it's founding in 1961. That same year saw the offering to the public of the analog-tracking filter. Since that time, Spectral Dynamics and their family of associated companies, has produced products and systems held by nine different patents.

## 1.2 The Products

The Spectral Dynamics Viewer (Graph Tool) is used in conjunction with other Spectral Dynamics (SD) applications to acquire, store, process and produce various data for the SD Computer-Aided Test Suite (CATS). This is a family of integrated products specifically manufactured to meet the needs of a user engaged in a wide range of acoustic and vibration signal generation, testing and analysis. The CATS family includes the following:

- COUGAR            Portable data acquisition system.
- PUMA             PC based acquisition and control system.
- CATS MODAL    These products deal with structural dynamics.

These applications include closed loop vibration control, virtual data channel creation and signal analysis. Positive control over hydraulic and electro-dynamic shaker systems is achieved through the use of the SD adaptive equalization technique. It allows production of transient waveforms, even under non-linear conditions. CATS is fully Microsoft compliant and integrates itself and the latest technologies such as ActiveX, MSFC, C++ and COM with ease.

Report generation is as simple as clicking a mouse button. Time and frequency data of different sample rates and bandwidths can be overlaid and compared on the same graph. Individually annotated random and swept sine data may be simultaneously displayed in the same graph.

Data previously assimilated and stored can be compared to real time data in the same display whether it is in a graph or added to a report in text or spreadsheet format. Graphs produced in CATS can be embedded in OLE-compliant documents such as those produced by the Microsoft Office Suite applications.

### 1.3 Spectral Dynamics Viewer

The Spectral Dynamics Viewer (Graph Tool) is the basis for all graphical displays in all PUMA and COUGAR applications. See Figure 1-1. The Graph Tool has the capability of simultaneously viewing:

- Live and stored data
- Data with different sample rates and frequency spacing
- Multiple data files from different test runs.
- Computes data (with optional calculator)

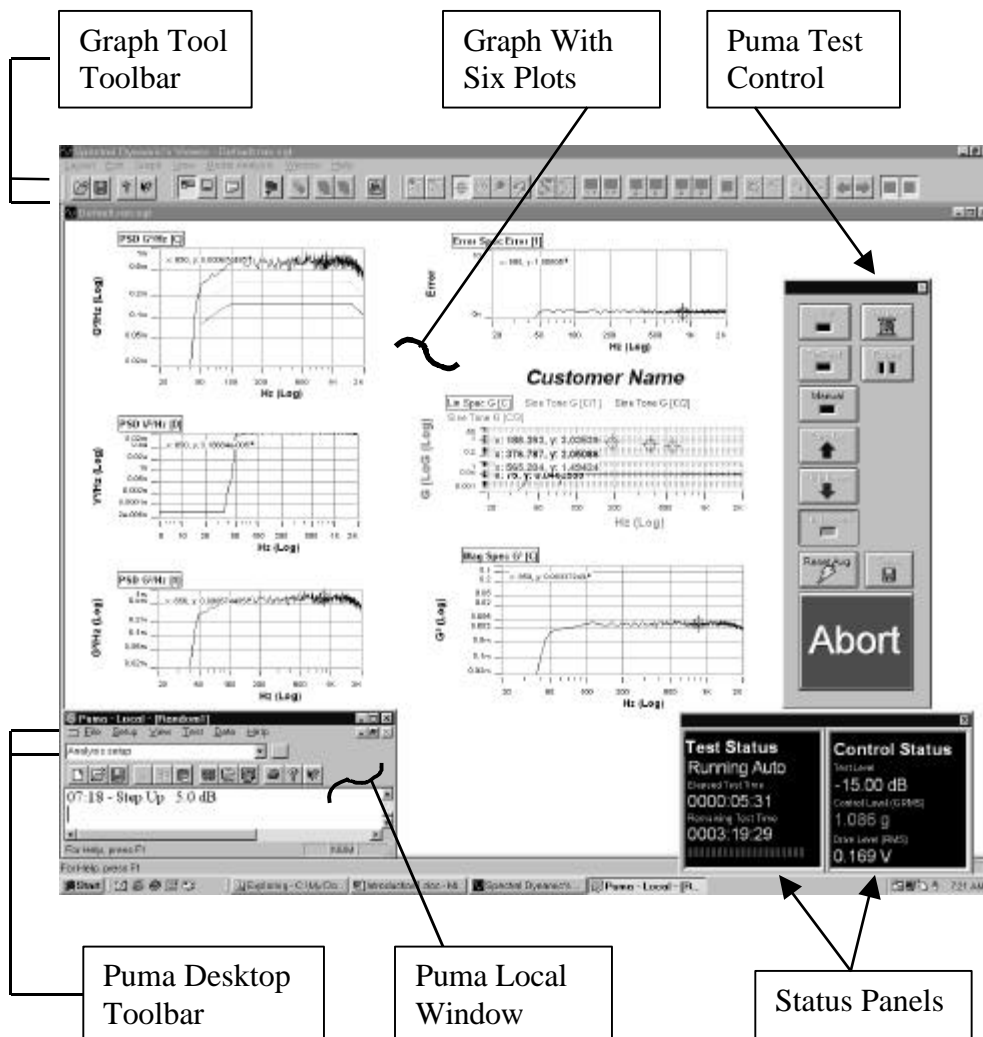


Figure 1-1. Graph Tool Desktop



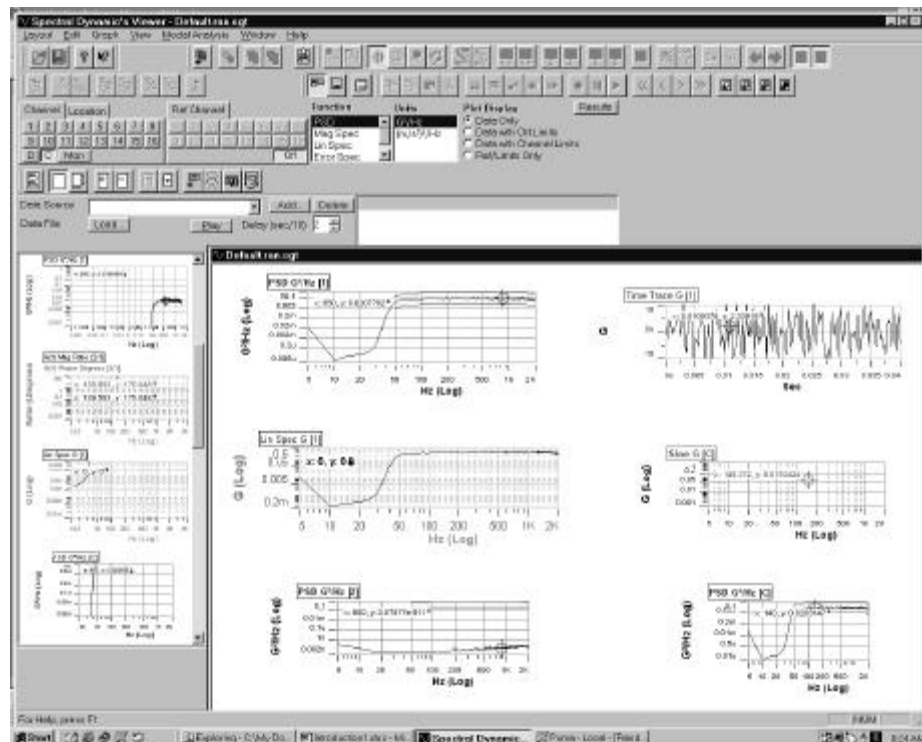


Figure 1-2. Graph Tool Showing Multiple Toolbars

### 1.3.1 Terminology

The following list explains some of the key terms associated with the Graph Tool.

Cursor	Individual live cursors, one for each plot (trace) in a graph. <ul style="list-style-type: none"> <li>▪ Peak Cursor — It follows the y coordinate of the plot but remains at the original x coordinate.</li> <li>▪ Peak Follow Cursor — It continually jumps to the coordinates of the highest point on the plot.</li> <li>▪ XY Cursor — It remains at the coordinates specified.</li> </ul>
Data Source	Normal (live data from input channels) or from a data file.
Graph	Single display on a page (e.g. amplitude vs. time or frequency).
Graph Template	Stored settings for a single graph (*.gt file).
Layout	A layout can consist of a single graph or multiple graphs on one or more pages.

Markers	Multiple live cursors that can be individually activated.
Page	The window area of the Graph Tool Desktop that displays the plots. Files can contain multiple pages.
Plot	A data trace in a graph (live or stored).
Tags	Text information on the graph. Tags can be either static (labels) or live (extracted from live data, e.g. rms channel).
Viewer Template	An SGT File that displays pre-selected plots and Graph Tool Desktop elements such as toolbars and controls. The elements are pre-positioned and can include Puma features such as a Test Control, Status Panels and the Puma Local Window.


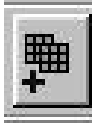
### 1.3.2 Features

Suppose a particular type of test is initiated several times a day. Instead of having to reposition the Puma Test Control in the Graph Tool Window or place the status panels around the edges out of the way, it can be done once, saved as a Graph Template File and recalled repeatedly.

#### 1.3.2.1 Graph Tool Desktop Setup Procedure

The following procedural steps will set the contents of the Graph Tool Desktop to match the presentation of Figure 1-1.

1. For those users that have the security feature go ahead and log in.
2. On the {New} Dialog Box click on Random then click OK. The default (or last worked on) Graph Tool Desktop Window appears.
3. Click View, and then click on any option that will not be required. The View Menu will close.
4. Repeat step 3 until all non-required options are closed. Leave only those that are required for the finished display.
5. Launch any required elements that were not in the original display.
6. Click on the PUMA Local Application minimized icon on the task bar to recall the PUMA Local Window.
7. Click View, and then click on any option that will not be required. The View Menu will close.
8. Repeat step 7 until all non-required options are closed. Leave only those that are required for the finished display.
9. Launch any required elements that were not in the original display.
10. Drag and place the PUMA Local Window in the LH lower corner.
11. Drag and place the **Control Status Panel** in the lower RH corner.
12. Drag the Test Status Panel until it slightly overlaps the Control Status Panel and release the mouse button. The two panels will dock showing a single blue bar above both panels.
13. Drag the **PUMA Test Control** and place it on top of the panels.

14. Select the graph in the upper LH corner of the Graph Tool Desktop. If the graph is not required for the final presentation click the <Erase> button on the toolbar. The graph is deleted. 
- 15 Repeat step 14 until all non-required graphs are deleted.
- 16 Select any graph being retained. Size it accordingly and place it in the proper location.
- 17 Repeat step 16 for any other graphs being retained.
- 18 Launch the **Graph List Toolbar** from the Graph Tool **VIEW** Menu Option. 
- 19 To replace any additional graphs that are required, click on the <Add Graph> toolbar button.
  
- 20 Place cursor at the upper LH corner of the location where the new graph is to be placed then click and drag the graph window to the proper size. A default graph will appear. It will remain selected (indicated by a thick border) until another graph is selected or placing the cursor in an unoccupied area of the Desktop and clicking the mouse to deselect all graphs. Any actions taken while a graph is selected will affect the selected graph.
  
- 21 Scroll through the Graph List Toolbar until the required graph for that position on the Graph Tool Desktop appears then click on it. That will change the default graph that was just launched to become a copy of that Graph List Toolbar graph template.
15. Repeat steps 19 thru 21 for any other required graphs.
16. Close the Graph List Toolbar.
17. Save this presentation by highlighting the template name in the **PUMA Desktop Toolbar** and typing in a new name.
18. Click the <Save> button of the PUMA Desktop Toolbar.

The main feature of the Graph Tool is the types of files with multiple presentation possibilities and how they are used in conjunction with each other. To make life easier for the user, the Graph Tool Window can be formatted in any manner required to meet the users needs.

The two categories of files used are the Graph Template (GT) Files and the Graph Tool Layout Template (SGT) Files. The following paragraphs describe the differences between them.

### 1.3.2.2 Graph Template (GT) Files

The GT Files contain a single graph of any kind from any application. Not only does the graph in Figure 1-1 illustrate a graph template file but the Graph List Toolbar displays three. These files are user generated and have a file extension of: (\*.gt).

Style and format information is retained within the templates. Included are all tags, markers, fonts, background and plot colors and the plot function type. Once a template is complete it is saved and becomes part of the group contained in the Graph List Toolbar. At that point it can be used repeatedly for any test desired by simply clicking on it in the Graph List Toolbar. It can also be recalled with the **OPEN TEMPLATE** Command found in the **Graph Properties** Dialog.

### 1.3.2.3 Graph Tool Layout Template (SGT) Files

The SGT (Spectral Graph Template) Files contain multiple GT Files, which makes up the layout template for the Graph Tool. SGT Files contain the formatting parameters for the presentation in the Graph Tool Window. They dictate the size(s) and position(s) of pre-selected components in the **VIEW** Menu of both the Graph Tool and the PUMA Applications.

Those components could include toolbars, status panels, the PUMA Local Window withh Test Control and multiple GT Files of different sizes and arrangements. SGT Files are user generated and have the file extension of: (\*.sgt).

SGT Template Files reside in the PUMA root directory. Once they are saved they are automatically added to the PUMA Desktop Toolbar shown in Figures 1-1 and 1-4. The toolbar is comprised of a list box and a save button. The SGT Files listed in Figure 1-4 represent individual layouts of different presentation templates. These templates can be recalled by clicking on the name.

The SGT File of Figures 1-1 and 1-3 were saved with the same name (Analysis Setup) but the format is vastly different. Also notice in Figure 1-2 that several of the plot labels are the same but the GT Files are different because of the units of measurement on the graphs. The user can duplicate or differentiate any aspect of the GT or SGT Files in order to obtain the desired result.

### 1.3.2.4 Graph List Toolbar

The Graph List Toolbar (GLT) (Figure 1-2.) is the repository for all the GT Files that have been generated. It is accessed through the Graph Tool **VIEW** Menu. When a GT File on the Graph Tool Desktop is selected, its appearance can be matched to any of the GT Files in the GLT just by clicking on the appropriate GT File in the GLT.

### 1.3.2.5 PUMA Desktop Toolbar

The PUMA Desktop Toolbar shown in Figure 1-1 contains the names of all the SGT Files. These files are templates or presentations that contain the following elements:

- The SGT's made up of GT's
- Predetermined sizes of the GT's
- Location of the PUMA Window
- Location and size of the Graph Tool Viewer Window
- Location of toolbars
- Location of status panels

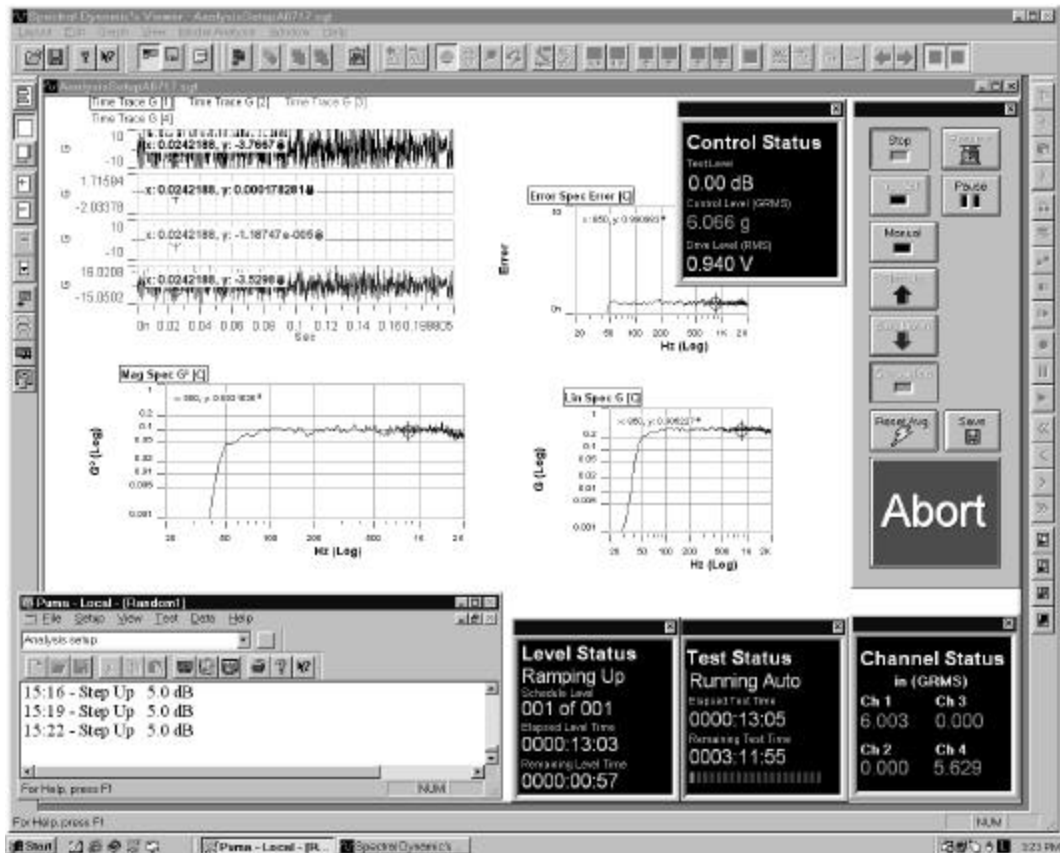


Figure 1-3. Analysis Setup Program

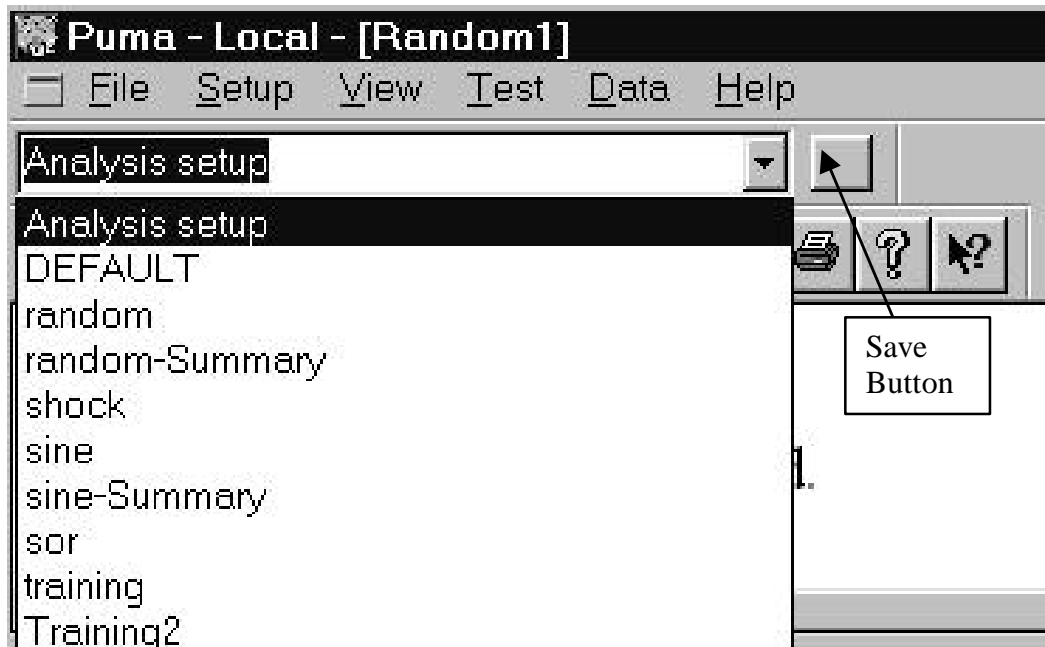


Figure 1-4. Puma Desktop Toolbar

### 1.3.2.6 Working With Shortcuts

Once all the parameters of a test have been saved to a file, that file may be accessed by a shortcut that has been placed on the desktop. Refer to paragraph 3.3.3.2.

### 1.3.2.7 Print Automation

Another feature is the automatic printing of user specified SGT Files at the end of the test cycle. See Figure 1-6. This is done with the help of Puma. The following path is initiated from the Puma Local Window and allows selecting specific SGT Files from an **OPEN** Dialog Box.

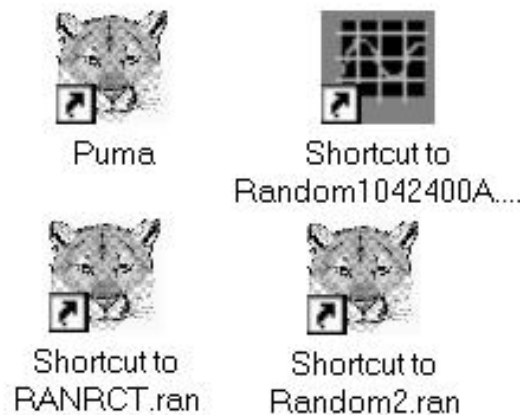
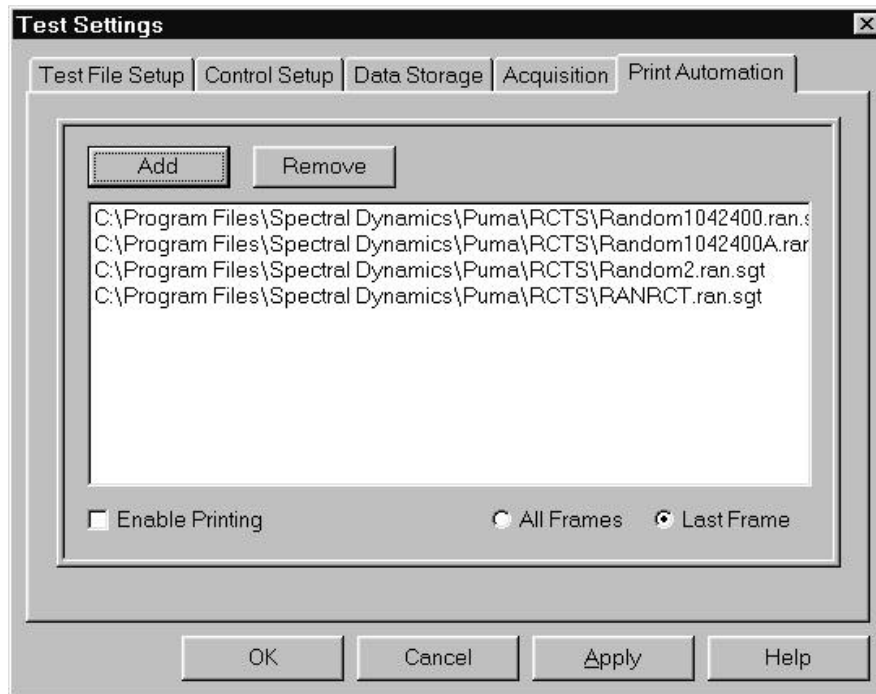


Figure 1-5. Shortcuts on the Desktop

**SETUP ⇒ CONTROLS ⇒ TEST SETTINGS ⇒ PRINT AUTOMATION ⇒ ADD ⇒ OPEN**

Select the required files, click the applicable radio button and the ENABLE PRINTING Check Box. The selected frames from the loaded files will be printed at the conclusion of the test.



**Figure 1-6. Print Automation Tab of Test Settings Dialog Box**

If the ALL FRAMES Radio Button is selected, the selection parameters for the applicable frames to be printed will have to be addressed on the **Data Storage** Tab. It offers the four choices listed below.

- Save On Level change
- Save On Alarm
- Save Every X Seconds
- Save On External

# Spectral Dynamics Viewer

## Chapter 2

# Windows Familiarization

---

## 2.1 Introduction

This chapter will introduce Windows 95/98 to those users that may be unfamiliar with the Microsoft operating system and includes basic and intermediate concepts. The Windows operating system is complex. This is not intended to be a complete reference source for Windows 95/98 operation.. It is offered only to present basic concepts necessary for operation of the Spectral Dynamics Computer Aided Test Suite. If advanced techniques are needed please refer to Microsoft documentation or contact Microsoft at <http://www.microsoft.com>.

## 2.2 Puma Manuals Style And Formatting

The following information is offered to acquaint the reader with examples of style and format used throughout this manual. The items that are affected by the style/formatting are shown, as they would be seen in context.

**Screen Names / Windows** – Bold with Initial Caps.

<**Icon Names**> to be activated – Bracketed, bold with Initial Caps

**MENU NAMES** – Bold, Small Caps

{**Dialog Box Names**} – Bracketed, bold with Initial Caps

**Toolbars** / **Index Tab Names** / **Sheet Names** – Bold, Underlined, Italics.

Dialog box [**Field Names**] – Bracketed, Bold, with Initial Caps

CHECK BOXES / RADIO BUTTONS – Small Caps

*Dialog box messages.* – Italics typed just as they appear on screen

{Boxed Areas} of Windows / Dialog Boxes – Bracketed with Initial Caps

{*Lists*} on Dialog Boxes – Bracketed, Italics

<*COMMAND BUTTONS*> - Bracketed, Italics with Small Caps

<Buttons> to be activated for menus, etc. – Bracketed with Initial Caps

<KEYBOARD KEYS> - Bracketed, Caps

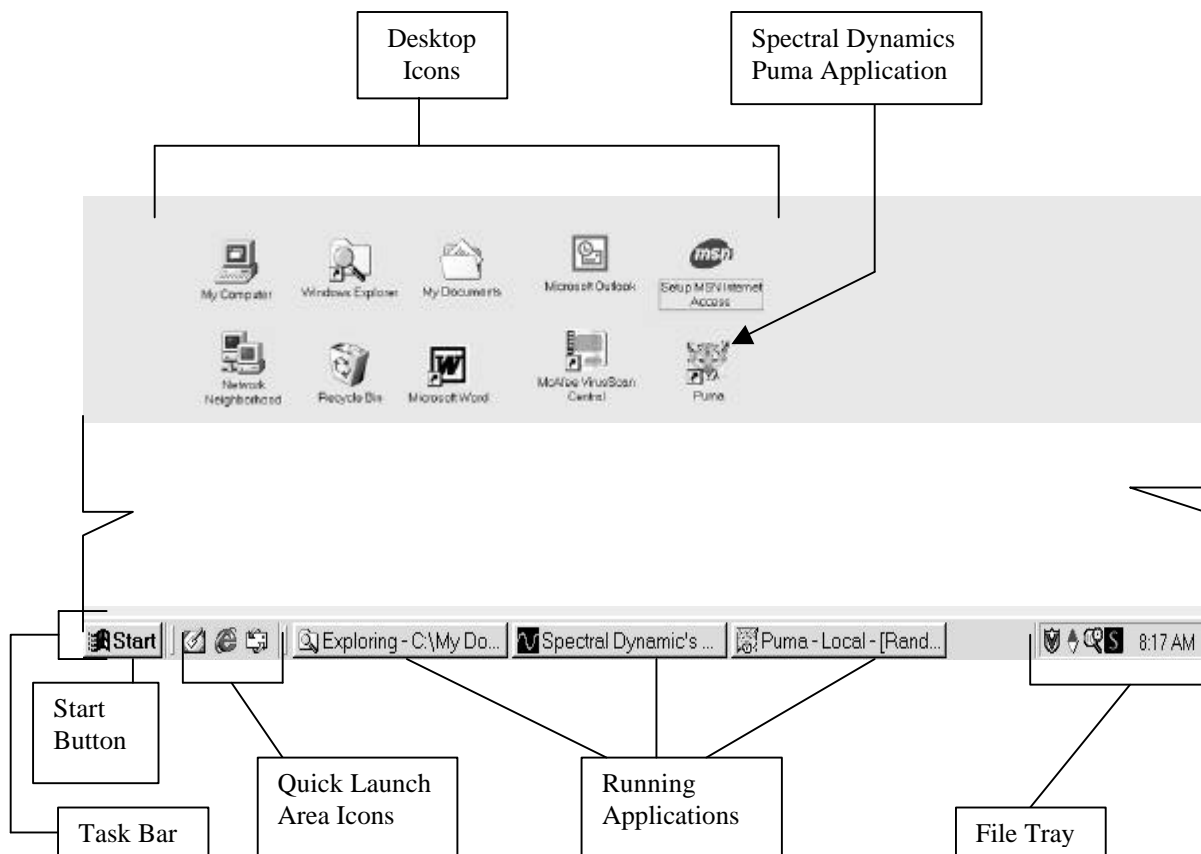


(ACRONYMS) – All caps in parentheses. Introduced immediately after terminology.

⇒ The arrow takes the place of the forward slash in the presentation of path names. It is essentially saying that the user goes from one menu option or button to the next choice.

## 2.3 Windows Desktop

The desktop is the starting place for all Windows applications. After boot up the screen will appear similar to Figure 2-1. Slight differences may be seen depending on which shortcut icons have been placed on the desktop.



**Figure 2-1. Windows Desktop**

The Windows elements seen in Figure 2-1 are:

- Task Bar
- Start Button
- File Tray
- Running Applications
- Icons

Applications can be launched from **Desktop** Icons, <Start> Button Menus or by navigating to the appropriate folder/file through the <My Computer Icon>. The launch is accomplished by double clicking the icon/folder/file with the left mouse button.

### 2.3.1 Task Bar

The **Task Bar** acts as a switching device if there are icons from minimized or active applications residing on it. Just click on the icon of the program/application that you want to work on and it will appear in the foreground.

#### 2.3.1.1 Start Button

- Programs
- Documents
- Find
- Run
- Favorites
- Settings
- Help

The <Start> Button pop-up menu (Figure 2-2) is divided into three sections. Each section may not appear the same as what you see here because each PC can be set up differently.

The top section contains specialized programs/applications required by the operator of this particular PC. The middle section is the standard presentation for Windows. This is where all of the user's normal work will start. The menu options with arrowheads on the right side indicate submenus are available. Some of these submenus themselves have submenus. The menus are discussed below.

The bottom section is used to log off either the **Puma** application or shut down your PC.

The <Start> Button listings can be modified to suit your needs. It is recommended that shortcuts of programs/applications used on a daily basis be placed on the desktop.

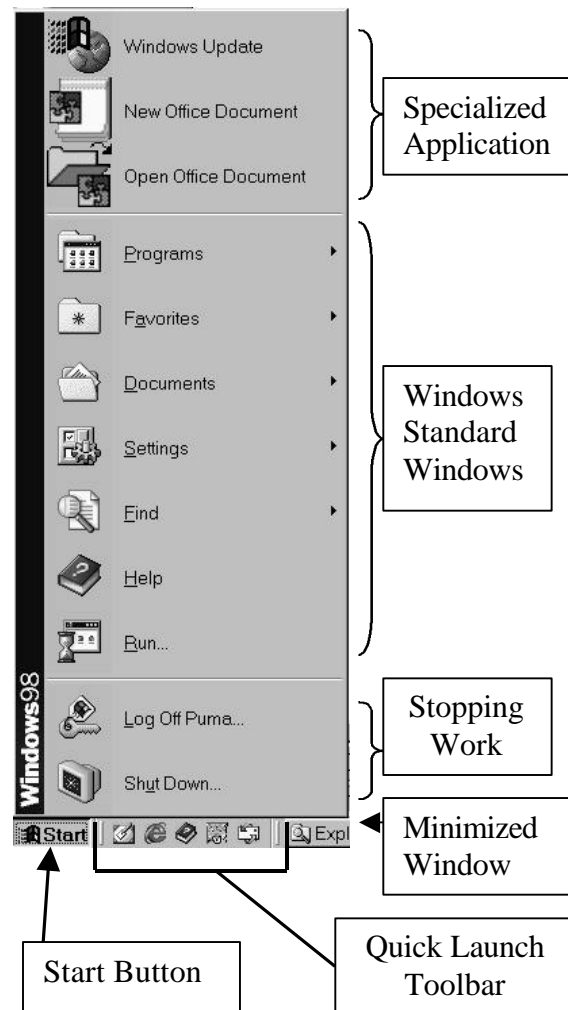





Figure 2-2. Start Button Menu

Please refer to your Windows documentation. Next to the <Start> Button is the Quick Launch Area Icons. The left icon  will bring the desktop to the foreground. The middle icon  will launch the Internet Explorer Browser and the right icon  will launch Outlook Express.

### Programs Menu

The **PROGRAMS** Menu is an extensive, hierarchical listing of program groups, tools and accessories to help the user accomplish many tasks. The **Accessories** submenu is the most extensive of the listings. Some of the applications include: a calculator, a simple word processing program, a graphics program, and system settings.

### Documents Menu

The **DOCUMENTS** menu option has two parts. The top part is an icon to allow opening the **My Documents** folder on the C:\ drive. The bottom part is a listing of the last 15 documents the user has opened whether it is from the C:\ drive, a floppy disk or a CD. These entries can serve as shortcuts to the file instead of having to transit the Explorer option.

### Settings Menu

The **SETTINGS** menu gives the user the means of changing the settings on the PC. For example the presentation can be altered to suit the user as can the way the cursor is displayed or how the menu icons appear on the <Start> Button Menu. The Settings menu takes the user to the same area that the My Computer icon on the desktop does.

### Find Menu

The **FIND** menu gives the user a means of finding files or folders that may have been misplaced or copied to the wrong area of the hard drive. If the PC is part of a **LAN** (Local Area Network) the other PC's can be identified with this option. The **FIND** menu can also be used to initiate a search for something or someone on the Internet.

### Help Menu

The **HELP** menu is the online help and diagnostic tool. The user has three options for finding the answer to the problem.

A Contents sheet displays a table of contents type listing. Each one offers information on complex topics listed under a general heading such as Use **HELP**.

An Index sheet displays information in more specific terms, the same as a book index would do.

A **Find** or **Search** sheet allows the user to type in the subject of the information needed. The program will assimilate all the information available for what was entered and display it. This part of the program is context sensitive, so if what you wanted doesn't appear, retype the request with different formatting.

### Run Menu

The **RUN** menu is similar to the **FIND** menu except that the user knows the name of the file, folder or application that is required.

### 2.3.1.2 Quick Launch Toolbar

The **Quick Launch Toolbar** area (Figure 2-2) displays icons of applications that can be initiated without going through the <Start> Button, **Explorer** or back to the **Desktop**.

### 2.3.1.3 Running Applications

The minimized application icons displayed on the **Task Bar** show the user what files, programs or applications are currently open. A lighter color icon that appears to be sunken indicates the active icon. The icons will shrink as more files are minimized until the file name is indiscernible. At that point icons that are touched by the cursor will show a tool tip text box with the file name.

### 2.3.1.4 File Tray

The **File Tray** (Figure 2-1) displays the time of day and certain icons of system applications that are running in the background. The user normally does not have anything to do with these applications. Double clicking the time area displays a calendar. Also in the File Tray is the icon for the Spectral Dynamics Server, which spells out Spectral Dynamics when the server is taking data.

### 2.3.1.5 Desktop Icons

**Desktop** icons are shortcuts to applications, folders or files that allow the user to access the information without having to go through the <Start> Button or **Windows Explorer**.

## 2.3.2 Exploring

**Windows Explorer** is possibly the most important part of the Windows operating system. Every aspect of the system can either be seen or accessed from this window.

### 2.3.2.1 Explorer Window

The icons can be made large or small. The contents of the window can be a detailed list of the folders and files (Figure 2-3) or can be displayed as a simple listing (Figure 2-4). The detailed list presentation shows a folder icon with its name, total size of all files, a file type column and the date last modified.

An open folder presentation changes to show the contents of the folder. The **Name Column** icons reflect the types of files in the folder. The **Type Column** also changes to show the specific type(s) of files in the folder.

### 2.3.2.2 Window Components

The following paragraphs describe the various components of the Microsoft Windows Explorer Window.

#### Panes

By default there are two major areas in the **Explorer** window. The left side is the **Tree Pane** and the right side is the **Contents Pane**. Note the Warning (Figure 2-4) in the

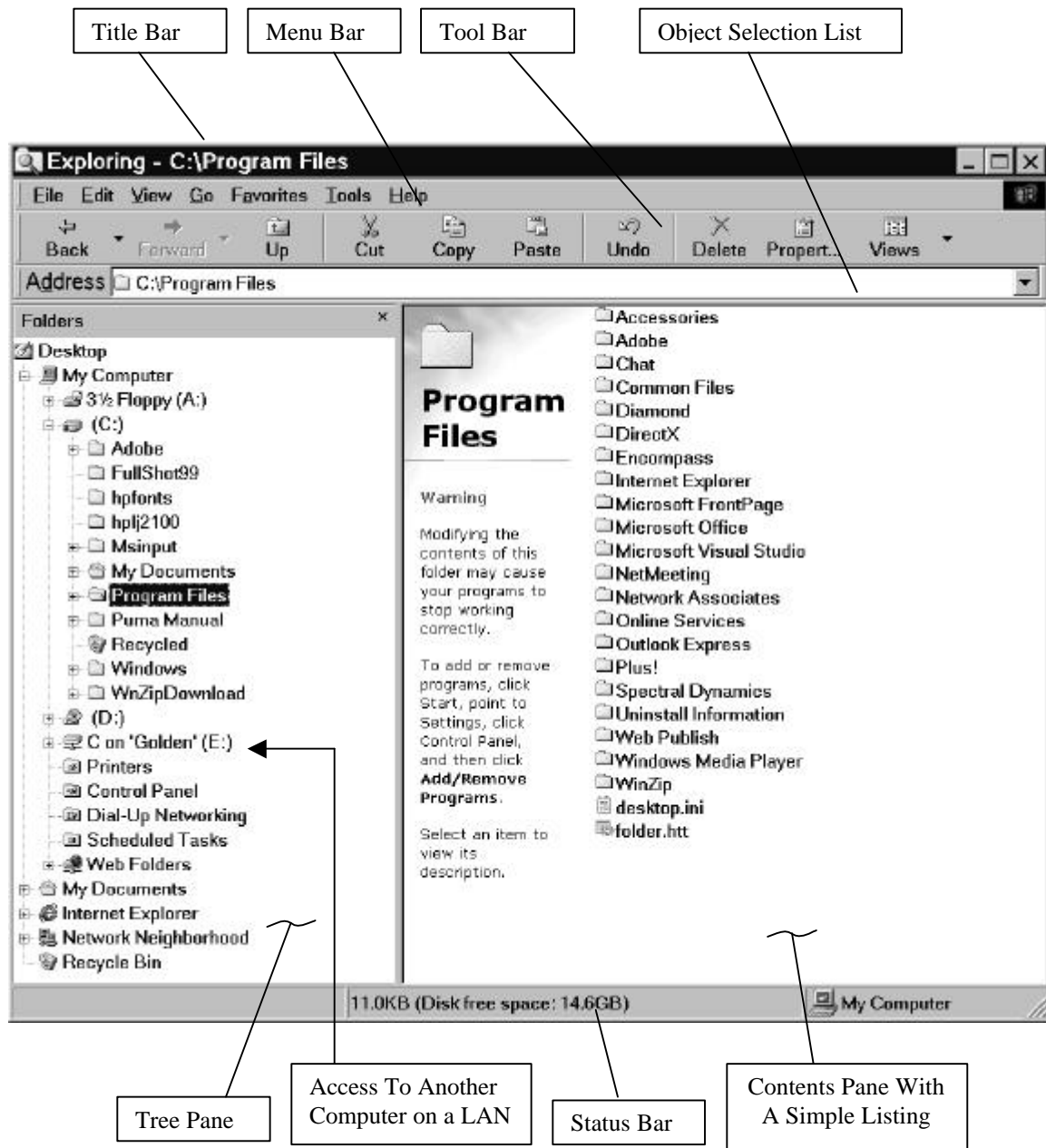


Figure 2-3. Windows Explorer List Display

**Contents Pane** about changing the **PROGRAM** Files. Also note that this computer is on a LAN. There is access to the C:\ drive on Golden, which is this computer's E:\ drive.

### Object Selection List

Just above the panes is the **Object Selection List**. It shows the path when a folder/file is selected.

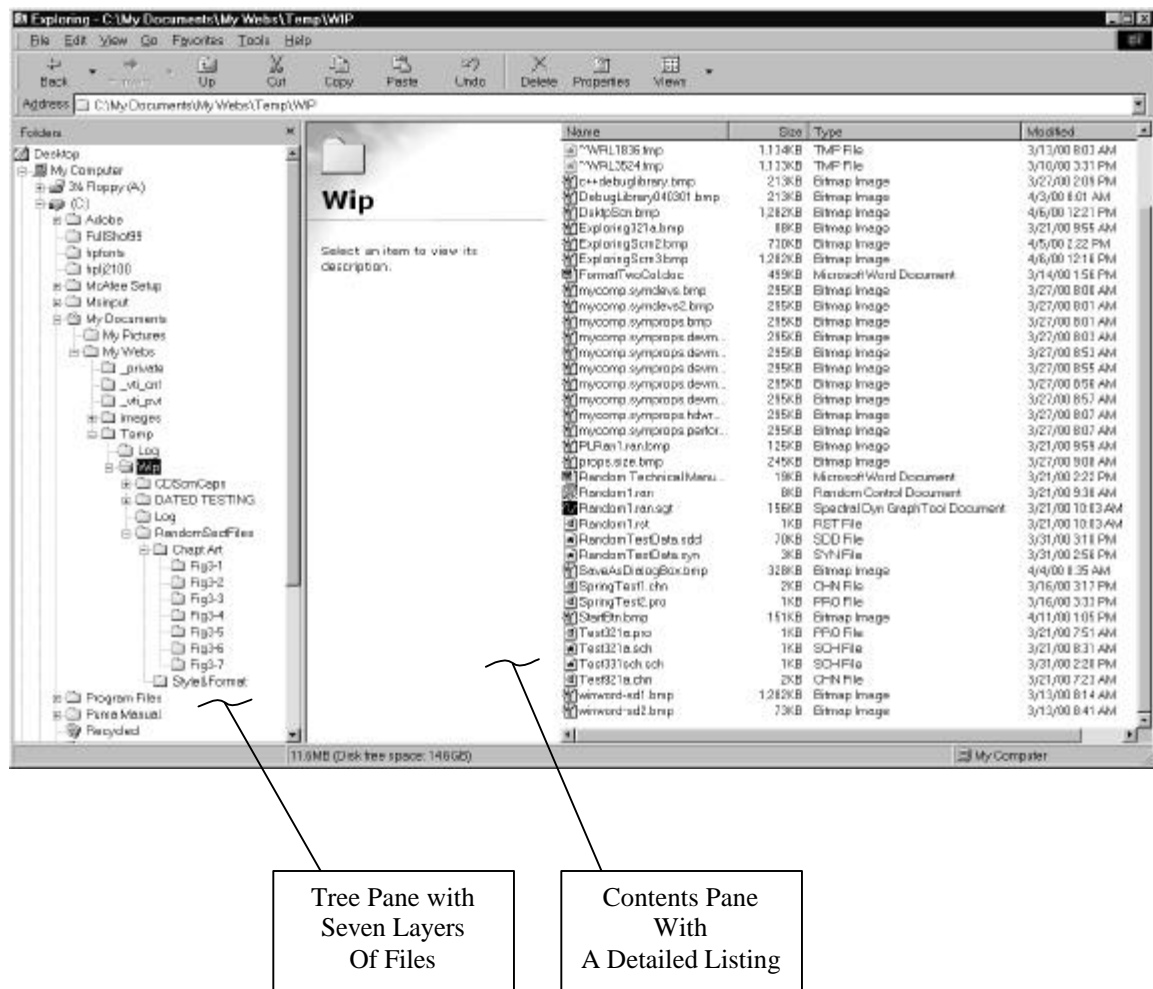


Figure 2-4. Windows Explorer Detailed List Display

## Toolbar

Just above the **Object Selection List** is the **Toolbar**. There are five toolbars. Figures 2-3 and 2-4 show the **Standard Toolbar**, **Address Bar** and **Text Labels Toolbar**.

Note the three arrowheads two of which are active. They indicate further options are available.

## Menu Bar

There are seven menu options on the **Menu Bar**. They are: **FILE**, **EDIT**, **VIEW**, **GO**, **FAVORITES**, **TOOLS** and **HELP**. Options **GO** and **FAVORITES** have been added to the default menu options.

## Title Bar

The **Title Bar** at the top of the window mimics the **Object Selection List**. If a floppy disk or CD were being accessed, the title (path) would start with the active drive letter.

### Status Bar

At the bottom of the window is the **Status Bar**. It gives the amount of used and free disk space and a shortcut to <My Computer>. Windows 95 will also list the number of objects within the open folder.

## 2.3.3 Working With Files

Files are either open or closed. The following paragraphs describe how to access the files needed and then how to save them prior to closing.

### 2.3.3.1 Opening Files

Files may be opened several different ways. The easiest way is to have a shortcut of the folder that the file resides in placed on the desktop. Another fairly quick way to access a file if you have been working with it recently is to click <Start>⇒**DOCUMENTS**⇒the applicable file. Another means of access is through the **Tree Pane** of **Explorer**.

**Explorer** can be accessed the quickest if there is a shortcut on the desktop. If not, click <Start> ⇒**PROGRAMS**⇒**WINDOWS EXPLORER** and follow the path to the applicable file. Last, but not least, the file can be accessed in much the same way as the **Tree Pane** of **Explorer** by clicking <My Computer>⇒C:\⇒**My Documents**. Then follow the path to the file.

### 2.3.3.2 Closing / Saving Files

The following paragraphs describe the process of closing and saving files.

#### Closing Files

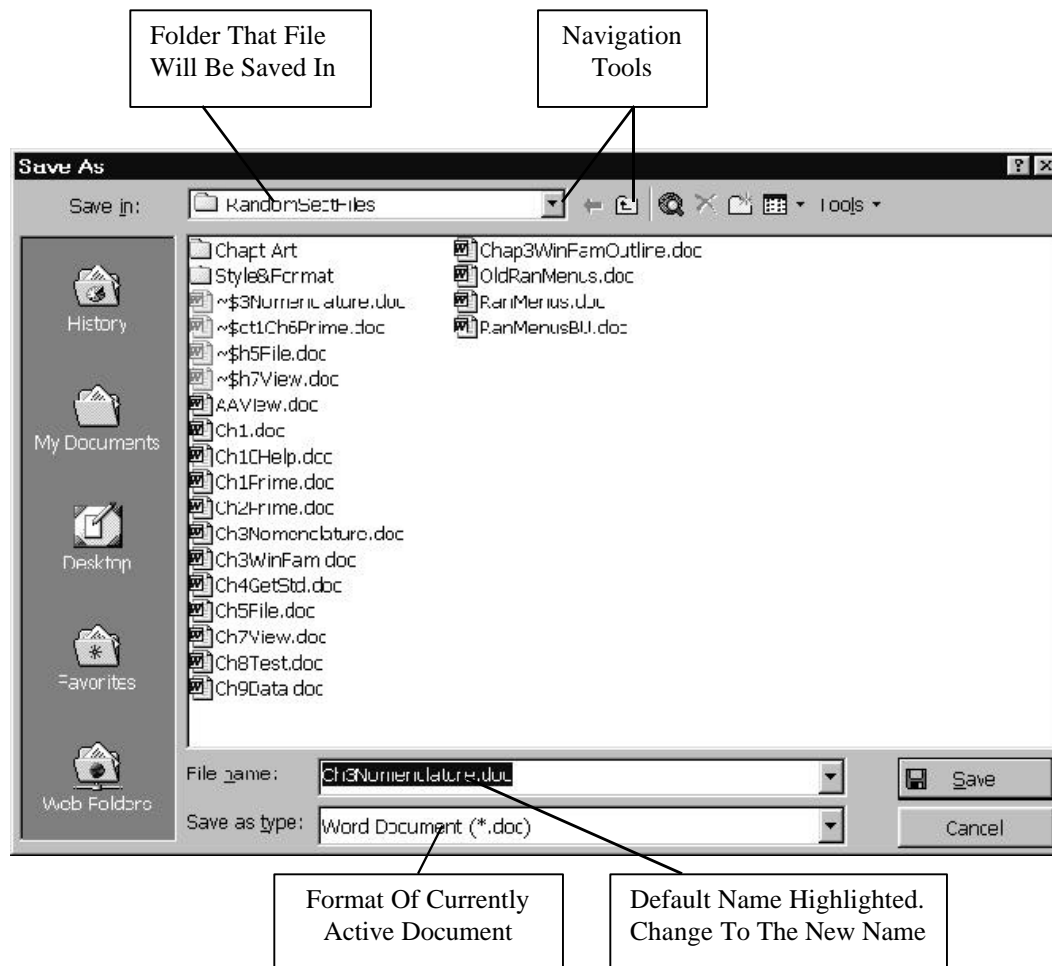
Closing files is quick and easy. If the file is active (open and being worked on) simply click the <Close> (X) button. If prompted to save, see below. Another way to close an active file is to click **FILE**⇒**CLOSE**. The {**Save As**} Dialog Box may appear depending on whether the file had just been saved or not.

If a file is inactive (open but not being worked on) its icon resides on the task bar. Simply right click the icon then click **CLOSE**. If changes were made and the file was not saved the **Save** prompt appears.

#### Saving Files

To **Save** or **Save As**, that is the question. An important distinction must be made at this point. If the file currently being worked on has previously been saved, the current action will be to save the file. If however, the file is new and has never been saved, the action is to **Save As** and assign a name to the file prior to saving it. See Figure 2-5.

Another time that the **Save As** action would be warranted is when a file will be used mostly in its entirety but only a few changes being made would necessitate it being saved under a different name.



**Figure 2-5. Save As Dialog Box**

For instance, there are two regional managers who get the same monthly report. The budget figures, sales personnel and companies they deal with are different. One report is generated and saved. The other report is taken from the original (or as much as can be used), updated to reflect the appropriate information and then **Saved As** its own file. The original report remains untouched, as the second was **Saved As** something different.

To Save A New Document (that has never been saved before):

- Click **FILE**⇒ **SAVE AS**. The {**Save As**} Dialog Box appears.
- Navigate to the folder the file is to reside in.
- Assign a file name.
- Select a file type if applicable.
- Click **SAVE**



Pre-existing Document – To save a document that was opened to work on:

- Click **FILE**⇒ **SAVE**

Or

- Click < Save> button (looks like a floppy disk) on the toolbar.

### **To Save As**

Follow the directions above for saving a New Document.

### **2.3.3.3 Creating A Shortcut**

There are several ways to create shortcuts of applications or files and place them on the desktop to enable quick launching. The procedure outlined below is one of the simplest.

1. Navigate to the drive and folder that has the file/application the shortcut is being created for.
2. Left click to highlight the file.
3. Right click to launch the required menu.
4. Click the **SHORTCUT** Menu Option. The shortcut will appear highlighted, usually at the end of the list of files.
5. Left drag the shortcut to the Desktop.
6. Close Windows Explorer.

## **2.4 Random Window Menu Bar**

The Random Program Menu Bar contains six menu selections used by the PUMA Vibration Control System (Vibration Controller). The menu items and the chapters they can be found in are listed below.

<b><u>F</u>ILE</b>	CHAPTER 5	<b><u>V</u>IEW</b>	CHAPTER 7	<b><u>D</u>ATA</b>	CHAPTER 9
<b><u>S</u>ETUP</b>	CHAPTER 6	<b><u>T</u>EST</b>	CHAPTER 8	<b><u>H</u>ELP</b>	CHAPTER 10

# Spectral Dynamics Viewer

## Chapter 3

# Layout Menu

### 3.1 Introduction

The first of the seven menu options of the Spectral Dynamics Viewer (Graph Tool) is the **L**AYOUT Menu Option. Refer to the following chapters for other menu options.

### 3.2 Layout Sub-Menus

There are four sections of sub-menus for the **L**AYOUT Menu. See Figure 3-1. The first section pertains to opening, closing and saving files. The second section pertains to printing documents. The third section lists the last seven files that have been opened and the last section lists the **E**XIT Menu Option.

#### 3.2.1 Working With Files

The first section offers five standard Windows menu options. They are described below.

##### 3.2.1.1 New Menu Option

The **N**EW Menu Option allows the user to start a brand new graph. The graph that was on the screen before will be replaced with a blank screen.

##### 3.2.1.2 Open Menu Option

The **O**PEN Menu Option allows the user to search for and open an existing file. When clicked on it will display the standard Windows {**O**pen} (file) Dialog Box.

##### 3.2.1.3 Close Menu Option

The **C**LOSE Menu Option allows the user to close a file. When clicked on it will display the standard Windows {**S**ave As} Dialog Box.

##### 3.2.1.4 Save Menu Option

The **S**AVE Menu Option allows the user to save the active file.

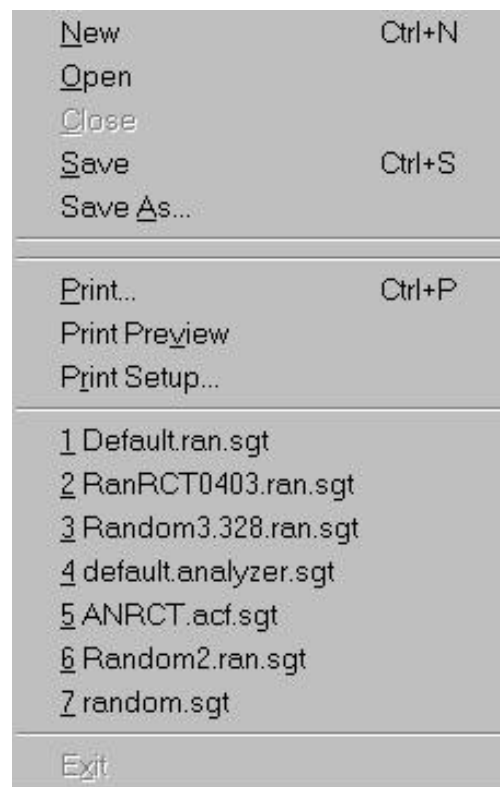


Figure 3-1. Layout Menu Sub-menus

### 3.2.1.5 Save As Menu Option

The **SAVE AS** Menu Option allows the user to save the active file. When clicked on it will display the standard Windows {**Save As**} Dialog Box.

## 3.2.2 Printing Documents

The following paragraphs introduce the information required to print the graphs to files or on hard copies for reports and presentations.

### 3.2.2.1 Print Menu Option

The **PRINT** Menu Option displays the {**Print**} Dialog Box. See Figure 3-2. It has three boxes labeled [**Printer**], [**Print Range**] and [**Copies**].

The [**Printer**] Box has a list box, a check box and a Properties Command Button. The list box at the top allows printers to be added to the list to give the user a choice. The checkbox is labeled PRINT TO FILE and allows the graph to be added to an existing or new file. The <PROPERTIES> Command Button displays four tabs titled Paper, Graphics, Fonts and Device Options. See Figure 3-3.

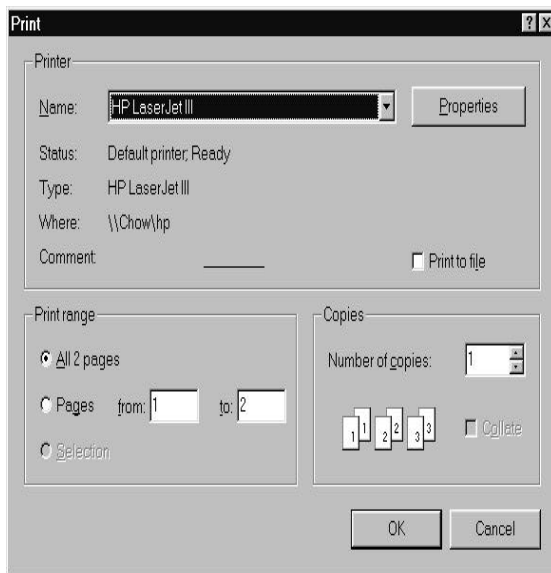


Figure 3-2. Print Dialog Box

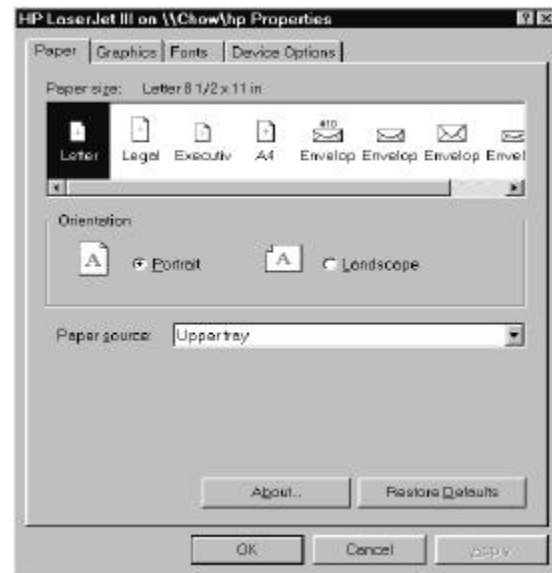


Figure 3-3. Print Dialog Box Properties

The next Selection Box [**Print Range**] gives the choices of:

- Printing the whole document
- Printing a range of pages
- Printing a selection

Next is a [**Copies**] Selection Box that will accept the order to print up to 9,999 copies.

### 3.2.2.2 Print Preview

The **PRINT PREVIEW** Menu Option window (Figure 3-4) flickering image of the graph(s) to be printed. The image is placed on the page at the position that is currently the default. The window has seven buttons across the top and a Status Bar at the bottom. The buttons are:

- **Print** This option displays the {Print} Dialog Box explained in paragraph 3.2.2.1.
- **Next Page** This option displays the next page.
- **Prey Pave** This option displays the previous page.
- **Two Page** This option will display two pages at a time.
- **Zoom In** This option allows the user to magnify the image two times.
- **Zoom Out** This option allows the user to return to the normal size after using the zoom feature to magnify the image.
- **Close** This option closes the window and returns the view to the one displayed prior to entering **PRINT PREVIEW**.

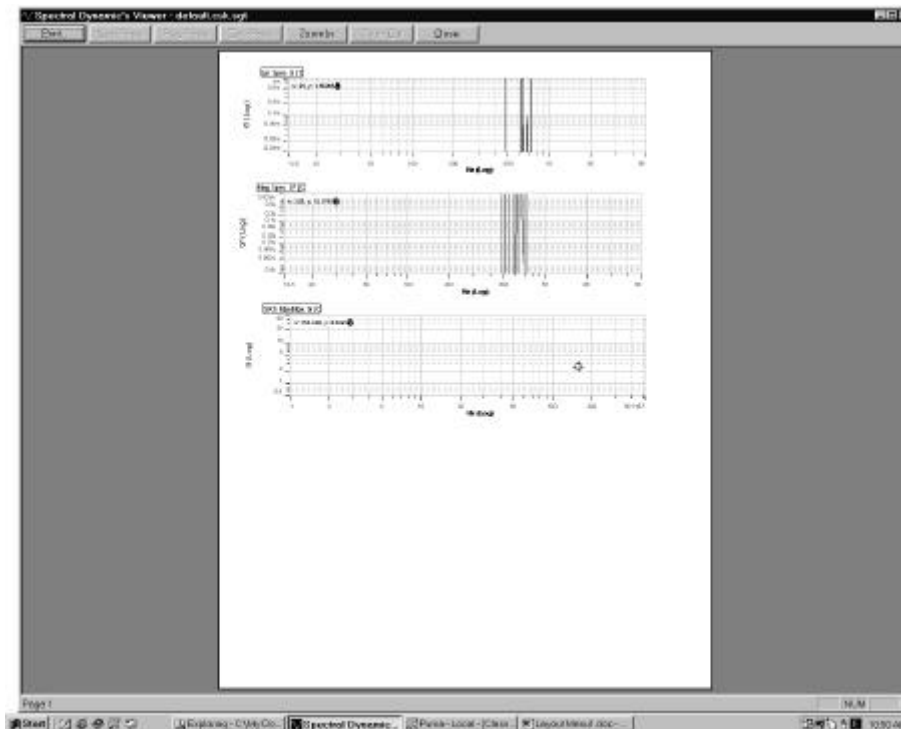


Figure 3-4. Print Preview Screen

### 3.2.2.3 Print Setup

This option displays the **{Print Setup}** Dialog Box, which is very similar to the **{Print}** Dialog Box described earlier. See Figure 3-4. It has three boxes labeled **[Printer Box]**, **[Paper Box]** and **[Orientation Box]** and the command buttons **<OK>** and **<CANCEL>** at the bottom.

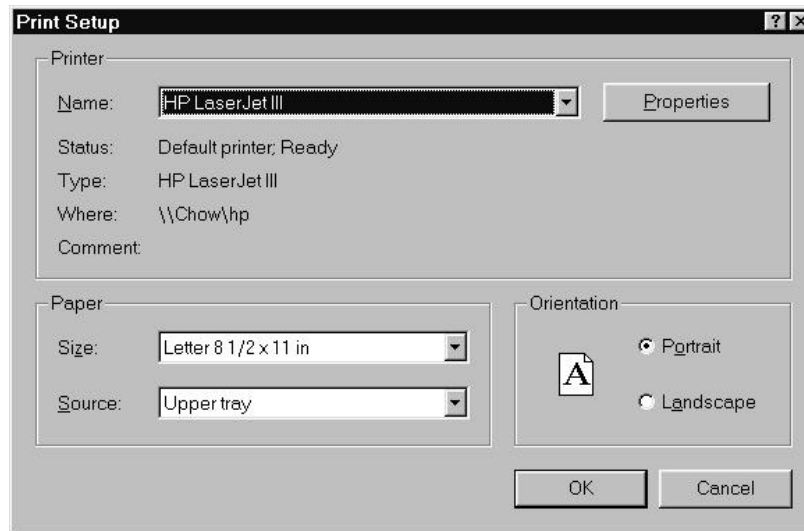


Figure 3-4. Print Setup Dialog Box

The **[Printer]** Box has a list box for the name(s) of the printer(s) and a **<Properties>** Button (described in paragraph 3.2.2.1).

The **[Paper]** Box has two list boxes, one for **SIZE** and one for **SOURCE**.

The **[Orientation]** Box has two radio buttons, one for **PORTRAIT** and one for **LANDSCAPE**.

### 3.2.3 Recent File List

The Recent File List area displays the last seven files that have been opened. See Figure 3-1.

### 3.2.4 Exit Menu Option

The **EXIT** Menu option closes the Spectral Dynamics Viewer window.

# Spectral Dynamics Viewer

## Chapter 4

# Edit Menu

---

### 4.1 Introduction

The **EDIT** Menu offers the user the tools required to make changes to the data presentation format. This is done by inserting objects and changing the test data input or even mixing data from several different tests to generate a formal presentation.

### 4.2 Edit Sub-menus

The **EDIT** Sub-menus are:

- Insert Object
- Copy Page Clip Board
- Set Data Source
- Calculation Editor

The **SET DATA SOURCE** Menu Option has sub-menus of its own. They are:

- Normal
- File Name
- Open Last Storage

The following paragraphs describe the **EDIT** Menu Option Sub-menus.

#### 4.2.1 Insert Object Menu Option

When logos or other graphics are needed in the presentations their placement in the graph is accomplished using the **INSERT OBJECT** Menu Option.

##### 4.2.1.1 Objects On File

When the **CREATE FROM FILE** Radio Button is active on the {**Insert Object**} Dialog Box, (Figure 4-1) the dialog box has two radio buttons, two check boxes, three command buttons, a text box and a message box.

The two radio buttons are labeled **CREATE NEW** and **CREATE FROM FILE**. The check boxes are labeled **LINK** and **DISPLAY AS ICON**. The standard Windows command buttons are **<OK>**, **<CANCEL>** and **<BROWSE>**. The message box is labeled [**Result**] and displays the following message: *Inserts the contents of the file as an object into your document so that you may activate it using the program which created it.*

To insert an object previously filed, click **<BROWSE>**. The {**BROWSE**} Dialog Box appears. See Figure 4-2. Navigate the drive until the required folder appears, then click it. Now click the **<INSERT>** Button. In Figure 4-3, the Puma picture and text are inserted objects.

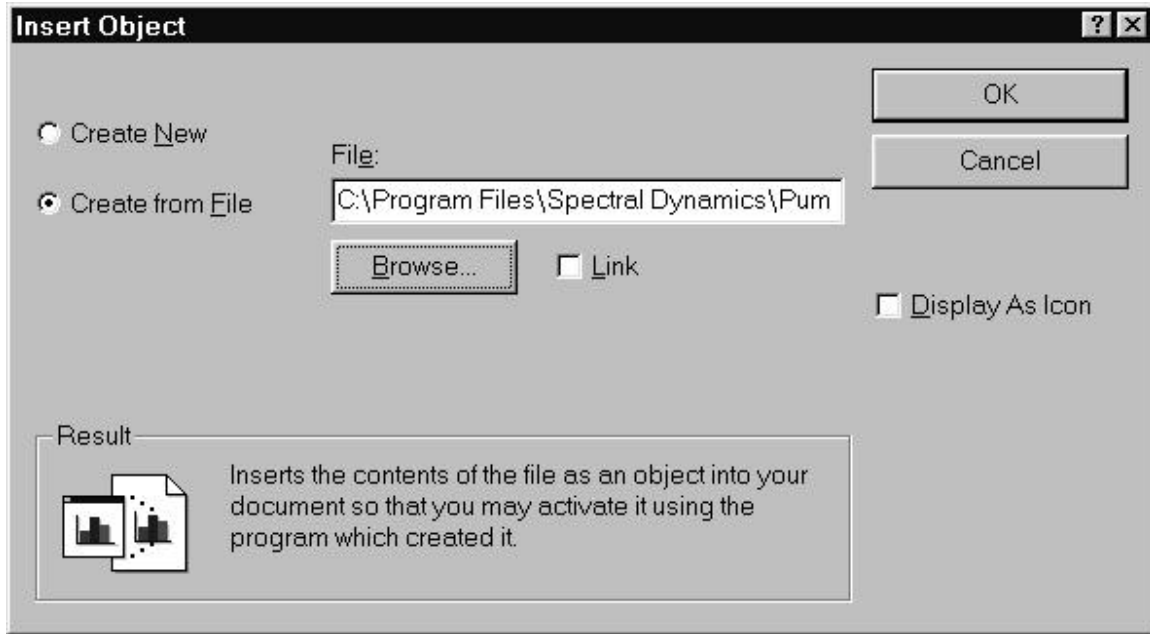


Figure 4-1. Insert Object Dialog Box

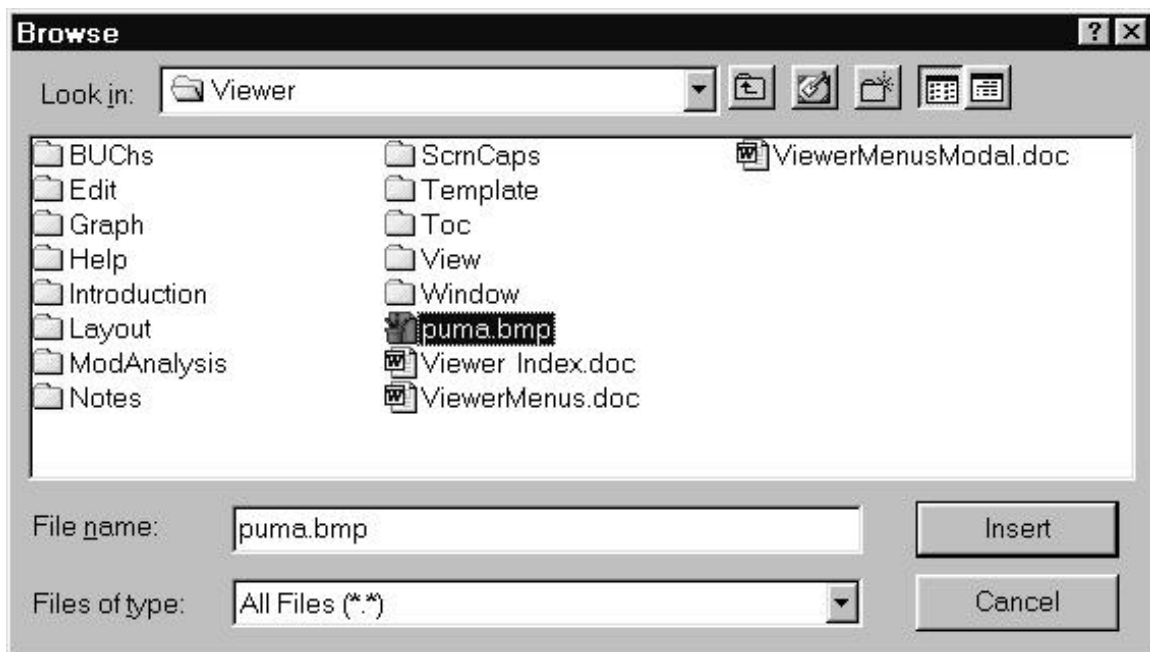


Figure 4-2. Browse Files Dialog Box

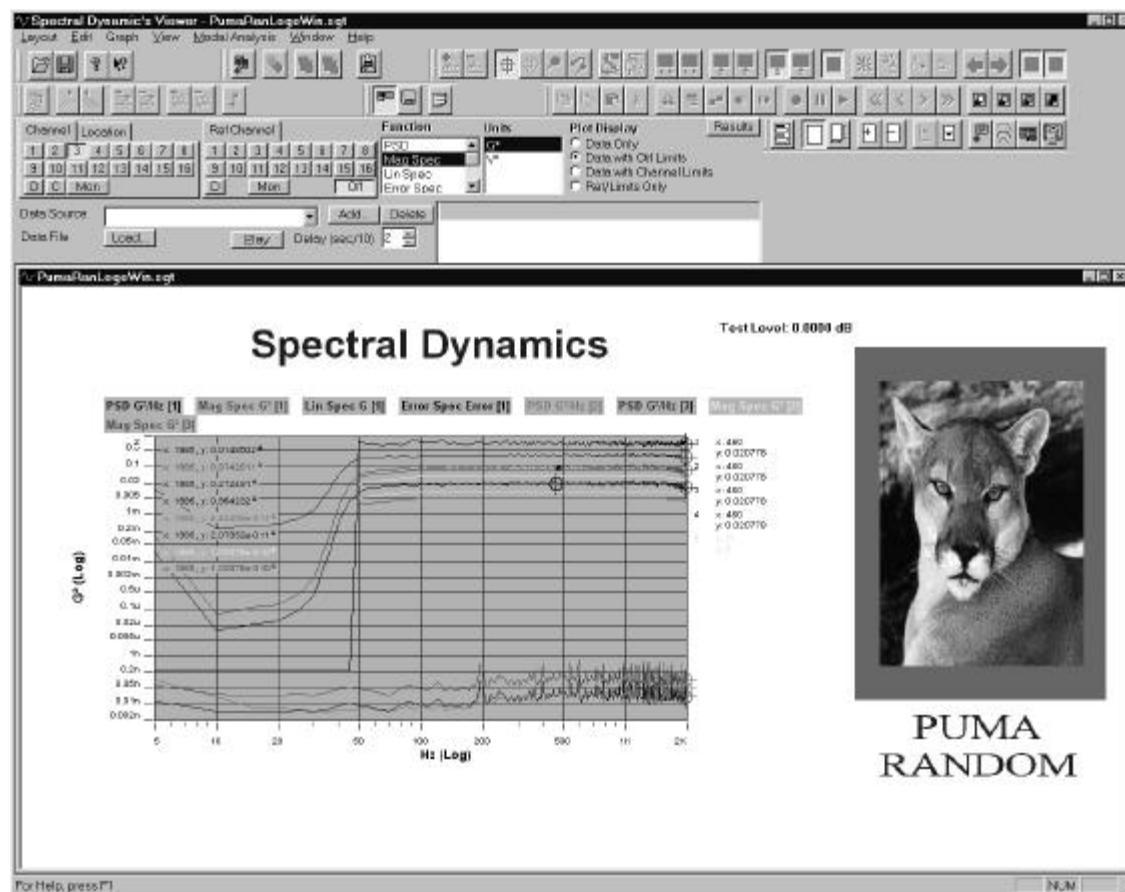


Figure 4-3. Inserted Bitmap Image

When the LINK checkbox is checked the [Result] Message Box graphic changes, as does the message. See Figure 4-4. The message now reads: *Inserts a picture of the file contents into your document. The picture will be linked to the file so that changes to the file will be reflected in your document.*

The three standard Windows command buttons are: <OK>, <CANCEL> and <BROWSE>. Clicking <OK> will accept any changes made and close the window to display the previous level. Clicking <CANCEL> will close the window and set any changes made back to the default values. The <BROWSE> button is used to find the file that information will be imported from.



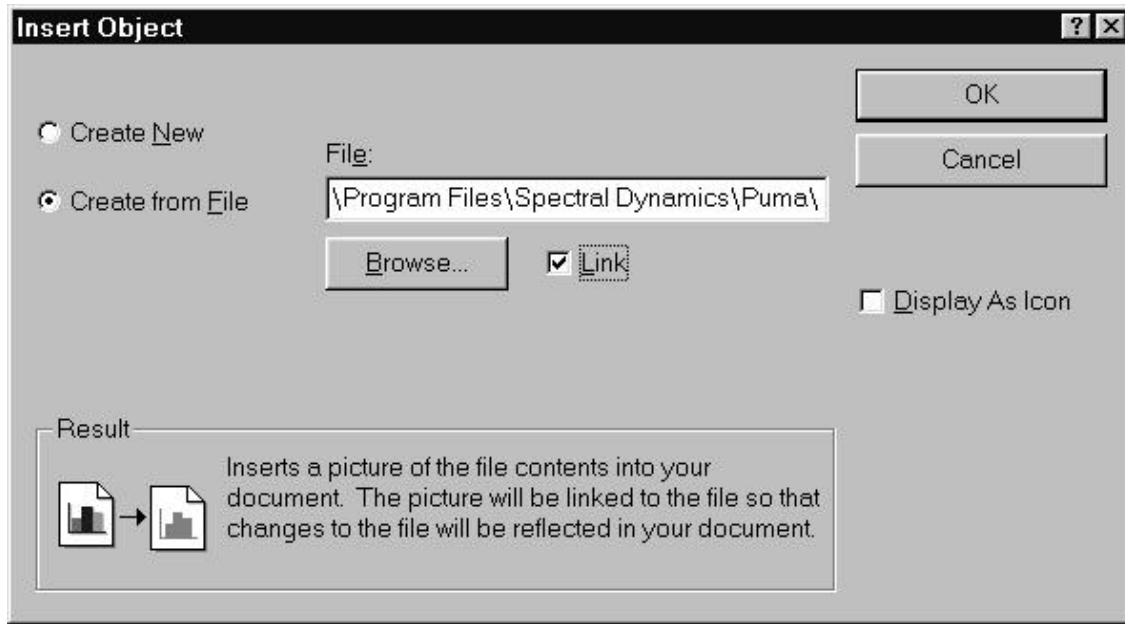


Figure 4-4. Insert Object-Link Dialog Box

### 4.2.2 Copy Page Clip Board Menu Option

This **COPY PAGE CLIP BOARD** Menu Option allows the user to copy the active graph window to the clipboard and paste it into a document.

### 4.2.3 Set Data Source Menu Option

This menu option has three sub-menu options:

- Normal
- File Name
- Open Last Storage

#### 4.2.3.1 Normal

The **NORMAL** sub-menu option sets the system settings to the default.

#### 4.2.3.2 File Name

The **FILE NAME** sub-menu option displays the **{Open}** Dialog Box to allow the user to select the required file.

#### 4.2.3.3 Open Last Storage

The **OPEN LAST STORAGE** sub-menu option imports the last file listed from the **Layout** Menu's **[Recent File List]**.

### 4.2.4 Calculation Editor Menu Option

This menu option displays a dialog box that allows the user to modify the settings and functions of the test being run. See Figure 3-5. These settings can be called up from a file or can be generated here and saved to an existing file or, saved as a new file.

The screenshot shows the 'default.ucf' dialog box. At the top is a 'File' menu. Below it are input fields for 'Function Name' (containing 'PSD') and 'Units Name' (containing 'G^2/Hz'), with 'Add >>' and 'Delete' buttons. To the right is a 'Calculation List' containing 'PSD-G^2/Hz'. Below these are two rows of buttons: the first row has 'sin', 'square', a numeric keypad (1-9, 0, ., /), and parentheses/plus/minus; the second row has 'cos', 'sqrt', and 'log'. To the right of these is a 'Calculation Type' section with 'Functions' and 'Tags' buttons. The 'Function Operand Definition' section includes a list of functions (1/N Synth Oct, Auto Correlation, Cross Correlation, Cross Spec Imag, Cross Spec Mag, Cross Spec Phase), an 'Add Function' button, and a 'Units' field. To the right of the units field are two matrices for 'Channel' and 'Reference Channel', each with columns 'X' and 'RX' and rows 1-16, plus 'Control', 'Drive', 'Monitor', and 'Reference' buttons. At the bottom is a 'Calculation Formula' field containing '<PSD,G^2/Hz[Monitor,Off]>'. The 'Off' button is currently selected.

Figure 4-5. Calculation Editor - Functions Window

At the top of the dialog box is a standard Windows **F**ILE Menu Option with three sub-menus. They are:

- **O**PEN
- **S**AVE
- **S**AVE **A**S

#### 4.2.4.1 Functions Mode

If the {Calculation Type}, <Functions> Button is selected, the format of the dialog box will be presented as is described here. Following the **FILE** Menu Option are five group boxes and a list box. The top group box has two text boxes a list box and two buttons. The text boxes are labeled [**Function Name**] and [**Units Name**]. The list box is labeled [**Calculation List**] and the buttons are labeled <Add> and <Delete>

The next group box contains five buttons all dealing with mathematical functions. The labels are:

- sin
- cos
- log
- square
- sqrt

The next group box contains two groups of buttons dealing with calculator functions. The first group of buttons displays the numbers 1 through 9 and 0. The next group of buttons displays eight mathematical symbols to enable the user to insert, edit or delete mathematical expressions.

The next group box labeled {Calculation Type}, contains the two buttons labeled <Functions> and <Tags>. The <Functions> Button appears depressed.

The largest group box is labeled {Function Operand Definition}. It contains two list boxes, two groups of buttons containing numeric and text buttons and one command button. The first list box is labeled {Function} and contains 39 different functions. Below the function list is an <ADD FUNCTION> Command Button that allows the user to add more functions to the list. The next list box is labeled {Units} and displays the unit of measurement for each function selected. The two groups of buttons are labeled {Channel} and {Reference Channel}. Both groups have seven rows of buttons and are identical with but one exception. The {Reference Channel}.group has an <Off> button. The button group's first row consists of two buttons labeled **X** and **RX**. The next four rows of buttons are numeric and include numbers 1 through 16. The last two rows of two buttons each are labeled:

- Control
- Drive
- Monitor
- Reference

At the bottom of the dialog box is a list box labeled {Calculation Formula} and lists the formula for each of the functions selected above.

#### 4.2.4.2 Tags Mode

If the {Calculation Type}, <Tags> Button is selected, the format of the dialog box will be presented as is described here. The basic layout remains the same but the labels change to reflect the functionality. See Figure 4-6.

The screenshot shows the 'Calculation Editor - Tags Window' with the following components:

- Configuration Name:** An input field with an 'Add >>' button.
- Tag Name:** An input field with a 'Delete' button.
- Calculation List:** A large empty text area.
- Calculation Type:** A section containing 'Functions' and 'Tags' buttons.
- Tag Definition:** A section containing:
  - Configuration:** An input field containing 'LIVE DATA'.
  - Tag:** An empty input field.
  - Add Tag:** A button.
  - Channel and Reference Channel:** Two large numeric grids (1-16) with buttons for 'Control', 'Drive', 'Monitor', 'Reference', and 'Off'.
- Calculation Formula:** A large empty text area at the bottom.

**Figure 4-6. Calculation Editor - Tags Window**

In the top group box two list box labels change to read [**Configuration Name**] and [**Tag Name**]. The mathematical expression group and the calculator group do not change. As was the case above only the labels are changing in the large group box at the bottom.

The group box label becomes {Tag Definition} and the list box labels become [**Configuration**] and [**Tag**]. All alphanumeric buttons are inactive and the command button's label is [**Add Tag**]

# Spectral Dynamics Viewer

## Chapter 5

# Graph Menu

### 5.1 Introduction

The Graph Menu allows the user to use previously saved graphs as templates / benchmarks and insert them into the test or presentation being generated. The user may also save the work as a different graph / template.

### 5.2 Graph Menu Sub-Menus

Figure 4-1 shows the Graph Menu Sub-Menus. Notice that it appears as seen in a default status. The menu is active when a graph is selected.



Figure 5-1. Graph Menu Sub-Menus

#### 5.2.1 Load Graph Menu Option

The **LOAD GRAPH** Menu Option displays a standard Windows {**Open**} Dialog Box.

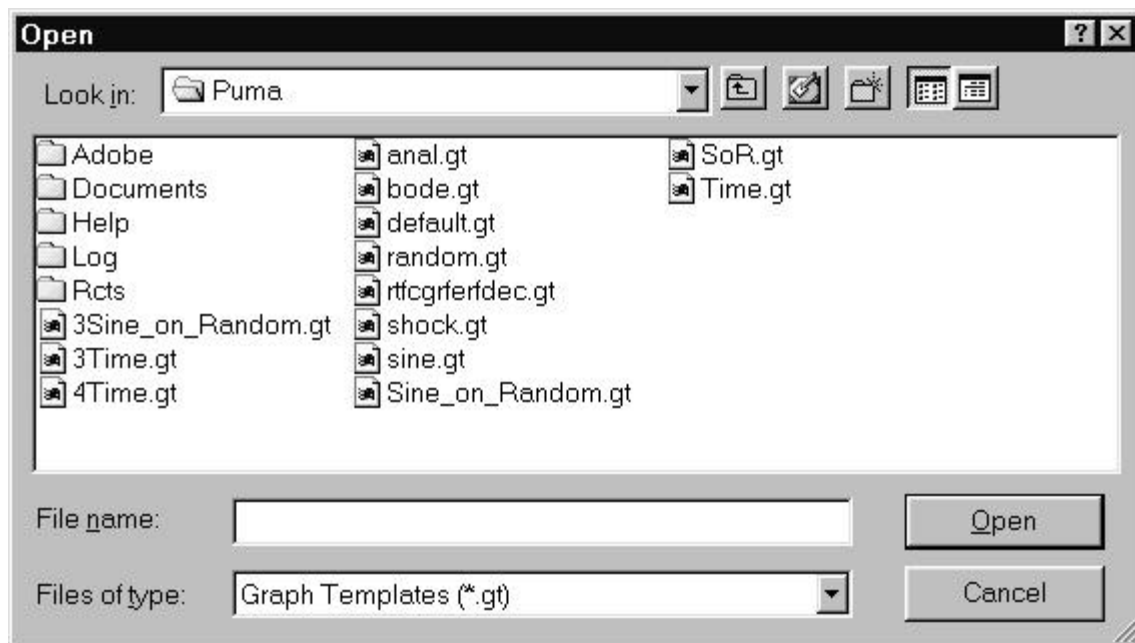
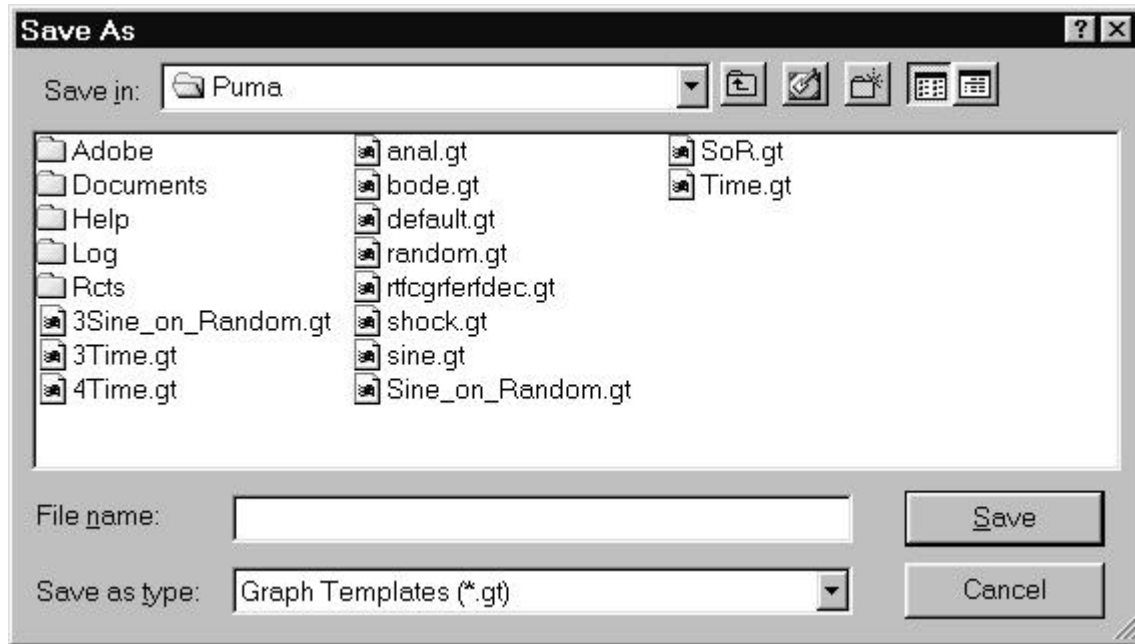


Figure 5-2. Open Dialog Box

### 5.2.2 Save Graph Menu Option

The **SAVE GRAPH** Menu Option displays a standard Windows **{Save As}** Dialog Box.



**Figure 5-3. Save As Dialog Box**

NOTE: These dialog boxes may also be accessed while working with a graph. Refer to paragraph

# Spectral Dynamics Viewer

## Chapter 6

### View Menu

#### 6.1 Introduction

The **V**IEW Menu Option (Figure 6-1) allows the user to see all the tools necessary to work with PUMA and the Spectral Dynamics Viewer (Graph Tool). The sub-menus not only give access to the tools but also allow the user to modify them as required. The tools used to work with the Graph Tool are in the form of menus and Toolbars.

Toolbars are groups of shortcut icons. These Icons allow the user to initiate actions on the Graph Tool that change the appearance, the input, and the output of the program. If the user rests the cursor over an icon a small text box called a **Tool Tip** appears. The Tool Tip tells what the icon does or gives a hint about the action that it is related to.

Icons are switches. Most are one time use or instantaneous type where, when one is clicked, something happens. If that result is needed again the icon must be clicked again.

Other types of icons are ON/Off switches. If they are ON the prevalent condition remains until it is clicked OFF. In the OFF condition the icon appears normal and in the ON condition appears as if it is depressed.

Just as in Windows if an icon is inactive it will be grayed out. In most cases in order to activate the icon the user must activate some part of the Graph Tool window by clicking (or double clicking depending on how the desktop is set up) in it.

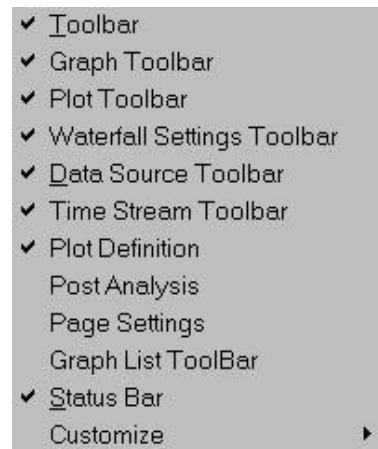


Figure 6-1. View Menu

## 6.2 View Menu Sub-Menus

The **V**IEW Menu option has twelve sub-menus and one of those has six menu options. The sub-menu choices are:

- Toolbar                      ➤ Graph Toolbar                      ➤ Plot Toolbar                      ➤ Waterfall Settings Toolbar
- Data Source Toolbar                      ➤ Time Stream Toolbar                      ➤ Plot Definition                      ➤ Post Analysis
- Page Settings                      ➤ Graph List Toolbar                      ➤ Status Bar                      ➤ Customize

The **C**USTOMIZE Menu Option has the following sub-menus:

- Toolbar                      • Graph Toolbar                      • Plot Toolbar
- Waterfall Toolbar                      • Data Source Toolbar                      • Page Settings Toolbar

### 6.2.1 Toolbar Menu Option

Clicking the **T**OOLBAR Menu Option displays the **Toolbar**. See Figure 6-2. The **Toolbar** normally has four standard Windows icons on it. It is divided into two groups of two icons each. The icons are:

1. Open                      2. Save                      3. About                      4. Help

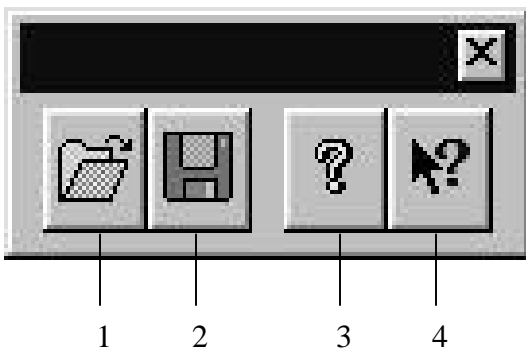


Figure 6-2. Toolbar

The **<Open>** icon (1) displays the standard Windows {**Open**} Dialog Box and allows user to open an existing layout (\*.sgt) file.

The **<Save>** icon (2) saves data layout to the file currently active.

The **<About>** icon (3) displays the standard Windows {**About**} Dialog Box. The information given is the Version, Build Number and Copyright date for the Graph Tool.



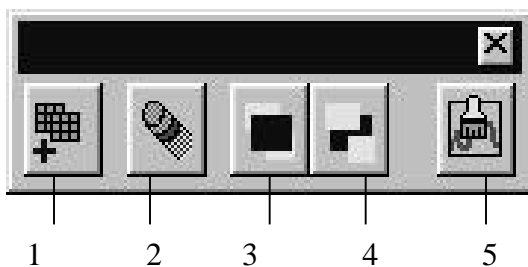
Clicking the <Help> icon (4) displays the {**Windows Help**} Dialog Box. The message reads: *This topic does not exist. Contact your application vendor for an updated Help file.* (129) Click <OK> to dismiss it.

### 6.2.1.1 Graph Toolbar Menu Option

The **GRAPH TOOLBAR** Menu Option displays the Graph Toolbar. See Figure 6-3. It has five icons, three singles and one group of two. The icons are:

- |                 |          |                       |                     |                   |
|-----------------|----------|-----------------------|---------------------|-------------------|
| 1. Add<br>Graph | 2. Erase | 3. Bring To<br>Front* | 4. Send To<br>Back* | 5. Clear<br>Plots |
|-----------------|----------|-----------------------|---------------------|-------------------|

\* Indicates grouped icons



**Figure 6-3. Graph Toolbar**

The <Add Graph> icon (1) allows the user to add a graph or object to the layout in the Graph Tool Window. After clicking, the icon appears selected

(depressed). After the graph is placed in the window the icon will again appear deselected.

There are two ways to add the graph to the window. If the user clicks in the window a small square object with four sizing handles appears under the pointing finger cursor.

Movement of the mouse changes the pointing finger to an arrow style cursor. Grab one of the handles with the cursor and drag it to the size required.

An easier and quicker way is to click the <Add Graph> icon and move the mouse into the Graph Tool window to the approximate place that the edge of the graph would be. Hold the left mouse button down and drag the graph box to the size required, then release the mouse button.

**Use the Erase function with caution!** Clicking on the <Erase> icon (2) will delete anything in the window that is active / selected. This includes not only objects but complete graph layouts. **There is no undo function** for this action so if the deleted object does not exist in a file it will have to be reconstructed.

The paired buttons <Bring To Front> (3) and <Send To Back> (4) allow the user to have layers of graphs / plots visible simultaneously. The first displays the selected object as if it were on top of everything else. The latter displays other objects on top of the selected object where only a part of it may be shown.

The <**Clear Plots**> icon (5) allows the user to Clear the plot(s) (traces) from the graph and replace it with another one.

### 6.2.1.2 Plot Toolbar Menu Option

The **PLOT TOOLBAR** Menu Option displays that toolbar. See Figure 6-4. In most cases, it will be the most widely used of the toolbars in the program. It has 23 buttons including a single one, nine group of two and one group of four.

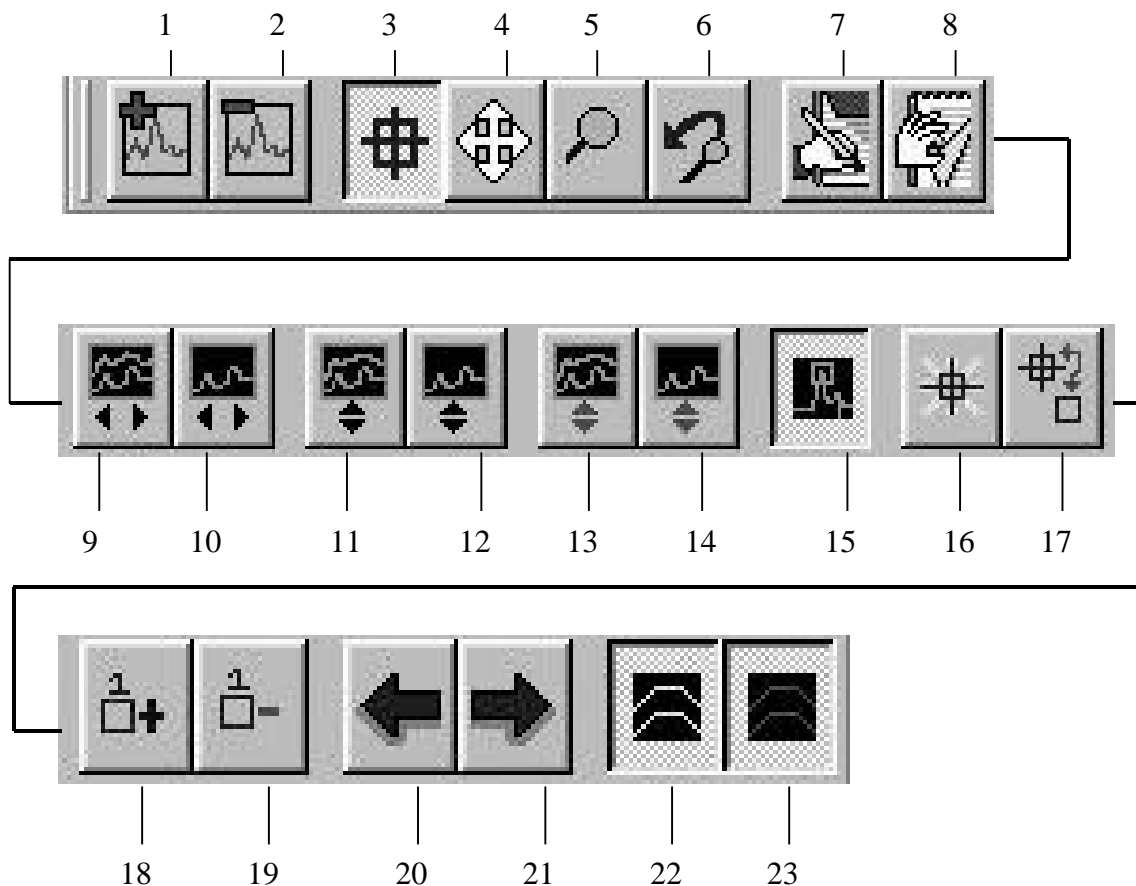


Figure 6-4. Plot Toolbar

The first group of two includes the <**Add Plot**> and <**Delete Plot**> buttons (1,2). The first will add a plot to the active graph while the second will delete the active plot from the active graph.

The group of four icons is somewhat unique. The first three are ON/OFF buttons. Only one may be selected at a time. The fourth in the group is like all the other icons, only one instantaneous action at a time. The button labels are listed below.

- Cursor Mode
- Zoom Mode
- Pan Mode
- Undo Zoom

The <**Cursor Mode**> button (3) is the normal / default mode button and allows selecting items and input of data and controls. Activation of this button allows the user to see and use different cursors that are selected for this program.

Selection of the <**Pan Mode**> button (4) allows the user to move back and forth across the plot in both axes as long as the left mouse button is depressed. Once the mouse button is released the mode defaults to normal. If further movement across the plot is required the procedure must be repeated.

Selection of the <**Zoom Mode**> button (5) allows the user to magnify the image of the area where the cursor is placed. Clicking this button will magnify the image one time. The mode then defaults to normal. If further zooming is required the procedure must be repeated.

Use of the <**Undo Zoom**> button (6) can be mixed with other toolbar buttons. For example if the user zooms in twice on a plot and then decides to insert a marker and a tag the image can still be magnified. Assume that the user zooms in two more times and adds another marker to the plot. Now the user wants to see the other end of the plot so the **Pan Mode** is used. If the next action is to return to the original presentation, the <**Undo Zoom**> button may be clicked repeatedly four times to get to the desired point.

The next pair of buttons includes the <**Add Tag**> and <**Delete Tag**> buttons (7,8). The first button is used to insert text boxes in and around the graphs. It can be used to generate or modify titles, notes and labels. Clicking the button and then clicking an appropriate spot on the graph will cause the insertion of the word **NEW** underneath the Pan Mode cursor. This allows the movement of this image anywhere within the borders of the graph. After placement, right clicking displays the {**Label Properties**} Dialog Box. See Figure 6-5.



Figure 6-5. Label Properties Dialog Box

This dialog box allows the user to design the label information using approximately 100 inserts from the categories of Live Data or Test Configuration. The <Font> button displays a standard Windows {Font} Dialog Box. There is a list box for [Text Alignment] choices and another for [Text Rotation] choices.

The {Tab Settings} Group Box has two list boxes and a text box. It allows the user to set the tabs and rotate or align the text at any of 20 different settings.

The large text box at the bottom displays any text typed in. Also displayed are the choices selected from the categories in the large upper list box. At the bottom of the dialog box are the standard Windows command buttons <OK> and <CANCEL>.

The **<Delete Tag>** button allows the user to delete the active tag in the active graph.

The next pair of buttons is the **<Fit All Plots In X Axis>** (9) and the **<Fit Current Plot in X-axis>** (10). The first button displays all plots associated with the active graph along the X-axis. The latter button only displays the active plot in the active graph along the X-axis.

The next pair of buttons are **<Fit All Plots In Y Axis>** (11) and **<Fit Current Plot In Y Axis>** (12). These work just like the previous buttons except they control the plots in the Y Axis.

The next pair of buttons are **<Continuously Fit All Plots In Y Axis>** (13) and **<Continuously Fit Current Plot In Y Axis>** (14). These two buttons are either ON or OFF.

The next button is the only single one on the toolbar. Its label is **<Show Markers>** (15) and it is either ON to activate the marker listing or OFF to hide it.

The next pair of buttons is labeled **<Select Cursor>** (16) and **<Hide/Show Cursor Cross Hairs>** (17). The latter button will display or hide the cross hairs.

The next pair of buttons includes the **<Add Marker>** (18) button and the **<Delete Marker>** (19) button. The first button adds a marker to the selected plot on the active graph and expands the marker list. The latter button deletes the selected marker from the active plot and removes it from the list.

The arrow buttons are labeled **<Move Left>** (20) and **<Move Right>** (21). Depending on which one is used they move the selected markers along the active plot on the active graph. The markers are moved in increments of five per mouse click.

The last pair of buttons is labeled **<Show Alarm Lines>** (22) and **<Show Abort Lines>** (23). Both icons are either ON or OFF. The first one inserts lines (bands) on the plot that indicate where the alarm parameters are. The latter inserts lines (bands) on the plot that indicate where the abort parameters are.

### 6.2.1.3 Waterfall Settings Toolbar Menu Option

Use of the **Waterfall Settings Toolbar** (Figure 6-6) allows the user to view multiple frames of the same data plot. That view is especially useful as a time frame reference. There are two single and three pairs of icons on the toolbar. They are:

- Waterfall On \*
- Enables/Disables HiLo Plotting \*
- Shift Right
- Shift Left
- Increase Spacing
- Decrease Spacing
- Increase Plot Count
- Decrease Plot Count

\* Indicates single icons

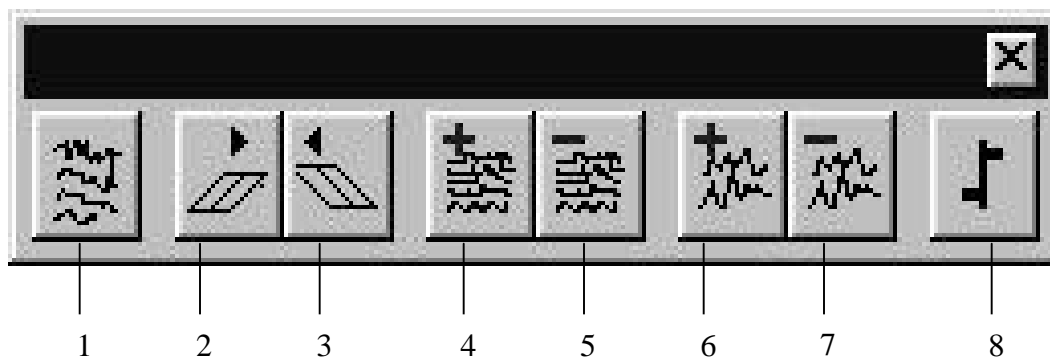


Figure 6-6. Waterfall Settings Toolbar

If there is an active graph with a plot in it, clicking the **<Waterfall On>** icon (1) will change the presentation of the plot to that of the waterfall. The icon is an ON / Off type. Unless this icon is ON the other icons on the toolbar are OFF by default.

The **<Shift Right>** (2) and **<Shift Left>** (3) icons allow the user to skew the presentation to the right or left to obtain a different perspective.

The **<Increase Spacing>** (4) and **<Decrease Spacing>** (5) icons allow the user to increase or decrease the spacing between the plots.

The **<Increase Plot Count>** (6) and **<Decrease Plot Count>** (7) icons allow the user to increase or decrease the number of plots on the graph.

The icon labeled **<Enables / Disables HiLo Plotting>** (8) is an ON / OFF type icon.

#### 6.2.1.4 Data Source Toolbar Menu Option

The **Data Source Toolbar** is the smallest of the Viewer Toolbars. Three icons control where the source of the data being manipulated comes from. See Figure 6-7.

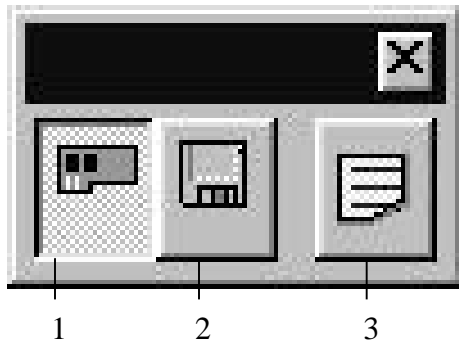


Figure 6-7. Data Source Toolbar

The icons are labeled:

1. Set System To Display Data From Hardware
2. Set System To Display Data From File
3. Set System To Display Last Data Saved

The <Set System To Display Data From Hardware> (1) icon is an ON / OFF icon and allows the user to feed data from the input channel(s) of the hardware source.

The <Set System To Display Data From File> (2) icon momentarily displays the ON state, displays a standard Windows {Open} Dialog Box and then turns OFF. The user may select the appropriate file and open it for use with the program.

The <Set System To Display Last Data Saved> (3) allows the user to display the last stored data file. This is useful for making comparisons of different tests or time frames.

#### 6.2.1.5 Plot Definition Menu Option

The **PLOT DEFINITION** Menu Option produces a tool that allows the user to select a particular function and channel combination to yield a specific style of plot display. See Figure 6-8.

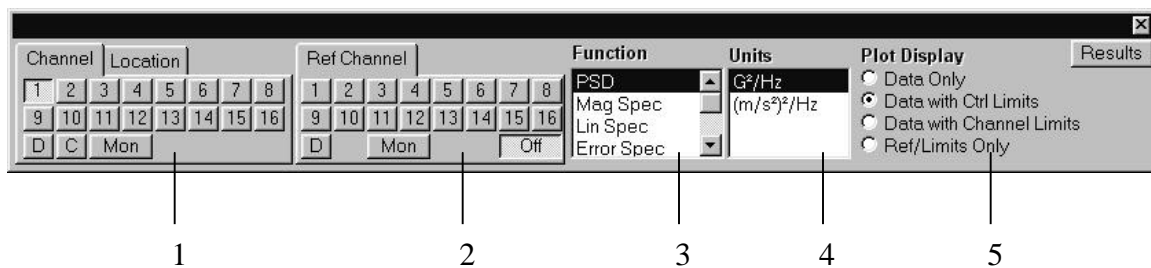


Figure 6-8. Plot Definition Tool

The tool is divided into five sections. The sections are labeled:

- |                          |                   |             |          |                    |
|--------------------------|-------------------|-------------|----------|--------------------|
| 1. Channel /<br>Location | 2. Ref<br>Channel | 3. Function | 4. Units | 5. Plot<br>Display |
|--------------------------|-------------------|-------------|----------|--------------------|

Two tabs labeled **Channel** and **Location** head the first section. The **Channel** Tab displays 16 channel buttons and three buttons below them labeled **D** (Drive), **C** (Control) and **M** (Monitor). Only one button (input) at a time can be active. The **Location** Tab displays a text box. It is used with the **MODAL ANALYSIS** Menu Option to recall data by modal DOF instead of an input channel.

The next section (2) labeled **Ref Channel** is the same as the previous section with only two exceptions. There is no Control button but there is an **OFF** button. Selecting **OFF** gives single channel data (e.g. PSD, Mag Spec, etc.). Selecting a channel gives cross channel data (e.g. H(f), Cross Spectra, etc.). This section is not available if the Control button is depressed on the **Channel** Tab

The next two sections are list boxes labeled **{Function}** (3) and **{Units}** (4). The first lists all the time or frequency domain functions available to collect and display data on. The next list box displays the mathematical expression identifying the unit(s) of measure for the particular functions available for use.

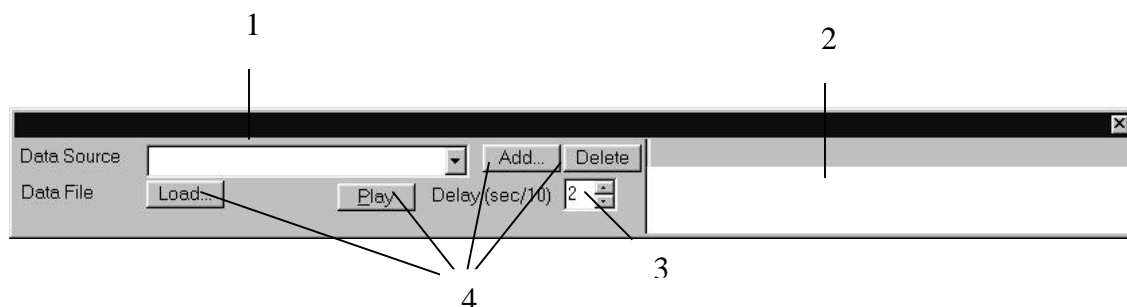
The last section is labeled **{Plot Display}** (5) and presents four radio buttons. Selection of one of these buttons locks in the format of the plot that will appear on the graph. The selection of channels or functions will have no effect on the button. The buttons are labeled:

- Data Only
- Data with Ctrl Limits
- Data with Channel Limits
- Ref/Limits Only

The **<Data Only>** selection will display the plot only without any tolerances. The **<Data With Ctrl Limits>** selection displays the plot and the control limit tolerances. The **<Data With Channel Limits>** selection displays the plot with the channel limit tolerances or sine tone tolerances (sine on random). The **<Ref/Limits Only>** selection displays the reference plot with tolerances.

#### 6.2.1.6 Post Analysis Menu Option

The **POST ANALYSIS** Menu Option displays a tool with two list boxes, a text box and four buttons. See Figure 6-9. The list box is labeled **{Data Source}** (1). The input is selected with the Data Source Toolbar (Live Data / File Label) and comes via channel or a selected data file. When a file is opened or a test is running the parameters are listed in the other list box (2) under three columns labeled **Frame ID**, **Test Time** and **Level Time**. The text box (3) is for numeric values indicating the delay between record updates when playing back a data file. It is labeled **Delay (Sec/10)**.

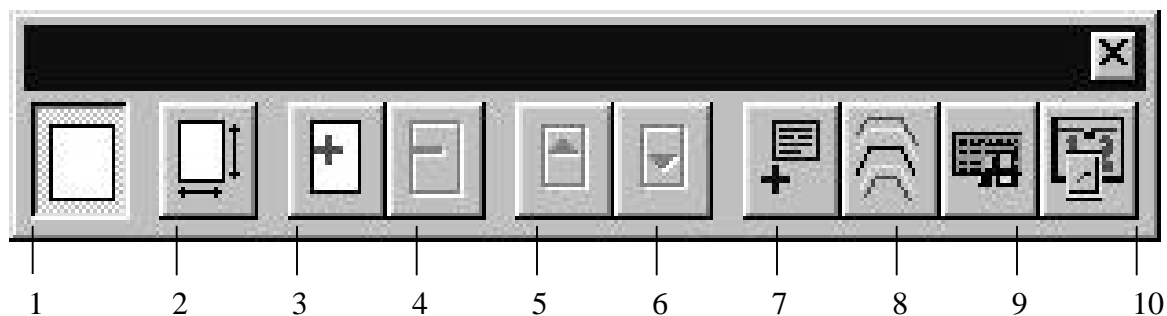


**Figure 6-9. Post Analysis Tool**

The Command Buttons (4) are labeled <Load>, <Play> <Add> and <Delete>. The first two allow the user to load a data file and play it with the preset delay. The latter two allow the user to add or delete frame tags as required. When <Add> is clicked the {**Add Frame Tag**} Dialog Box appears and a name can be assigned to the tag

#### 6.2.1.7 Page Settings Menu Option

The **PAGE SETTINGS** Menu Option displays a toolbar with ten icons. See Figure 6-10. They are presented as two singles, two sets of two icons and a group of four icons. They are labeled:



**Figure 6-10. Page Settings Toolbar**

- |                       |                                   |                          |                              |                                |
|-----------------------|-----------------------------------|--------------------------|------------------------------|--------------------------------|
| 1. Fit Page To Window | 2. Page Size                      | 3. Add Page              | 4. Delete Page               | 5. Previous Page               |
| 6. Next Page          | 7. Add Test Data Settings Display | 8. Profile Settings Info | 9. Add Channel Settings Info | 10. Add Schedule Settings Info |



The two single icons are labeled <**Fit Page To Window**> (1) and <**Page Size**>. (2) The first one is an ON/OFF type icon that causes the page to fit the full size of the window. The latter one is not implemented yet.

The first pair of icons consists of <**Add Page**> (3) and <**Delete Page**> (4). The first one will insert a blank page to the layout and the latter will delete the active page from the layout. The next pair of icons is labeled <**Previous Page**> (5) and <**Next Page**> (6) respectively and are used to shuttle between pages of the layout.

The group of four icons is labeled <**Add Test Data Settings Display**> (7), <**Profile Settings Info**> (8), <**Add Channel Settings Info**> (9) and <**Add Schedule Settings Info**> (10). Each of these icons will display the information they relate to in an active window.

### 6.2.1.8 Graph List Toolbar Menu Option

When launched the **Graph List Toolbar** displays vertically at the left side of the window. See Figure 6-11. The toolbar slot is filled with any Graph Tool **Template Files** that have been initiated and saved. Clicking on a toolbar graph will insert that graph in the active window on the active page. The toolbar can be placed anywhere in the window by clicking and dragging it. To click and drag the user must touch the top, bottom or right side of the toolbar with the cursor arrowhead. Left click the mouse and keep the button depressed. Drag the toolbar anywhere in the window.

To load a **Template File** from the **Graph List Toolbar**, use the scroll bar to bring it into view. Click on the <**Add Graph**> icon on the **Graph Toolbar**. Click and drag a graph window in the

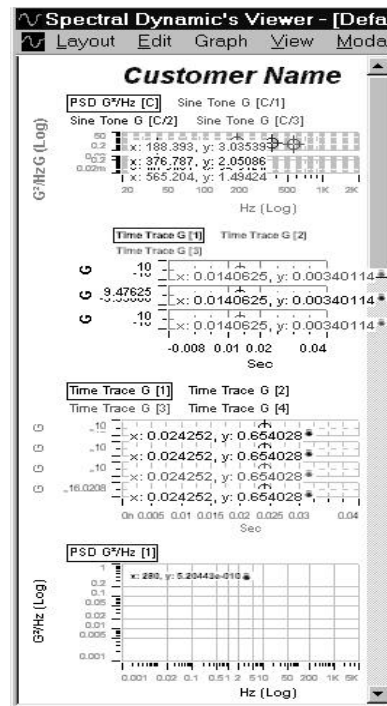


Figure 6-11. Graph List Toolbar

**Graph Tool Window.** The default graph and plot displays. It is a PSD function on a Control Channel in a Data with Control Limits [Plot Display]. The default graph remains selected, so click on the graph from the list. It replaces the default graph.

### 6.2.1.9 Status Bar Menu Option

The **STATUS BAR** Menu Option displays the standard Windows style Status Bar at the bottom of the window. It displays the message: *For Help, Press F1*. At the opposite end are three text boxes that can display messages.

### 6.2.1.10 Customize Menu Option

The **CUSTOMIZE** Menu Option allows the user to customize the settings of the following toolbars.

- Toolbar
- Waterfall Settings Toolbar
- Graph Toolbar
- Data Source Toolbar
- Plot Definition Tool
- Page Settings Toolbar

When any of the listed toolbars/tool are selected from the **CUSTOMIZE** Menu Option the { **Customize Toolbar** } Dialog Box displays. See Figure 6-12. It has two list boxes and seven standard Windows Command Buttons. These controls allow the user to add and delete icon buttons from the various toolbars.

When an icon is selected all the command buttons are active. The <ADD> and <REMOVE> Command Buttons shuttle the available icons between the AVAILABLE TOOLBAR BUTTONS list box and the CURRENT TOOLBAR BUTTONS list box.

The <MOVE UP> and <MOVE DOWN> Command Buttons move the selected icon up or down within the window. This arrangement will be the way the toolbar appears in the window. Normally the top to bottom arrangement in the CURRENT TOOLBAR BUTTONS list box will display the same lineup in a left to right presentation.

The <CLOSE> Command Button will accept the changes and close the dialog box. The <RESET> Command Button acts like an **Undo** command in a word processor and sets the icon arrangement back to the way it was when the dialog box was called up as long as the dialog box has not been closed. The <HELP> Command Button is not implemented at this time.

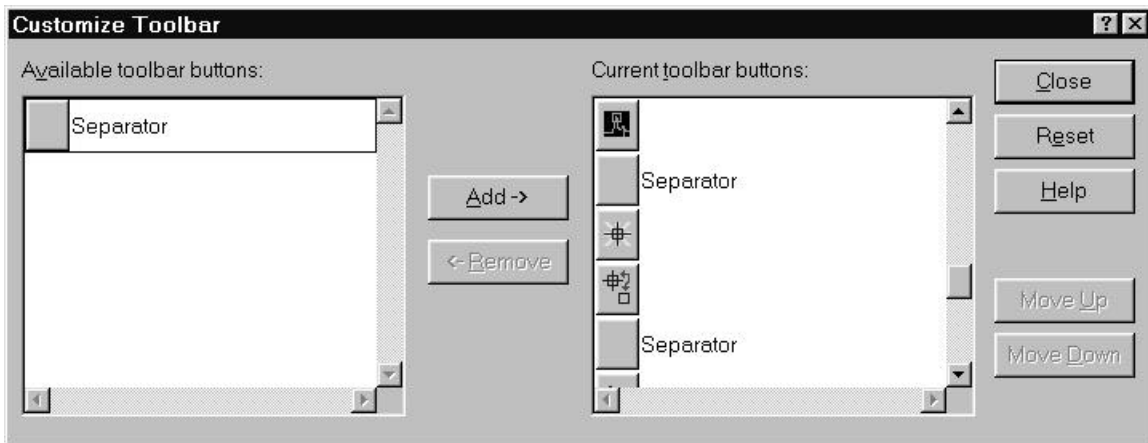


Figure 6-12. Customize Toolbar Dialog Box

### 6.3 Customizing A Graph

There is a seven section pop-up menu (Figure 6-13) available that allows the user to customize the active graph. Within these sections are approximately 30 different choices for the user to make the graph presentation as attractive and informative as possible.

This is done through the use of colors, different font styles and sizes, multiple Y-Axes graphs on a page, or even a waterfall presentation. Add to this the ability to skew the image, add markers, crosshairs or modal bands and the presentation can become dramatic.

To access this menu simply right click on the active graph to be modified and pick and choose the options required.

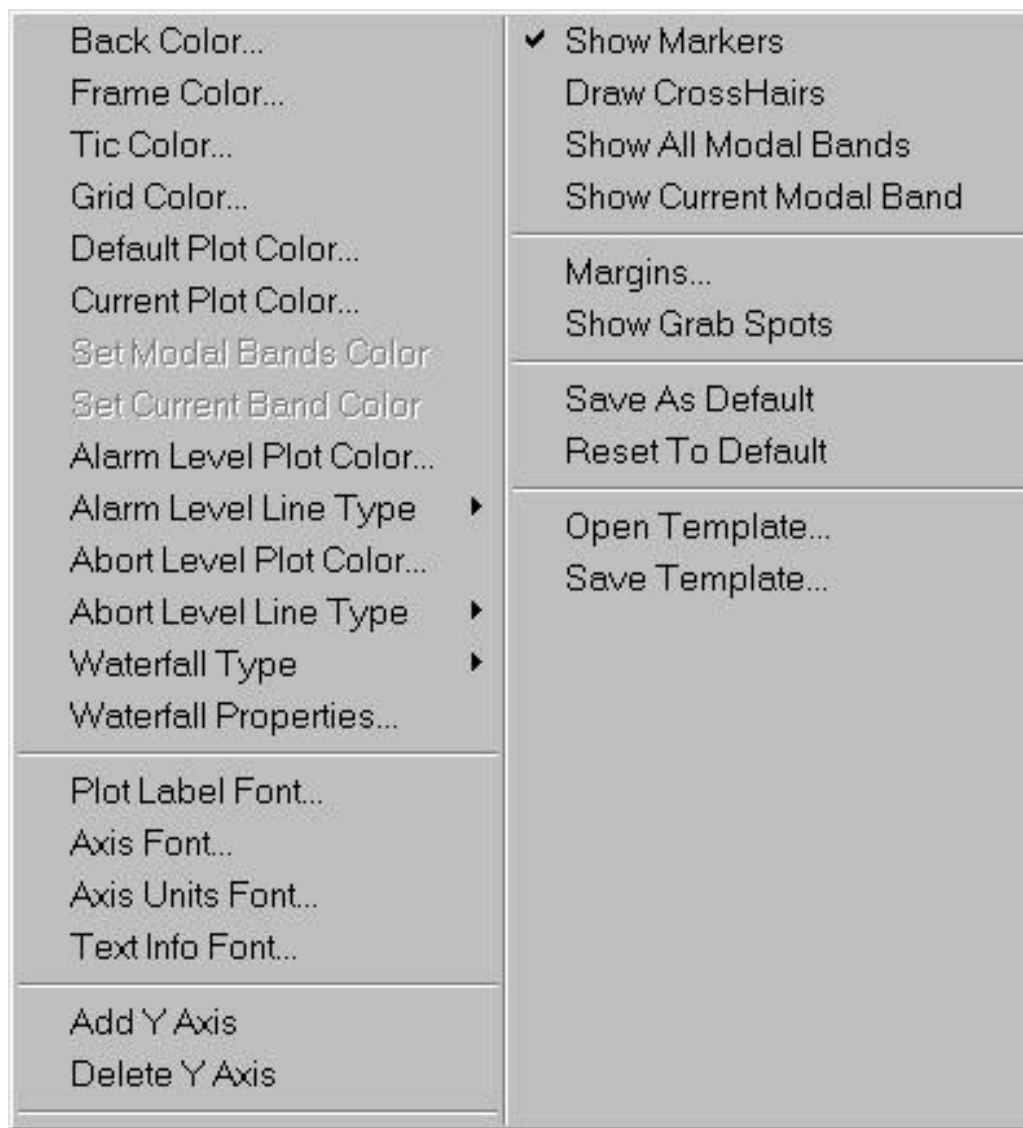


Figure 6-13. Customizing A Graph

# Spectral Dynamics Viewer

## Chapter 7

# Window Menu

### 7.1 Introduction

The **W**INDOW Menu displays four sub-menu options and a recent file list. The options allow the user to arrange the Spectral Dynamics Viewer (Graph Tool) window in a variety of presentations to enable working with multiple graphs from multiple files.

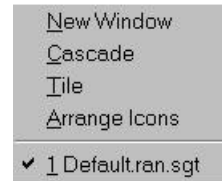
### 7.2 Window Sub-Menus

The **W**INDOW Sub-menus are described below.

The sub-menu options are shown in Figure 7-1.

#### 7.2.1 New Window

The **N**EW WINDOW Sub-menu option opens a blank window over the existing / active Graph Tool window.



**Figure 7-1. Window Menu Sub-menus**

#### 7.2.2 Cascade

The **C**ASCADE Sub-menu option arranges the graph pages one behind the other like loosely spaced pages of a book. See Figure 7-2.

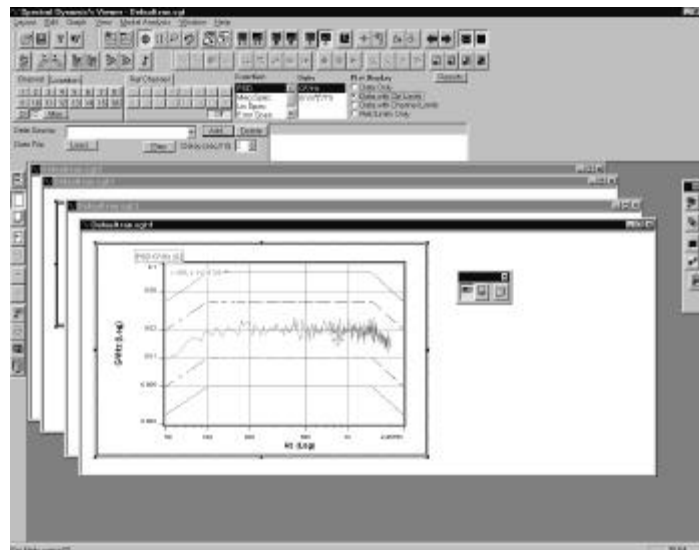


Figure 7-2. Cascaded Graphs

### 7.2.3 Tile

The **TILE** Sub-menu option displays the graph pages horizontally in rows and columns similar to a tabular data display. See Figure 7-3.

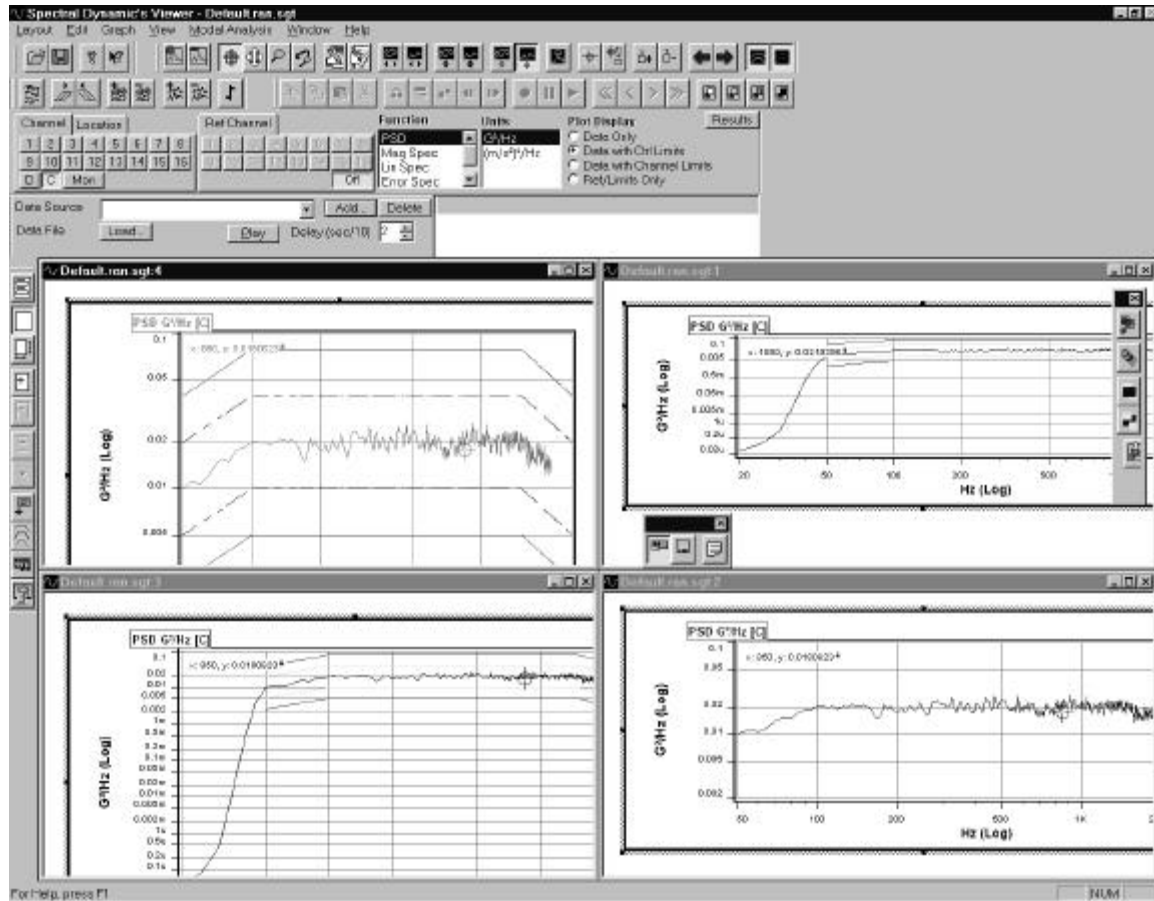


Figure 7-3. Tiled Graphs

### 7.2.4 Arrange Icons

The **ARRANGE ICONS** Menu Option will arrange any icons that have been placed in the active window in rows starting from the lower left hand corner of the window.

### 7.2.5 Current Test List

The current test list will show which test is currently loaded into PUMA.

# Spectral Dynamics Viewer

## Chapter 8

# Help Menu

---

### 8.1 Introduction

The **H**ELP Menu Option chapter is intended only as an introduction to the on-line help menus and as they are constantly evolving only the top levels are shown in the figures.

### 8.2 Help Sub-Menus

The **H**ELP Sub-Menu Options are shown in Figure 8-1.



Figure 8-1. Help Menu Sub-menus

#### 8.2.1 Help Topics Dialog Box

The {**H**elp Topics Dialog Box} has two tabs labeled **C**ontents and **F**ind. The first tab presents the information in a format similar to a Table Of Contents. See Figure 8-2. Clicking on a book expands the Table Of Contents within.

The second tab offers the user three different ways to find the required subject. See Figure 8-3. The user may type in key words pertaining to the subject in the number 1 text box on top. The contents of the bottom two list boxes (#2 & #3) change to reflect subject matter similar to the same alphabetical listing being typed.

List box #2 is a listing of key words used throughout the on-line help. List box #3 is a listing of topics that can be displayed.

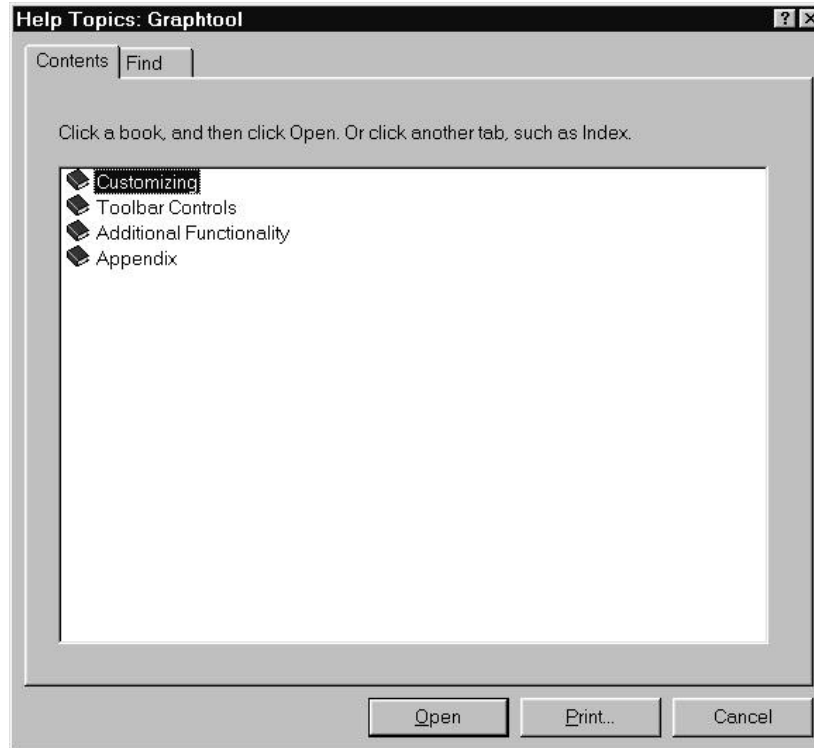


Figure 8-2. Help Topics Contents Tab.

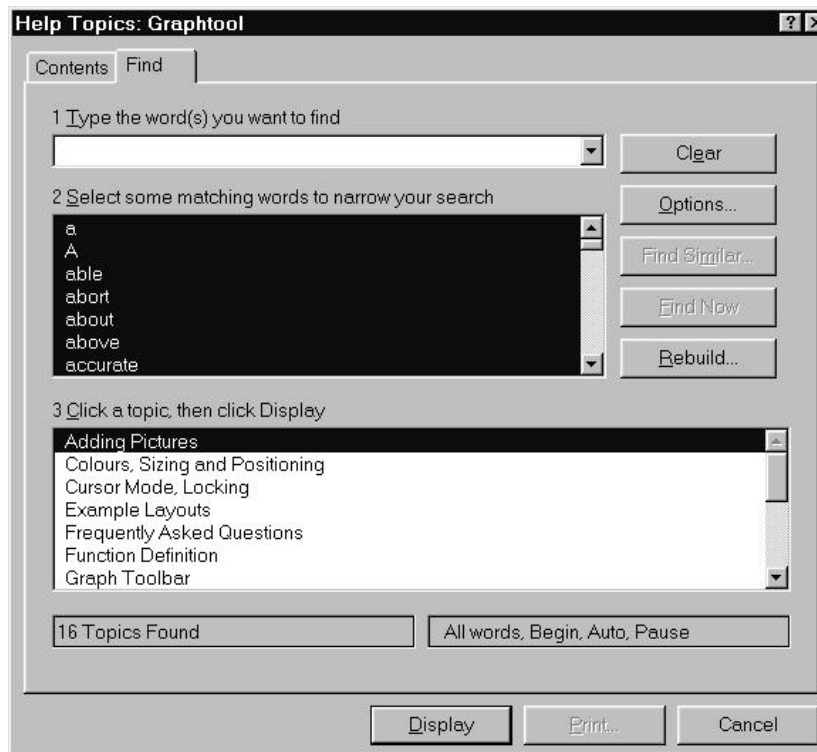


Figure 8-3. Help Topics Find Tab.

### 8.2.2 Tutorial

Parts of the **TUTORIAL** Menu Option are still being constructed. The Tutorial Screen is divided into two sections, a narrow vertical rectangle on the left and a large square on the right. The rectangle contains five graphic buttons. The buttons are grayed out. When the cursor arrow is placed on them it changes to a pointing hand and the graphic buttons change color to indicate being active.

The large square contains text messages, two sets of buttons and the link to the Spectral Dynamics Internet Home Page. The top set of three buttons are labeled <Quit>, <Options> and <Begin>. The lower set of eight buttons hold the labels that are associated with the particular graphic button in the rectangle. Each time a graphic button is selected the labels on the six buttons change.

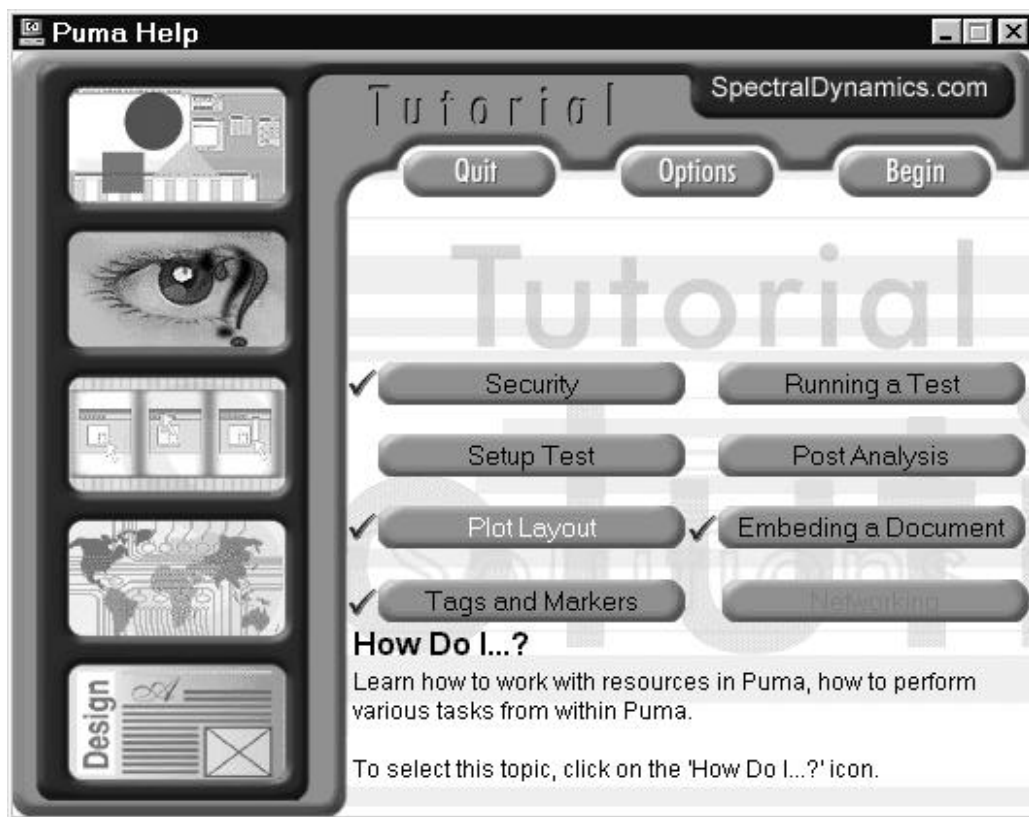


Figure 8-4. Tutorial Screen

### 8.2.3 About Graph Tool

The **ABOUT GRAPH TOOL** Menu Option displays a dialog box with the version number, patent date and the build number.



# Spectral Dynamics Viewer

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