SPECTRAL DYNAMICS

PUMA BASIC

Viewer
Operating Manual

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1010 Timothy Drive – San Jose, CA 95133-1042

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Puma Basic

Viewer Operating Manual

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Chapter 1 - Introduction

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 additional applications:

- COUGAR Portable data acquisition system.
- PUMA Thirty-two Channel PC based acquisition and control system.
- PUMA BASIC Four-Channel 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.

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.

1.3 Spectral Dynamics Viewer

The Spectral Dynamics Viewer (Graph Tool) is the basis for all graphical displays in all PUMA, PUMA BASIC 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.

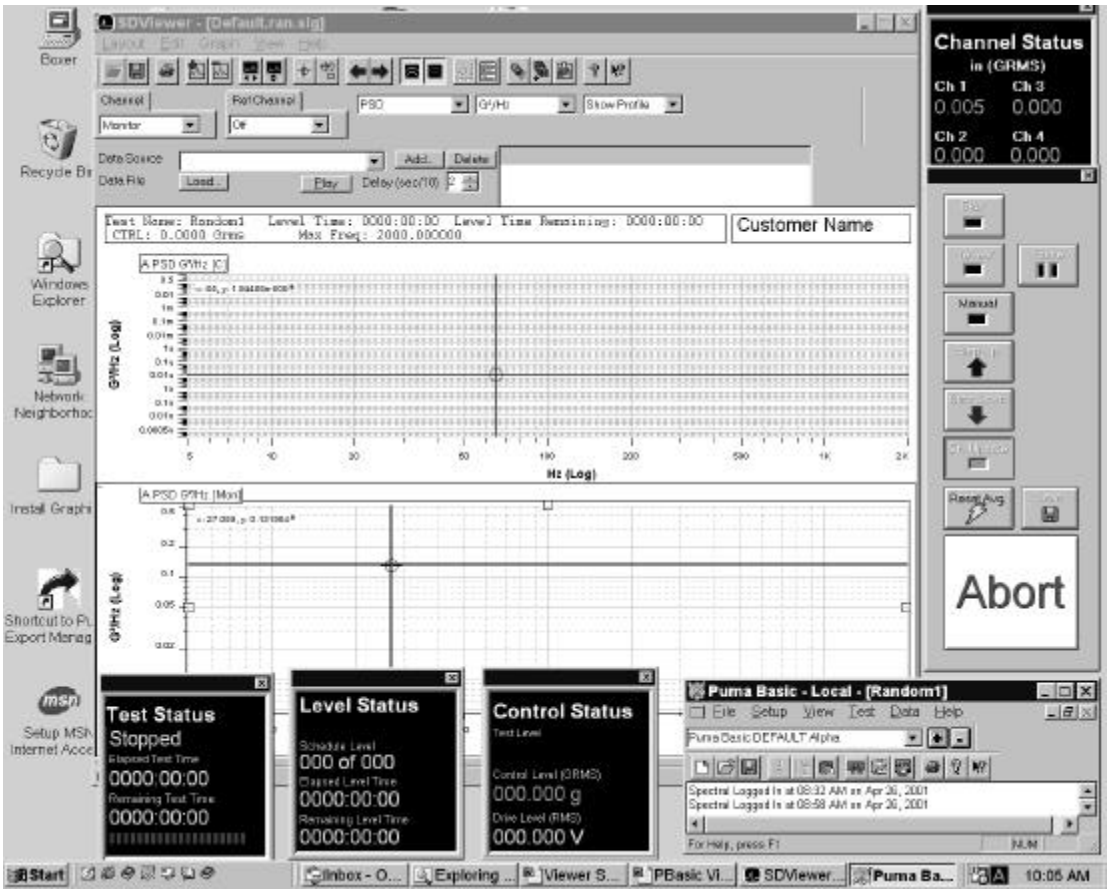


Figure 1-1. Graph Tool and Puma Basic Desktop

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.

- Peak Cursor — It follows the y coordinate of the plot but remains at the original x coordinate.

	▪ Peak Follow Cursor — It continually jumps to the coordinates of the highest point on the plot. ▪ XY Cursor — It remains at the coordinates specified.
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 (*.lgt 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 SLG 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 Basic 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 from the Puma Basic Desktop Toolbar.

1.3.2.1 PUMA Basic Desktop Toolbar

The PUMA Basic Desktop Toolbar shown in Figure 1-2 contains the names of all the SLG Files. These files are templates or presentations that contain the following elements:

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

Viewer Window		

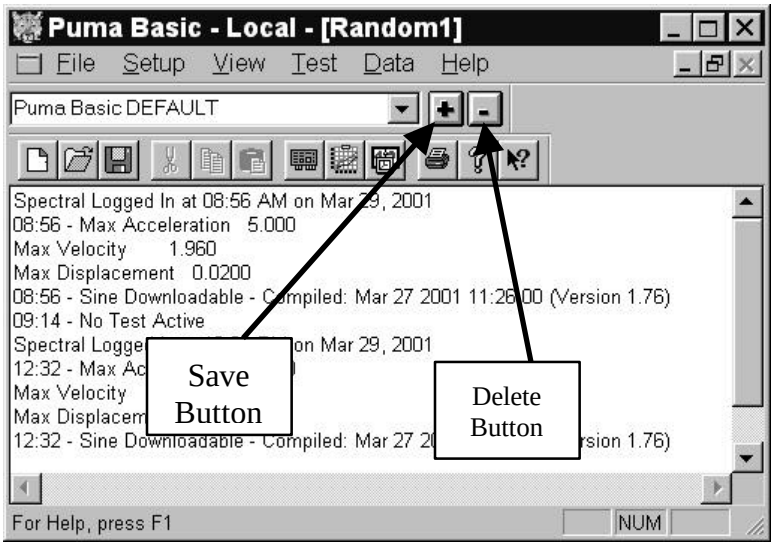
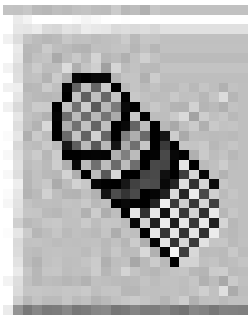


Figure 1-2. Puma Desktop Toolbar

1.3.2.2 Puma Basic Desktop Toolbar Setup Procedure

The following procedural steps will set the contents of the Puma Basic (PB) and Graph Tool Desktop Windows to match the presentation of Figure 1-1.

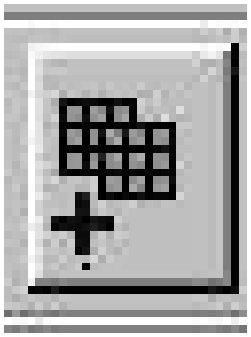
1. For those users that have the security feature go ahead and log in.
2. On the **New Dialog Box** click on **RANDOM** then click **OK**. The default (or last worked on) Graph Tool Desktop Window appears.
3. Click **VIEW**, and then click on any option that will not be required. The **VIEW** Menu will 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 PB Local Application minimized icon on the task bar to recall the PB Local Window (PBLW).
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 **PBLW** in the lower RH corner.



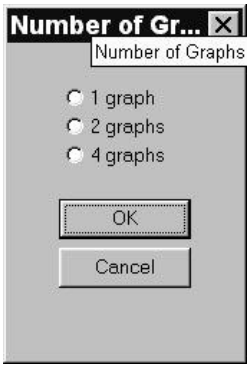
11. Drag and place the **Test Control** Panel on top of the **PBLW**.
12. Drag the **Test Status** Panel to the lower LH corner.
13. Drag and place the **Control Status** and **Level Status** Panels as shown.Select any graph not required for the final presentation in the Graph Tool. Delete the graph by clicking the <**Erase**> button on the toolbar.
14. Repeat step 14 until all non-required graphs are deleted.

15. Select any graph being retained. Size it accordingly using the top, bottom or LH middle handle. The corner handles adjust the coordinate units presentation.

16. Repeat step 16 for any other graphs being retained.



17. To add graphs (up to four), click on the <**Add Graph**> toolbar button. The **Number of Graphs** Dialog appears. Choose 2 or 4 graphs and the graphs are placed on the Graph Tool Window. 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.



18. Save this presentation by highlighting the template name in the **PUMA Basic Desktop Toolbar** and typing in a new name.
19. Click the <+> button of the PUMA Basic Desktop Toolbar. This will save the configuration.

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

1.3.2.3 Graph Template (LGT) Files

The LGT 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 two. These files are user generated and have a file extension of: (*.lgt).

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

1.3.2.4 Graph Tool Layout Template (SLG) Files

The SLG Files contain multiple LGT Files, which makes up the layout template(s) for the Graph Tool. SLG 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 PB Applications.

Those components could include toolbars, status panels, the PBLW with Test Control and multiple LGT Files of different sizes and arrangements. SLG Files are user generated and have the file extension of: (*.slg). SLG Template Files reside in the PB root directory. Once they are saved they are automatically added to the PB Desktop Toolbar shown in Figures 1-1. The toolbar is comprised of a list box, a save button (+) and a delete button (-). The SLG Files listed in Figure 1-2 represent individual layouts of different presentation templates. These templates can be recalled by clicking on the name.

The SLG File of Figure 1-1 was saved with the name (Puma Basic DEFAULT Alpha) but the graphs of the format are different because of the units of measurement on the graphs.

1.3.2.5 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. See Figure 1-3.

Figure 1-3. Shortcuts on the Desktop

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 but is offered to present 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.

Dialog Box Names – Bold with Initial Caps

Dialog Box Field Names –Bold, with Initial Caps

Toolbars **/** ***Index Tab Names*** / ***Sheet Names*** – Bold, Italics with Initial Caps.

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

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

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

<KEYBOARD KEYS> - Bracketed, Caps

MENU NAMES – Bold, Small Caps

CHECK BOXES / RADIO BUTTONS – Small Caps

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

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

Boxed Areas of Windows / Dialog Boxes –Initial Caps

⇨ 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.

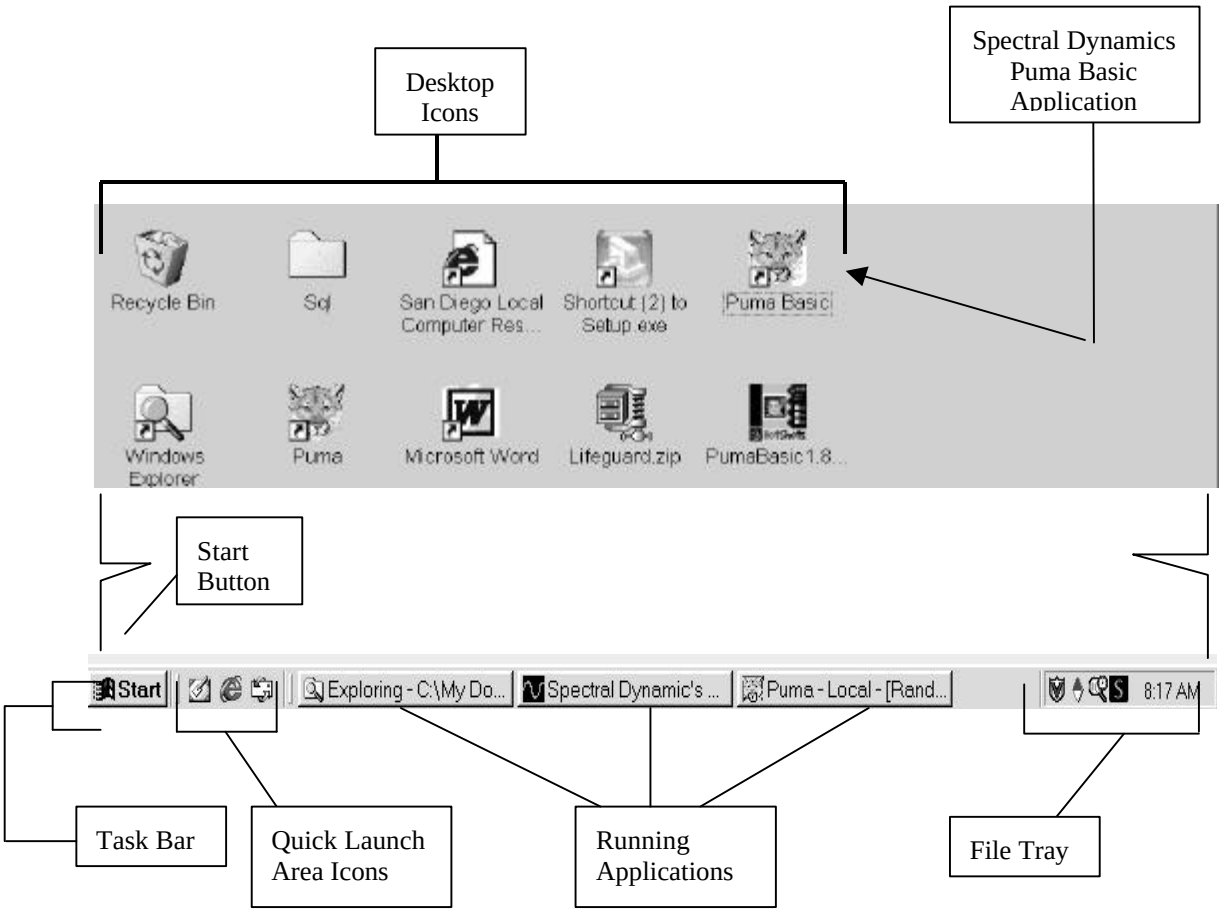


Figure 2-1. Windows Desktop

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 or appropriate combination of keyboard or shortcut combination keys + <**Enter**>.

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

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 or 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 Basic** 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. Please refer to your Windows documentation for making desktop shortcuts. To the right of the <**Start**> Button are the Quick Launch Toolbar Icons. These icons will bring the desktop to the foreground when it is covered by other files/applications and will launch the Internet Explorer Browser or Outlook Express. See figures 2-3 through 2-5.

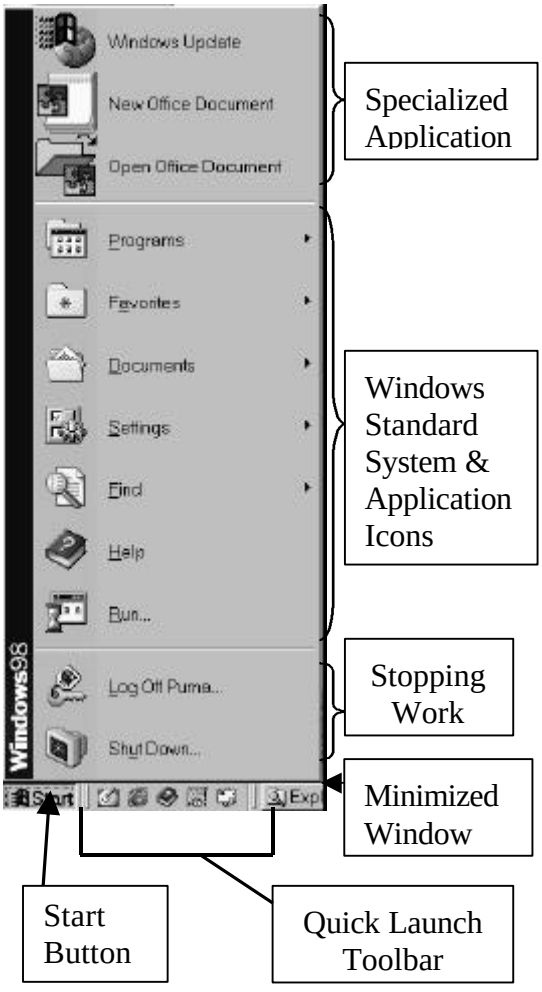


Figure 2-2. Start Button Menus

2.3.1.1.1 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

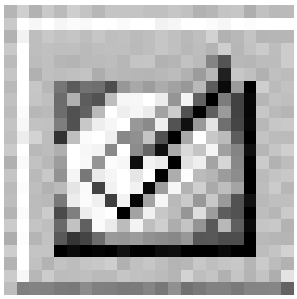


Figure 2-3. Show Desktop

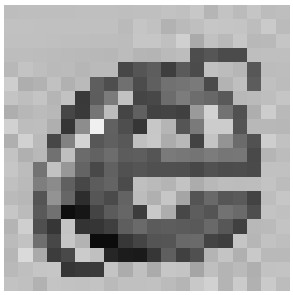


Figure 2-4. Launch Internet Explorer Browser

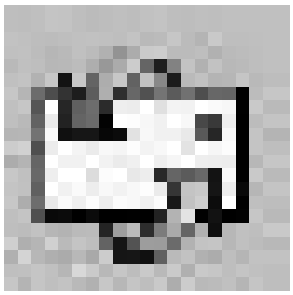


Figure 2-5. Launch Outlook Expres2.3.1.1.2 Documents Menu

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 a hard drive, a floppy disk or a CD.

These entries serve as shortcuts to the file instead of having to transit the Explorer option again.

2.3.1.1.3 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.

2.3.1.1.4 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.

2.3.1.1.5 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.

2.3.1.1.6 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 one letter at a time 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 2-6) or can be displayed as a simple listing (Figure 2-7). 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.

2.3.2.2.1 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 **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.

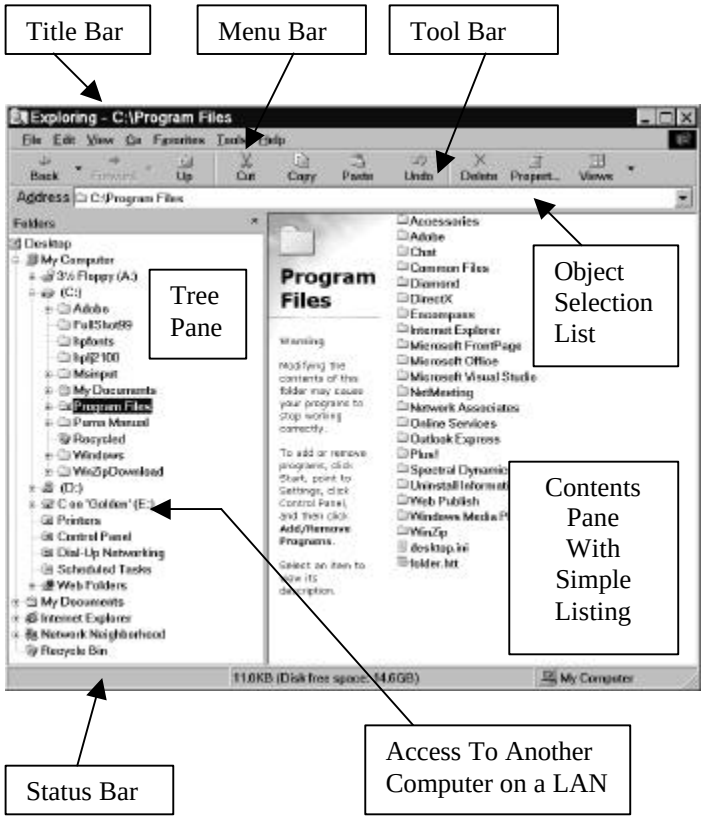


Figure 2-6. Windows Explorer List Display

2.3.2.2.2 Object Selection List

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

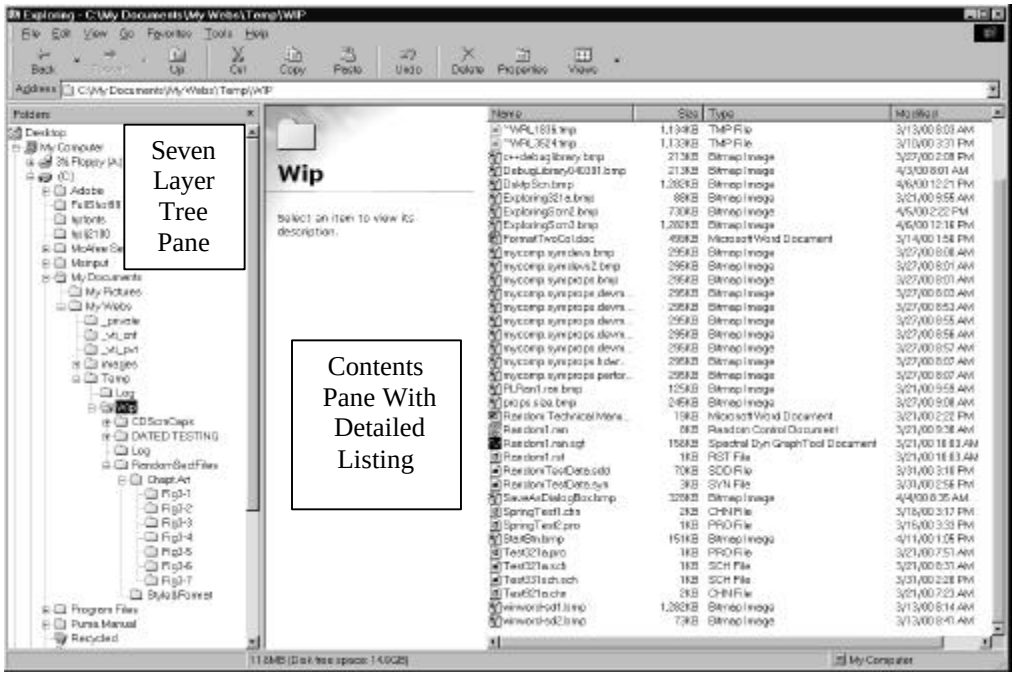


Figure 2-7. Windows Explorer Detailed List Display

2.3.2.2.3 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.

2.3.2.2.4 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.

2.3.2.2.5 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.

2.3.2.2.6 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 Compute**r>. 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 Working With Files

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

2.3.3.2.1 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.

2.3.3.2.2 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 to assign a name to the file prior to saving it. See Figure 2-8.

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.

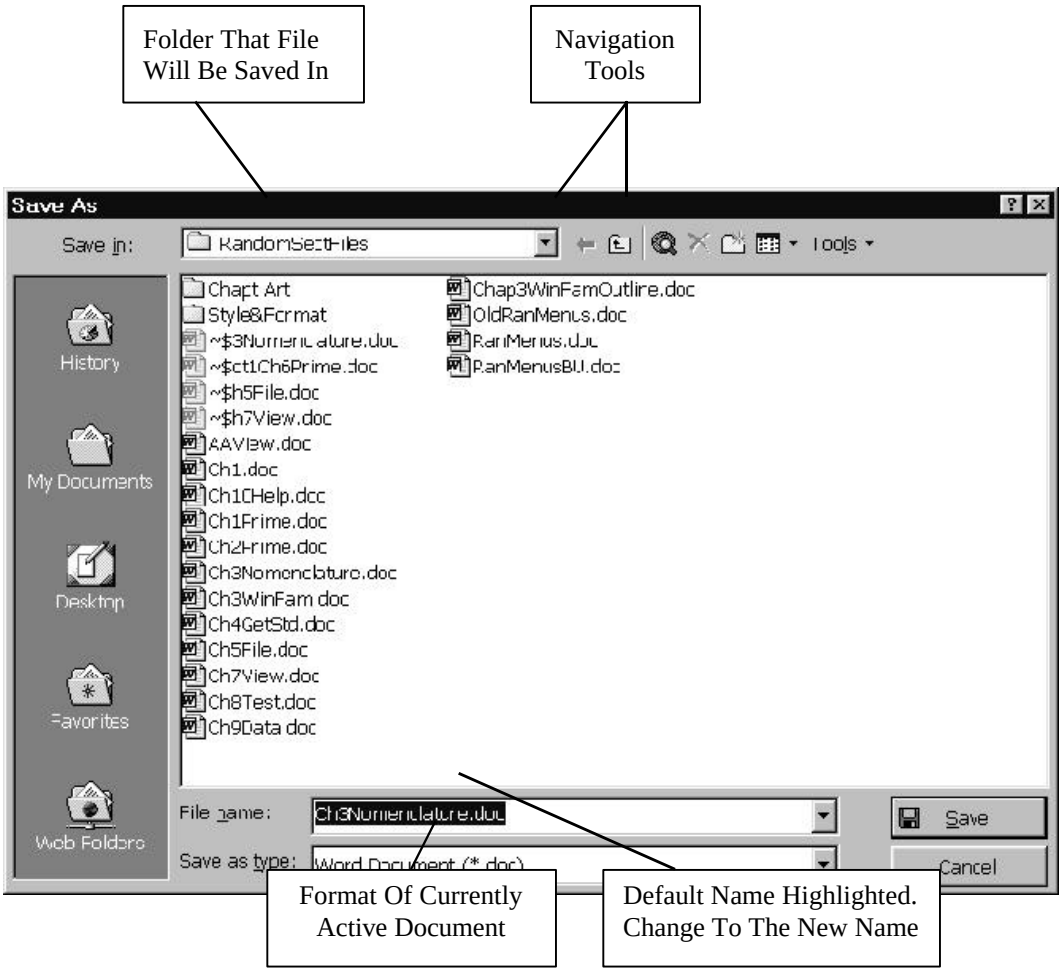


Figure 2-8. Save As Dialog Box

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):

1. Click **FILE⇨ SAVE AS**. The **Save As** Dialog Box appears.
2. Navigate to the folder the file is to reside in.
3. Assign a file name.

4. Select a file type if applicable.
5. Click **SAVE**

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

1. Click File⇨ Save

Or

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

2.3.3.2.3 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 Spectral Dynamics Applications Menu Bars

The Random, Sine and Classical Shock Applications Menu Bars contains six menu selections used by the PUMA Vibration Control System (Vibration Controller). Each menu items is presented as a chapter in each of the application's manuals. The menu items are listed below.

- File Menu
- Setup Menu
- View Menu
- Test Menu
- Data Menu
- Help Menu

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Chapter 3 - Layout Menu

3.1 Introduction

The first of the five menu options of the Spectral Dynamics Viewer (Graph Tool) is the **LAYOUT** 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 **LAYOUT** 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 **EXIT** Menu Option.

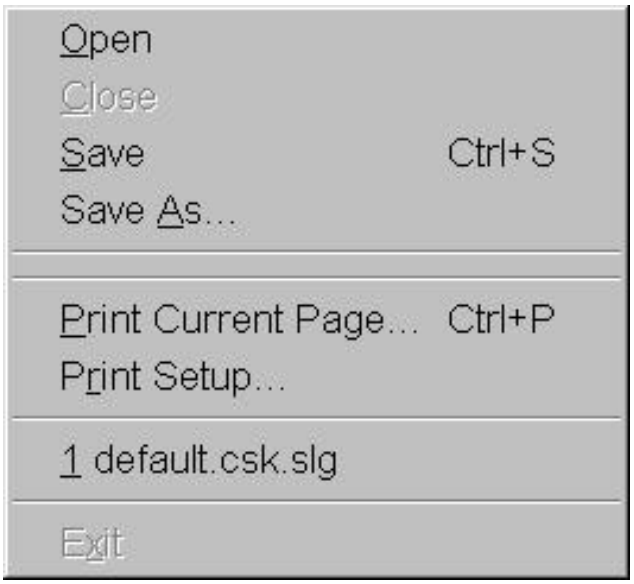

Figure 3-1. Layout Menu Sub-menus

3.2.1 Working With Files

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

3.2.1.1 Open Menu Option

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

3.2.1.2 Close Menu Option

The **CLOSE** Menu Option allows the user to close a file. When clicked on it will display the standard Windows **Save As** Dialog Box.

3.2.1.3 Save Menu Option

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

3.2.1.4 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 Current Page

The **PRINT CURRENT PAGE** Option prints the current page of the plot(s) on hard copy.

3.2.2.1 Print Setup

This option displays the **PRINT SETUP** Dialog Box, which is very similar to the Windows **Print** Dialog Box. See Figure 3-2. It has three boxes labeled **Printer**, **Paper** and **Orientation** and the command buttons <*OK*> and <*CANCEL*> at the bottom. In Puma Basic only the LANDSCAPE option is used.

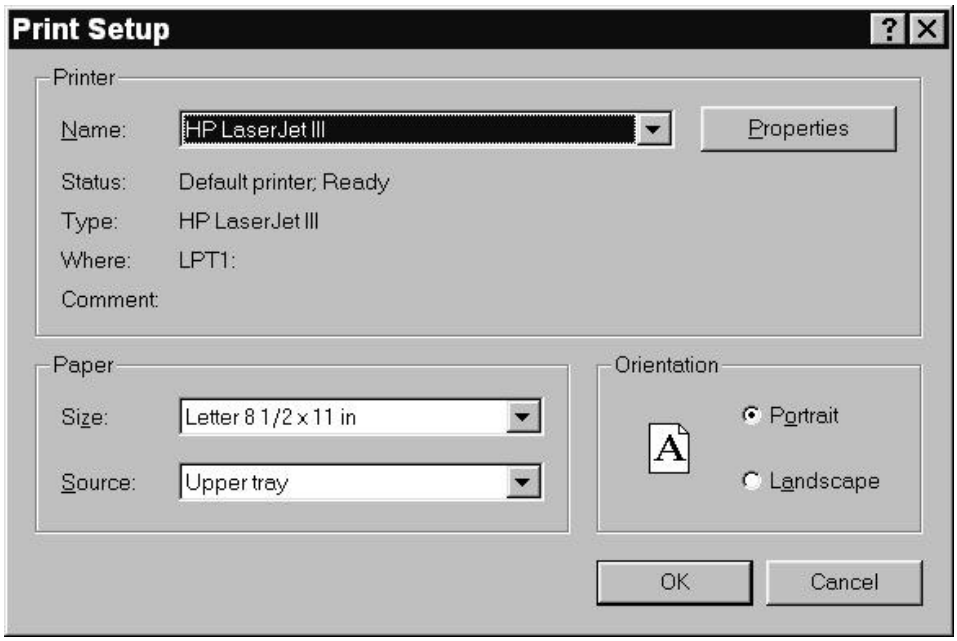

Figure 3-2. Print Setup Dialog Box Need new image.

The **Printer** Box has a list box for the name(s) of the printer(s) and a <Properties> Button.

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. It also has a presentation icon to show printing orientation on the page.

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.

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Chapter 4 - Edit Menu

4.1 Introduction

The **EDIT** Menu gives the user a tool to make changes to the data presentation format or to place test information into a report.

4.2 Edit Sub-menus

The **EDIT** Sub-menus are shown in Figure 4-1. The Set Data Source sub-menus are shown in Figure 4-2. The following paragraphs describe the **EDIT** Menu Option Sub-menus.

Figure 4-1. Edit Menu Sub-Menus

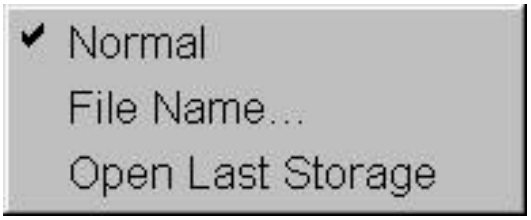

Figure 4-2. Set Data Source Sub-Menus

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. The **INSERT OBJECT** Dialog Box has two radio buttons labeled CREATE NEW and CREATE FROM FILE.

4.2.1.1 Creating New Objects

When creating new objects, the check box is labeled DISPLAY AS ICON and the standard Windows command buttons <*OK*> and <*CANCEL*> are available. The Selection Window is labeled **Object Type** and displays the selections available. See Figure 4-3 and Table 4-1. The actual items available to the user depend on what applications are loaded on that particular computer.

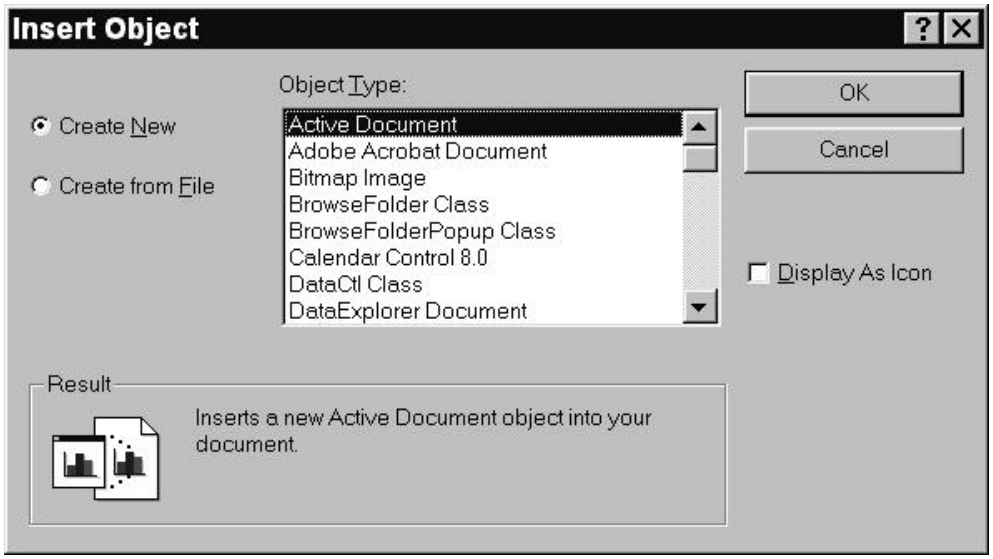

Figure 4-3. Insert Object Dialog with Create New Object Type Window active

Table 4-1. Selections Possible in Create New Object Type Window

Active Document	Microsoft Power Point Slide
Adobe Acrobat Document	Microsoft Word Document
Bitmap Image	Microsoft Word Picture
BrowserFolder Class	MIDI Sequence
BrowserFolderPopup Class	MSDTHostCtrl Class
Calendar Control 8.0	MSREdit Class
DataCtl Class	MyFilter Class
DataExplorerer Document	Package
Export Document	Paintbrush Picture
HotShots Image Document	RegWizCtrl
Image Document	sdButton Control
LM Runtime Control	sdPanel Control
Math Type 4.0 Equation	Setup Class
McAfee.com DAT Control Class	Spectral Dyn Graph Tool Document
Media Clip	Spectral Dyn SDViewer Document
Microsoft ActiveXUpload Control	ThumbCtl Class
Microsoft Clip Gallery	Video Clip

Table 4-1. Selections Possible in Create New Object Type Window - Contd.

Microsoft Excel Chart	VideoRenderCtl Class
Microsoft Excel Worksheet	Wave Sound
Microsoft Graph 2000 Chart	WebViewFolderIcon Class
Microsoft Power Point Presentation	WordPad Document

4.2.1.2 Objects On File

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

To find and insert an object previously filed, click <*BROWSE*>. The **BROWSE** Dialog Box appears. Navigate the drive and click the required folder. Then click the <*INSERT*> Button.

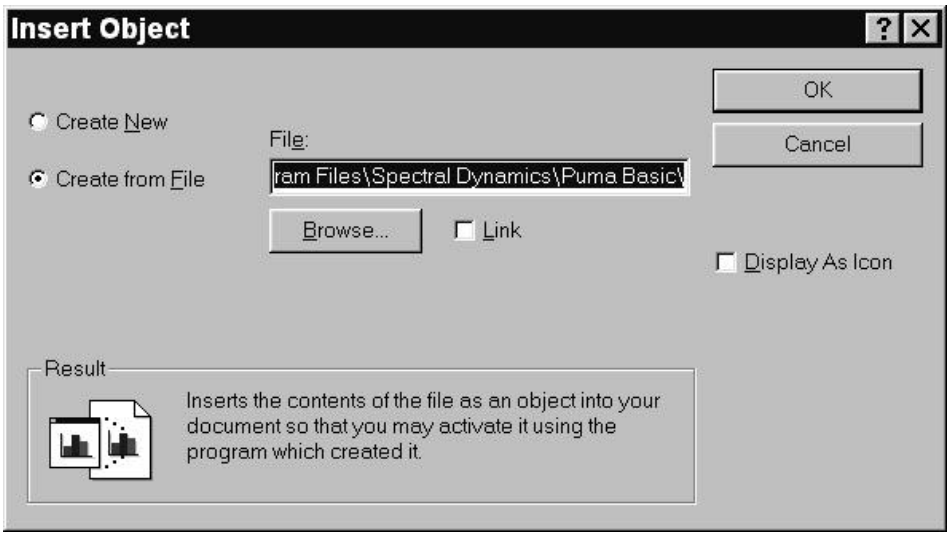

Figure 4-4 Insert Object Dialog Box with Create From File Window active

When the LINK checkbox is checked, the **Result** Box message and graphic changes. See Figure 4-5. 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 dialog box has three standard Windows command buttons. 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.

When the **Display As Icon** Check Box is checked the dialog changes its appearance, the message and icon(s) in the **Result** Box change and a matching label to the one selected in the **Object Type** window is displayed to the right of the Result. The <CHANGE ICON> Command Button also becomes active.

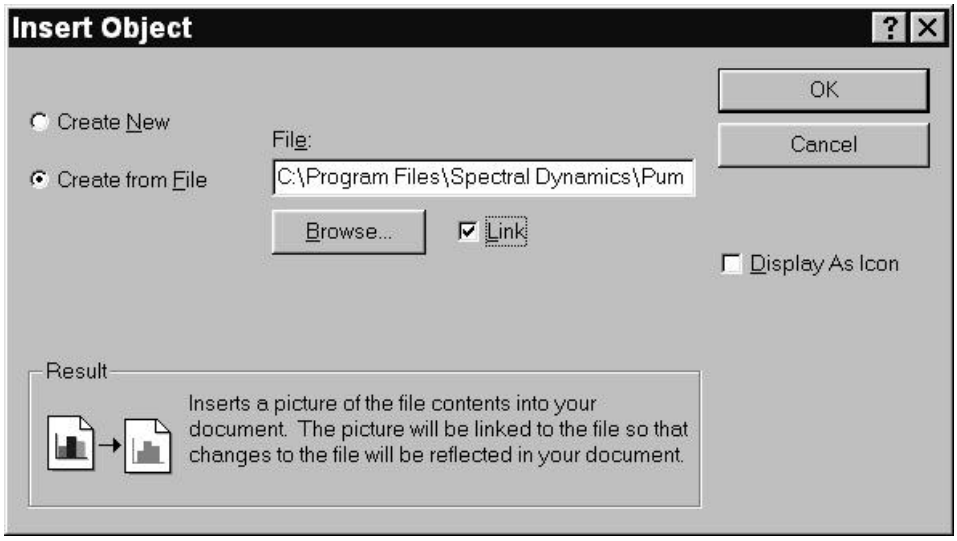

Figure 4-5. Insert Object Dialog Box With Link Option Active

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

4.2.4.1 Normal

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

4.2.4.2 File Name

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

4.2.4.3 Open Last Storage

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

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 5-1 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.

5.2.1 Load Graph Menu Option

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

5.2.2 Save Graph Menu Option

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

NOTE:

These dialog boxes may also be accessed while working with a graph. Refer to paragraphs 3.2.1.1 and 3.2.1.4.

Figure 5-1. Graph Menu Options

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Chapter 6 - View Menu

6.1 Introduction

The **VIEW** Menu Option (Figure 6-1) allows the user to see all the tools necessary to work with PUMA BASIC and the Spectral Dynamics Viewer (Graph Tool). The sub-menus not only give access to the tools but also allow the user to modify the program 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 or a specialized grouping of text boxes, drop-down list boxes and buttons assembled for a specific purpose. These toolbars 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.

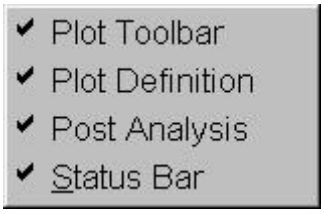

Figure 6-1. View Menu

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.

6.2 View Menu Sub-Menus

The **VIEW** Menu Sub-menu Options are discussed in the paragraphs below.

6.2.1 Plot Toolbar Menu Option

Clicking the **PLOT TOOLBAR** Menu Option displays the ***Plot Toolbar***. The toolbar in Figure 6-2 appears as it would if no graph was selected. The toolbar in Figure 6-3 appears as it would when a graph is selected.

6.2.1.1 Standard Windows Icons

The toolbar normally has five standard Windows icons on it. They are in two groups at each end of the toolbar. The icons are:

1. Open 2. Save 3. Print 4. About 5. Help

Figure 6-2. Plot Toolbar's Standard Windows Icons

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

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

The <**Print**> icon prints out the plot page of the current test.

The <**About**> icon 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 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.

6.2.1.2 PUMA Basic Icons

The remaining icons consisting of six groups of two and one group of three are:

Add Plot	Delete Plot	Fit Current Plot in X Axis	Fit Current Plot in Y Axis	Hide / Show Cursor Crosshairs
Move Left	Move Right	Show Alarm Lines	Show Abort Lines	Display Data
Display Text	Erase	Display 1, 2, of 4 Graphs	Clear Plots	

Figure 6-3. Plot Toolbar's Puma Basic Icons

The <**Add Plot**> icon allows the user to add a plot to a graph in the Viewer Window. After selecting the graph to receive the plot, click the icon. After the plot is placed in the graph select the type of plot it is to represent. The <**Delete Plot**> button will delete the active plot from the active graph.

The next pair of buttons is the <**Fit Current Plot In X Axis**> and the <**Fit Current Plot in Y-axis**>. The first button displays the active plot associated with the active graph along the X-axis. The latter button displays the active plot in the active graph along the Y-axis.

Different portions of the axes may be displayed. Select the graph then grab one of the handles (small squares) with the cursor and drag it to the area desired.

The next button is labeled <**Hide/Show Cursor Cross Hairs**>. The arrow buttons are labeled <**Move Left**> and <**Move Right**>. Depending on which one is used they move the crosshairs along the active plot on the active graph. The buttons labeled <**Show Alarm Lines**> and <**Show Abort Lines**> 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.

The < **Display Data** > icon is an ON / OFF icon and allows the user to view the data from the input channel(s) of the hardware source after the user has toggled the window to display the text. The ON condition is the default so that the data stream is normally seen. The < **Display Text** > icon displays the Channel, Profile and Schedule data normally seen in the PUMA Basic Synopsis File Window.

Use the Erase function with caution! Clicking on the <**Erase**> icon will delete anything in the window that is active / selected. This includes not only objects but also 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 < **Display 1, 2 or 4 Graphs** > allows the user to choose up to four graphs to display for data plots. The graphs are pre-sized to fill the display area.

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

6.2.2 Plot Definition Toolbar

The **PLOT DEFINITION** Toolbar allows the user to select certain parameters for a particular plot. See Figure 6-4. Table 6-1 shows the **Random** parameter combinations available with each plot. The options for Classical Shock and Sine will be different. The presentation type is controlled by the options available in drop-down window "C". Those options are always either **Data Only** or **Show Profile** lines.

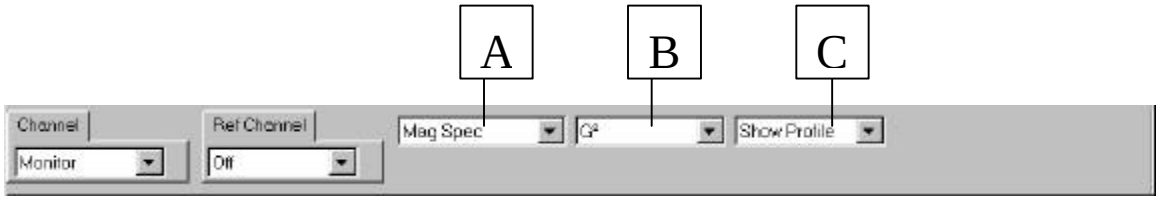

Figure 6-4. Plot Definition Toolbar

Table 6-1. Random Plot Parameters Available From Plot Definition Toolbar

Number	Channel	Ref Channel	A in Fig. 6-3	B in Fig. 6-3
1	Control	Off	Error Spec	Error
2	Control	Off	Mag Spec	$(m/s^2)^2$ G^2
3	Control	Off	PSD	$(m/s^2)^2$ G^2
4	Monitor	Off	Error Spec	Error
5	Monitor	Off	Mag Spec	$(m/s^2)^2$ G^2
6	Monitor	Off	PSD	$(m/s^2)^2$/Hz G^2/Hz
7	Monitor	Drive	Transmissibility	Ratio
8	Monitor	Drive	H(f) Imaginary	EU/V
9	Monitor	Drive	H(f) Mag	Ratio

10	Monitor	Drive	H(f) Phase	Degrees
11	Monitor	Drive	H(f) Real	EU/V
12	Monitor	Monitor	Transmissibility	Transmissibility
13	Monitor	Ch(s) 1-4	H(f) Phase	Degrees
14	Monitor	Ch(s) 1-4	Transmissibility	Ratio

Table 6-1. Random Plot Parameters Available From Plot Definition Toolbar Cont'd.

Number	Channel	Ref Channel	A in Fig. 6-3	B in Fig. 6-3
15	Reference	Off	No Functions Available	No Functions Available
16	Reference	Control	PSD	$(m/s^2)^2/Hz$ G^2/Hz
17	Reference	Ch(s) 1-4	PSD	$(m/s^2)^2/Hz$ G^2/Hz
18	Drive	Off	Error Spec	Error
19	Drive	Off	Mag Spec	V^2
20	Drive	Off	PSD	V^2/Hz
21	Drive	Off	Time Trace	Volts
22	Drive	Drive	Transmissibility	Ratio
23	Drive	Monitor	Transmissibility	Ratio
24	Drive	Ch(s) 1-4	Transmissibility	Ratio
25	Ch(s) 1-4	Drive	H(f) Imaginary	G-Hz G-Orders
26	Ch(s) 1-4	Drive	H(f) Mag	Error
27	Ch(s) 1-4	Drive	H(f) Phase	$(m/s^2)^2$ G^2
28	Ch(s) 1-4	Drive	H(f) Real	$(m/s^2)^2/Hz$ G^2/Hz

				G^2/Hz
29	Ch(s) 1-4	Drive	Transmissibility	G-Hz G-Orders
30	Ch(s) 1-4	Monitor	Transmissibility	$(m/s)^2$ G in in/sec m/s mm
31	Ch(s) 1-4	Ch(s) 1-4	Cross Spec Mag	EU/V

Table 6-1. Random Plot Parameters Available From Plot Definition Toolbar Cont'd.

Number	Channel	Ref Channel	A in Fig. 6-3	B in Fig. 6-3
32	Ch(s) 1-4	Ch(s) 1-4	Cross Spec Phase	Ratio
33	Ch(s) 1-4	Ch(s) 1-4	Cross SpecReal	Degrees
34	Ch(s) 1-4	Ch(s) 1-4	H(f) Coherence	EU/V
35	Ch(s) 1-4	Ch(s) 1-4	H(f) Imaginary	Ratio
36	Ch(s) 1-4	Ch(s) 1-4	H(f) Mag	Ratio
37	Ch(s) 1-4	Ch(s) 1-4	H(f) Phase	EU^2
38	Ch(s) 1-4	Ch(s) 1-4	H(f) Real	Degrees
39	Ch(s) 1-4	Ch(s) 1-4	H(f) Coherence	Coh
40	Ch(s) 1-4	Ch(s) 1-4	H(f) Imaginary	EU/EU
41	Ch(s) 1-4	Ch(s) 1-4	H(f) Mag	Ratio
42	Ch(s) 1-4	Ch(s) 1-4	H(f) Phase	Degrees
43	Ch(s) 1-4	Ch(s) 1-4	H(f) Real	EU/EU
44	Ch(s) 1-4	Ch(s) 1-4	Transmissibility	Ratio

Table 6-2. Classical Shock Plot Parameters Available From Plot Definition Toolbar

Number	Channel	Ref Channel	A in Fig. 6-3	B in Fig. 6-3

		Channel		
1	Control	Off	Lin Spec	G
2	Control	Off	Lin Spec	m/s^2
3	Control	Off	SRS MaxiMax	G
4	Control	Off	Time Trace	$(m/s)^2$
5	Control	Off	Time Trace	G
6	Control	Off	Time Trace	in

Table 6-2. Classical Shock Plot Parameters Available From Plot Definition Toolbar - Contd.

Number	Channel	Ref Channel	A in Fig. 6-3	B in Fig. 6-3
7	Control	Off	Time Trace	in/sec
8	Control	Off	Time Trace	m/s
9	Control	Off	Time Trace	mm
10	Control	Ch(s) 1-4	H(f) Imaginary	EU/EU
11	Control	Ch(s) 1-4	H(f) Mag	Ratio
12	Control	Ch(s) 1-4	H(f) Phase	Degrees
13	Control	Ch(s) 1-4	H(f) Real	EU/EU
14	Control	Drive	Cross Spec Mag	EU^2
15	Control	Drive	Cross Spec Phase	Degrees
16	Control	Drive	Cross Spec Real	EU^2
17	Control	Drive	H(f) Coherence	Coh
18	Control	Drive	H(f) Imaginary	EU/V
19	Control	Drive	H(f) Mag	Ratio
20	Control	Drive	H(f) Phase	Degrees
21	Control	Drive	H(f) Real	EU/V
22	Monitor	Off	Lin Spec	G
23	Monitor	Off	Lin Spec	m/s^2

24	Monitor	Ch(s) 1-4	H(f) Phase	Degrees
25	Monitor	Drive	H(f) Imaginary	EU/V
26	Monitor	Drive	H(f) Mag	Ratio
27	Monitor	Drive	H(f) Phase	Degrees
28	Monitor	Drive	H(f) Real	EU/V
29	Reference	Off	SRS MaxiMax	G
30	Reference	Off	Time Trace	$(m/s)^2$

Table 6-2. Classical Shock Plot Parameters Available From Plot Definition Toolbar - Contd.

Number	Channel	Ref Channel	A in Fig. 6-3	B in Fig. 6-3
31	Reference	Off	Time Trace	G
32	Reference	Off	Time Trace	in
33	Reference	Off	Time Trace	in/sec
34	Reference	Off	Time Trace	m/s
35	Reference	Off	Time Trace	mm
36	Drive	Off	Lin Spec	Volts
37	Drive	Off	Time Trace	Volts
38	Ch(s) 1-4	Off	Lin Spec	G
39	Ch(s) 1-4	Off	Lin Spec	m/s^2
40	Ch(s) 1-4	Off	SRS MaxiMax	G
41	Ch(s) 1-4	Off	Time Trace	$(m/s)^2$
42	Ch(s) 1-4	Off	Time Trace	G
43	Ch(s) 1-4	Off	Time Trace	in
44	Ch(s) 1-4	Off	Time Trace	in/sec
45	Ch(s) 1-4	Off	Time Trace	m/s
46	Ch(s) 1-4	Off	Time Trace	mm

Table 6-3. Sine Plot Parameters Available From Plot Definition Toolbar

Number	Channel	Ref Channel	A in Fig. 6-3	B in Fig. 6-3
1	Control	Off	Sine	G
2	Control	Ch(s) 1-4	H(f)	Imag
3	Control	Ch(s) 1-4	H(f)	Mag

Table 6-3. Sine Plot Parameters Available From Plot Definition Toolbar - Contd.

Number	Channel	Ref Channel	A in Fig. 6-3	B in Fig. 6-3
4	Control	Ch(s) 1-4	H(f)	Phase
5	Control	Ch(s) 1-4	H(f)	Real
6	Control	Control	H(f)	Imag
7	Control	Control	H(f)	Mag
8	Control	Control	H(f)	Phase
9	Control	Control	H(f)	Real
10	Control	Monitor	H(f)	Imag
11	Control	Monitor	H(f)	Mag
12	Control	Monitor	H(f)	Phase
13	Control	Monitor	H(f)	Real
14	Monitor	Off	Sine	G
15	Monitor	Off	Sine	in
16	Monitor	Off	Sine	in/sec
17	Monitor	Off	Sine	m/s
18	Monitor	Off	Sine	m/s^2
19	Monitor	Off	Sine	mm
20	Monitor	Ch(s) 1-4	H(f)	Imag

21	Monitor	Ch(s) 1-4	H(f)	Mag
22	Monitor	Ch(s) 1-4	H(f)	Phase
23	Monitor	Ch(s) 1-4	H(f)	Real
24	Monitor	Control	H(f)	Imag
25	Monitor	Control	H(f)	Mag
26	Monitor	Control	H(f)	Phase
27	Monitor	Control	H(f)	Real

Table 6-3. Sine Plot Parameters Available From Plot Definition Toolbar - Contd.

Number	Channel	Ref Channel	A in Fig. 6-3	B in Fig. 6-3
28	Monitor	Monitor	H(f)	Imag
29	Monitor	Monitor	H(f)	Mag
30	Monitor	Monitor	H(f)	Phase
31	Monitor	Monitor	H(f)	Real
32	Reference	Off	Sine	G
33	Reference	Off	Sine	in
34	Reference	Off	Sine	in/sec
35	Reference	Off	Sine	m/s
36	Reference	Off	Sine	m/s^2
37	Reference	Off	Sine	mm
38	Drive	Off	Sine	Volts
39	Ch(s) 1-4	Off	Sine	G
40	Ch(s) 1-4	Off	Sine	in
41	Ch(s) 1-4	Off	Sine	in/sec
42	Ch(s) 1-4	Off	Sine	m/s
43	Ch(s) 1-4	Off	Sine	m/s^2
44	Ch(s) 1-4	Off	Sine	mm

45	Ch(s) 1-4	Off	Sine	Phase
46	Ch(s) 1-4	Ch(s) 1-4	H(f)	Imag
47	Ch(s) 1-4	Ch(s) 1-4	H(f)	Mag
48	Ch(s) 1-4	Ch(s) 1-4	H(f)	Phase
49	Ch(s) 1-4	Ch(s) 1-4	H(f)	Real
50	Ch(s) 1-4	Control	H(f)	Imag
51	Ch(s) 1-4	Control	H(f)	Mag

Table 6-3. Sine Plot Parameters Available From Plot Definition Toolbar - Contd.

Number	Channel	Ref Channel	A in Fig. 6-3	B in Fig. 6-3
52	Ch(s) 1-4	Control	H(f)	Phase
53	Ch(s) 1-4	Control	H(f)	Real
54	Ch(s) 1-4	Monitor	H(f)	Imag
55	Ch(s) 1-4	Monitor	H(f)	Mag
56	Ch(s) 1-4	Monitor	H(f)	Phase
57	Ch(s) 1-4	Monitor	H(f)	Real

6.2.3 Post Analysis

The **POST ANALYSIS** Menu Option displays a tool with two list boxes, a text box and four option buttons. See Figure 6-5. The list box is labeled **Data Source**. The input is via a selected channel or a data file. When a file is opened or a test is running the parameters are listed in the unlabeled list box under three columns labeled **Frame ID**, **Test Time** and **Level Time**. The text box is for numeric values indicating the delay between record updates when playing back a data file. It is labeled **Delay (Sec/10)**.

The option buttons 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 data files as required. When <Add> is clicked the **Add Frame Tag** Dialog Box appears and a name can be assigned to the tag.

Figure 6-5. Post Analysis Toolbar

6.2.4 Status Bar

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.

Chapter 7 - Help Menu

8.1 About SDViewer

The **HELP** Menu Option's Sub-Menu is the **ABOUT SDVIEWER** screen (Figure 7-1) displays the version number and build number of the application.

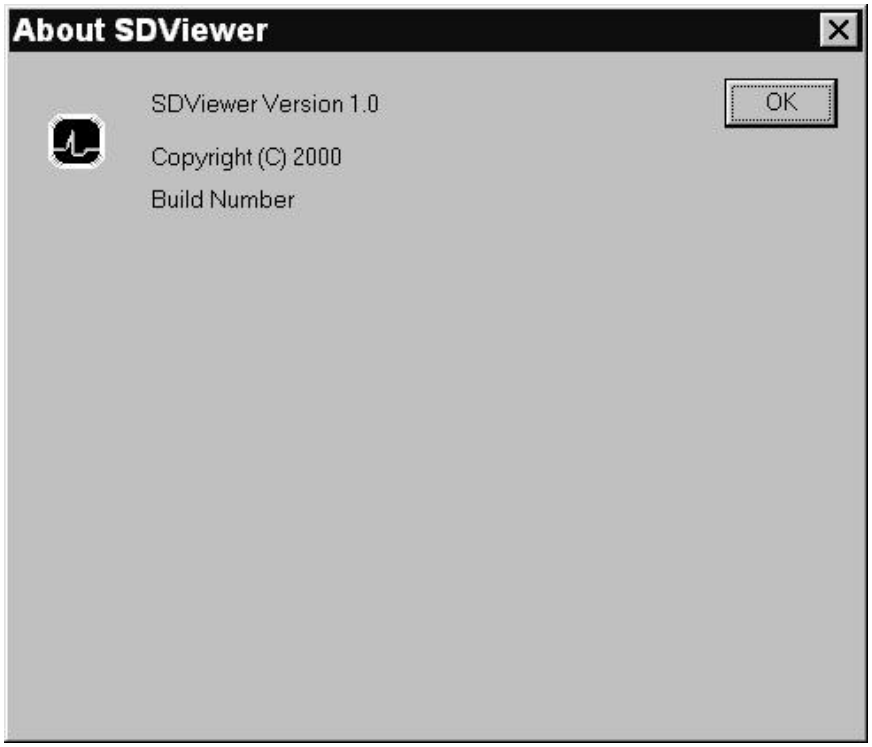

Figure 7-1. The About SDViewer Screen

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Spectral Dynamics

Puma Basic
Viewer Operating Manual

2400-0122A

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