

# **Analyzer Operating Manual**

## **Chapter - 1 Introduction**

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### **1.1 Introduction**

The Spectral Dynamics Analyzer allows the user to collect real time data, display real time waveform signals or play back previously recorded data and analyze all formats of data acquired.

This can be done at a sample rate of over 51 kps being input to as many as 16 channels that may be simultaneously sampled. Five different types of data signal output are available or the user may define a specific shaped broadband output. Also, five on-line controls allow the user to initiate actions to enhance or inhibit data flow including automatic input channel voltage range settings.

Channel setup parameters are defined for either a measurement or an inactive channel type with a sensitivity between one one-thousandth and one million units. Three triggering modes are possible on any input channel with external triggering available if required.

The status of any aspect of the test is easily accessed through on-line status monitors including a message log that records all test operations and operator commands.

Automatic acquisition of Modal data can easily be initiated and accumulated in three different storage formats including UFF. Swept sine analysis is accomplished through user-defined sweep range(s), resolution and reference profiles.

Analysis of the data is accomplished with five different FFT windows over nine frequency ranges between 50-20 k and six settings of frequency resolution between 100-32k. Up to a thousand different samples may be averaged with four different methods. The availability of an on-line analysis capability allows the user to view real-time displays of six different functions and to simultaneously overlay time histories of previously stored data.

Data storage is simple with 9.1 or 18 Gbyte removable SCSI disk drives. Retrieval of data is available from all functions including Modal playback or text files from the Message Log.

# Analyzer Operating Manual

## Chapter 2 - Getting Started

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### 2.1 Introduction

The Spectral Dynamics Computer Aided Test Suite (CATS) Vibration Controller program is called Puma. It can be started by either a desktop shortcut icon or through the Start button. The path is <Start> ⇒ **P**ROGRAMS ⇒ **S**PECTRAL TEST SUITE ⇒ **P**UMA.

#### 2.1.1 Log In

If the **Security** option (see paragraph 4.2.6) is in place the **User Log In** Dialog Box (Figure 2-1) appears. If there is no Security option the splash screen shown in Figure 2-2 will display. To access the features of the PUMA Vibration Controller program you must have a valid users name and password. See the system administrator for proper users name and passwords.

Enter a User Name and Password and click <LOG IN>. The Puma Version Splash Screen (Splash Screen) shown in Figure 2-2 will appear. The Splash Screen will disappear in several seconds (or can be dismissed by clicking on it) leaving the New Dialog Box (Figure 2-3) from which the desired application can be launched. Click on **ANALYZER**, and then click **OK**.

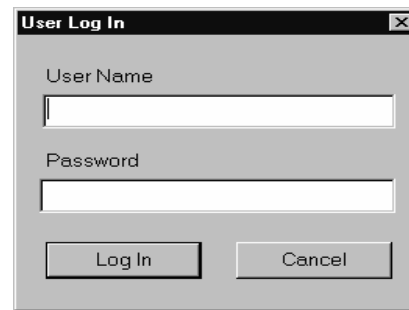


Figure 2-1. User Log In Dialog Box

The Puma-Local part of the background behind the **New Dialog** is the presentation offered when going from one application like Random to another such as Sine or in this case, Analyzer. After clicking **OK** a screen similar to the Analyzer Screen shown in Figure 2-4 appears. Exact screen layout is dependent on the parameters previously set with the menu options under Puma.

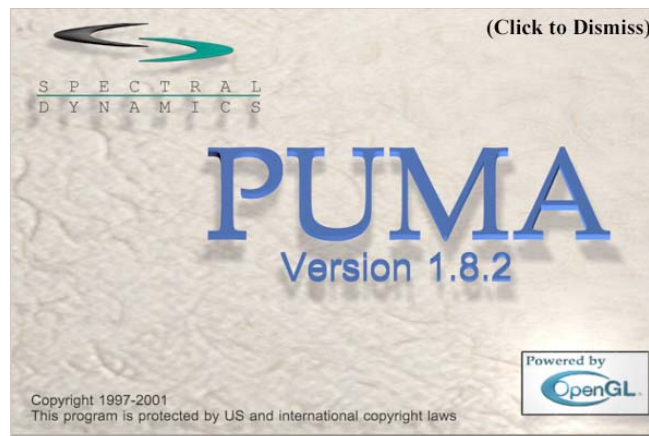


Figure 2-2. Puma Program Splash Screen



Figure 2-3. New Dialog Box

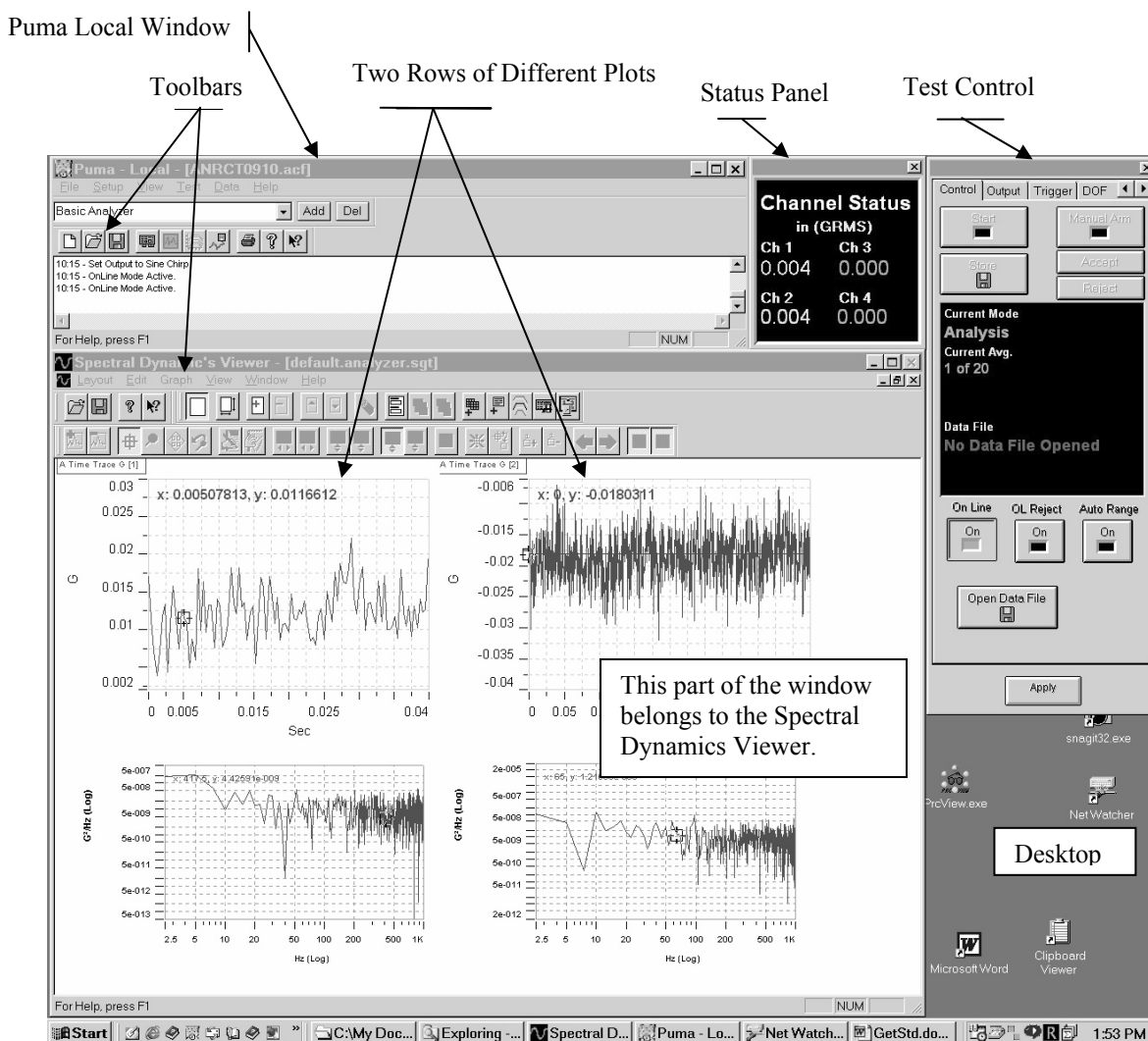


Figure 2-4. Default PUMA Analyzer Screen

### 2.1.2 Puma Window

The **Puma** Window's **Title Bar** displays three segments of information (**Puma —Local —Analyzer 1**). **Local** indicates the user is running on the Local Puma system and not across the network. **Analyzer 1** is the name of the currently loaded application. If the **Puma** window is inaccessible minimize or drag the **Spectral Dynamics Viewer** window out of the way. Click on the **Puma** Window to make it the active window to start the process of setting test parameters.

### 2.1.3 Analyzer Menus

The **Analyzer** Window's **Menu Bar** contains six menu selections used by the program. They are: **FILE**, **SETUP**, **VIEW**, **TEST**, **DATA**, and **HELP**. Each of these is discussed further within it's own chapter.

Using hotkeys can activate many of the menu selections. An underlined letter indicates the character to use in conjunction with the <ALT> key. For instance, use <ALT> + <F> to activate the **File** menu.

Select **LOG OUT** from the **FILE** menu when the system is unattended, and access to the program is to be restricted. The user must log in again to resume using the system. When logged in, the **LOG OUT** menu item is available (**LOG IN** is grayed out).

### 2.1.4 Setting Up Parameters

Initiating a test is done by either starting a new one from the very beginning or by running one that has already been predefined and saved to a file.

#### 2.1.4.1 New Test

The **SETUP** Menu options are presented in Chapter 4.

##### Procedural Steps

1. Click **SETUP = CHANNELS**. The Channel Definition Window appears. See Figure 2-5 and paragraph 4.2.1 for details.

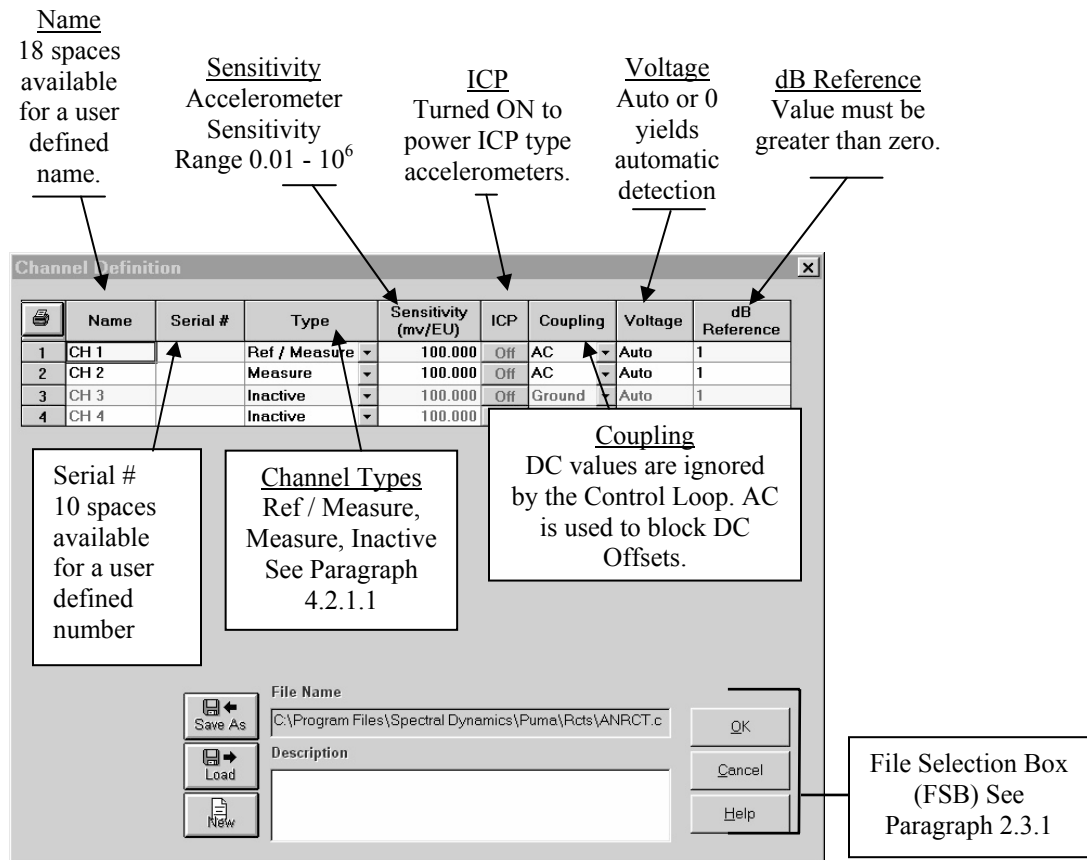
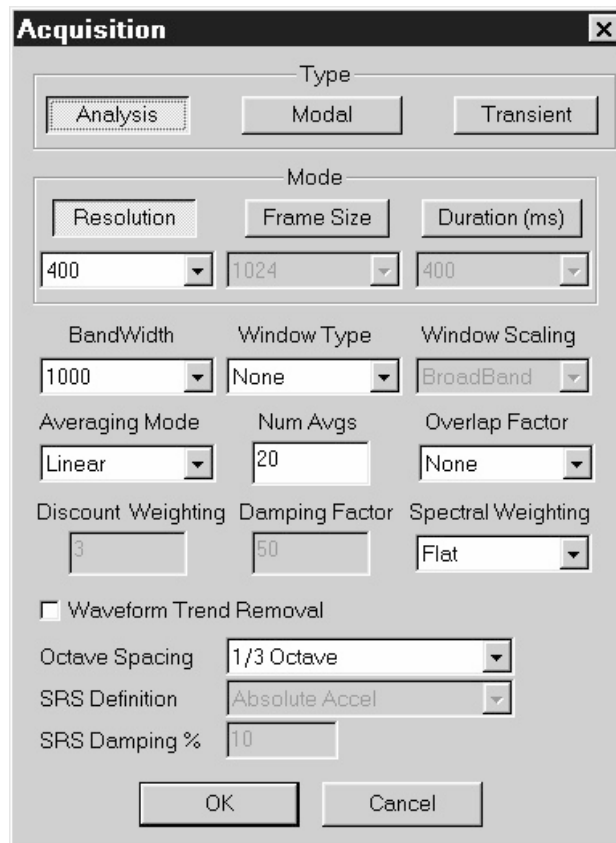


Figure 2-5. Channel Definition Window

- Input the required parameters and save them to a file.
- Click **SETUP** **ACQUISITION**. The Acquisition Dialog appears. See Figure 2-6. Refer to paragraph 4.2.2 for Acquisition information.
- Input the required parameters and save them to a file.
- If the test data is to be saved for use later, set up the parameters with the **CONTROLS** Menu **Test Settings** Dialog. Click **SETUP** **CONTROLS**. The **Test Settings** Dialog appears. See Figure 2-7.
- On the **Data Storage** or **Database** Index Tabs, input the required parameters and save them to a file.

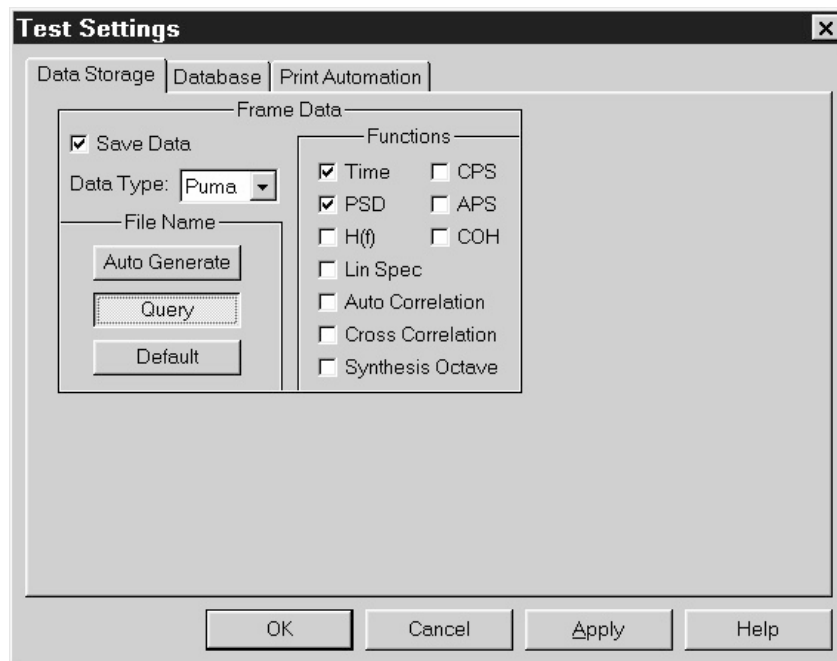
The test is now ready to run



The Acquisition Settings Dialog is a window with a title bar and a close button. It contains several sections of controls:

- Type:** Three buttons: Analysis (selected), Modal, and Transient.
- Mode:** Three buttons: Resolution, Frame Size, and Duration (ms). Below each button is a dropdown menu showing values: 400, 1024, and 400 respectively.
- BandWidth:** A dropdown menu showing 1000.
- Window Type:** A dropdown menu showing None.
- Window Scaling:** A dropdown menu showing BroadBand.
- Averaging Mode:** A dropdown menu showing Linear.
- Num Avgs:** A text box containing 20.
- Overlap Factor:** A dropdown menu showing None.
- Discount Weighting:** A text box containing 3.
- Damping Factor:** A text box containing 50.
- Spectral Weighting:** A dropdown menu showing Flat.
- Waveform Trend Removal:** An unchecked checkbox.
- Octave Spacing:** A dropdown menu showing 1/3 Octave.
- SRS Definition:** A dropdown menu showing Absolute Accel.
- SRS Damping %:** A text box containing 10.
- Buttons:** OK and Cancel at the bottom.

Figure 2-6. Acquisition Settings Dialog



The Test Settings Dialog is a window with a title bar and a close button. It has three tabs: Data Storage (selected), Database, and Print Automation. The main area is titled "Frame Data" and contains:

- Save Data:** A checked checkbox.
- Data Type:** A dropdown menu showing Puma.
- File Name:** A section with three buttons: Auto Generate, Query, and Default.
- Functions:** A list of checkboxes:
  - Time (checked), CPS (unchecked)
  - PSD (checked), APS (unchecked)
  - H(f) (unchecked), COH (unchecked)
  - Lin Spec (unchecked)
  - Auto Correlation (unchecked)
  - Cross Correlation (unchecked)
  - Synthesis Octave (unchecked)
- Buttons:** OK, Cancel, Apply, and Help at the bottom.

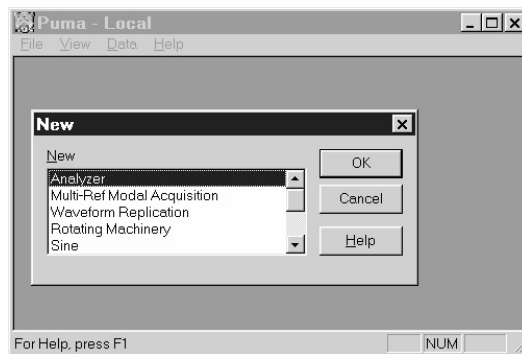
Figure 2-7. Control Menu's Test Settings Dialog

### 2.1.4.2 Existing Test

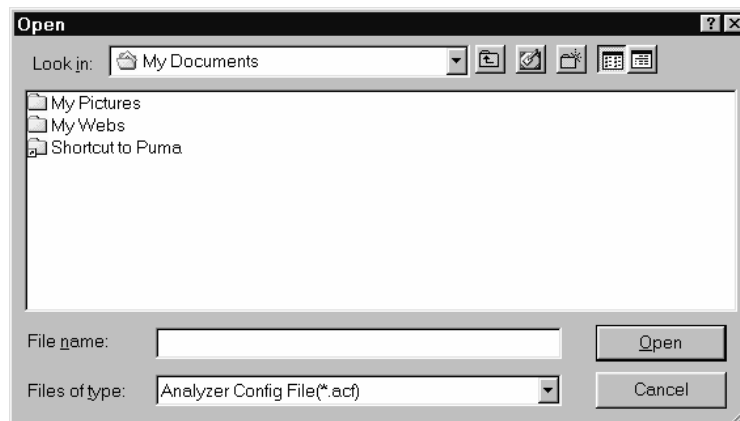
Procedural Steps for launching an Analyzer Test, though user may launch any application required.

1. Click **FILE** ⇒ **NEW**. The **New** Dialog Box appears. See Figure 2-8.
2. Click **ANALYZER** ⇒ **OK**. The screen defaults to the open log screen. See Figure 2-4.
3. Click **FILE** ⇒ **OPEN**. See Figure 2-9.
4. Select appropriate **Files of Type** filter from the drop down list box.
5. Select drive from the **Look In** drop down list box.
6. Select and open appropriate directory in the list box.
7. Select and open test file.
8. Click **<OPEN>** on the standard Windows File **Open** Dialog Box.
9. The Screen opens with the parameters that were set with the test initially. See Figure 2-10 as an example.

The test is ready to run.



**Figure 2-8. NEW Dialog Box**



**Figure 2-9. Results of File ⇒ Open**

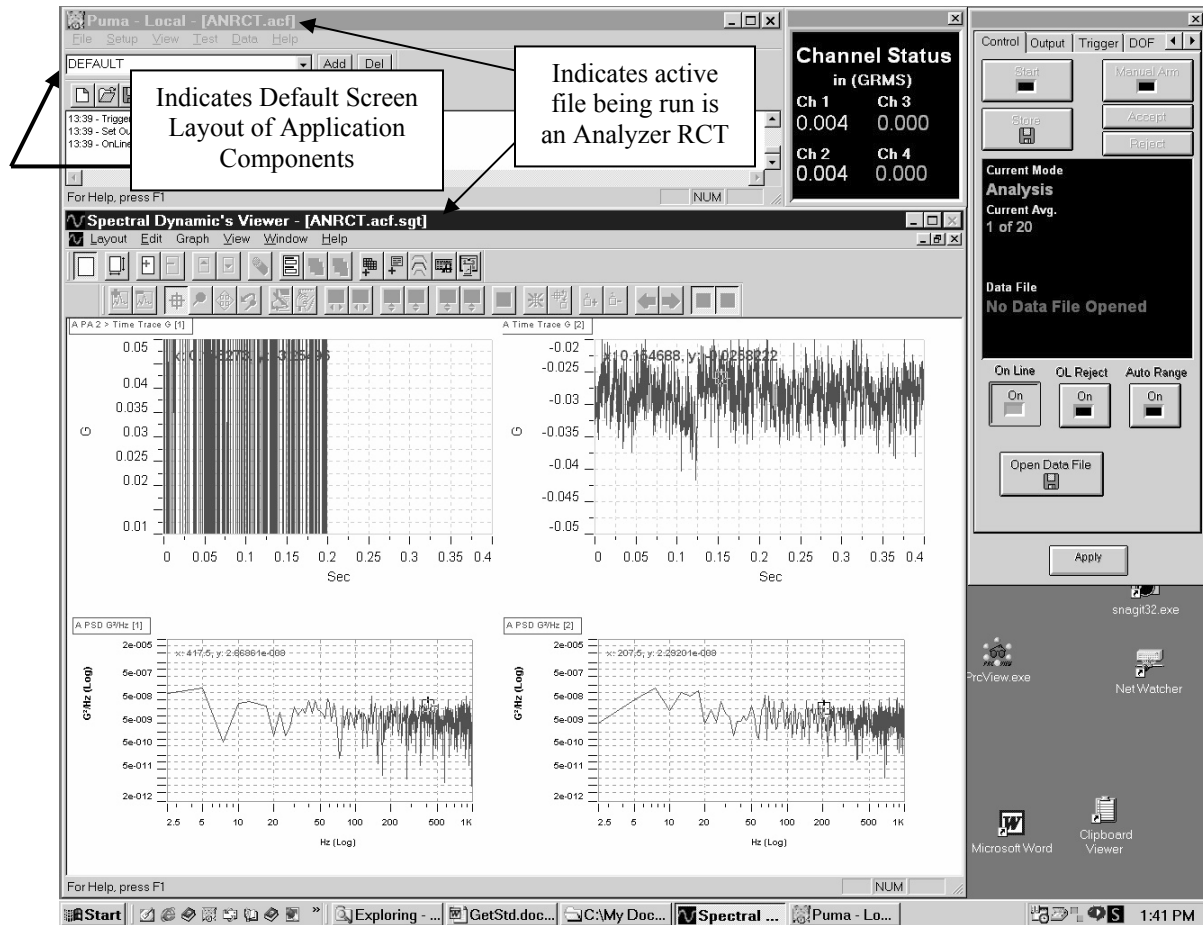


Figure 2-10. Typical Analyzer Test Setup Screen

## 2.2 Arranging Screen Components

While running PUMA there will always be at least two windows on the screen (**Puma** Window and the **Spectral Dynamics Viewer** Window). There can also be a test control and various status panels. The location of these components is completely customizable. The Desktop Toolbar in the Puma Local Window (Figure 2-11) allows multiple screen layouts to be saved and recalled.

In the example in Figure 2-11, “Default” is the screen layout name. To create a new layout, size the windows, arrange the plots, status panels and control as needed. Select the name in the Puma Desktop Toolbar and enter a new name. Click the save button. Saved layouts are available from the pull down menu button in the toolbar name box.



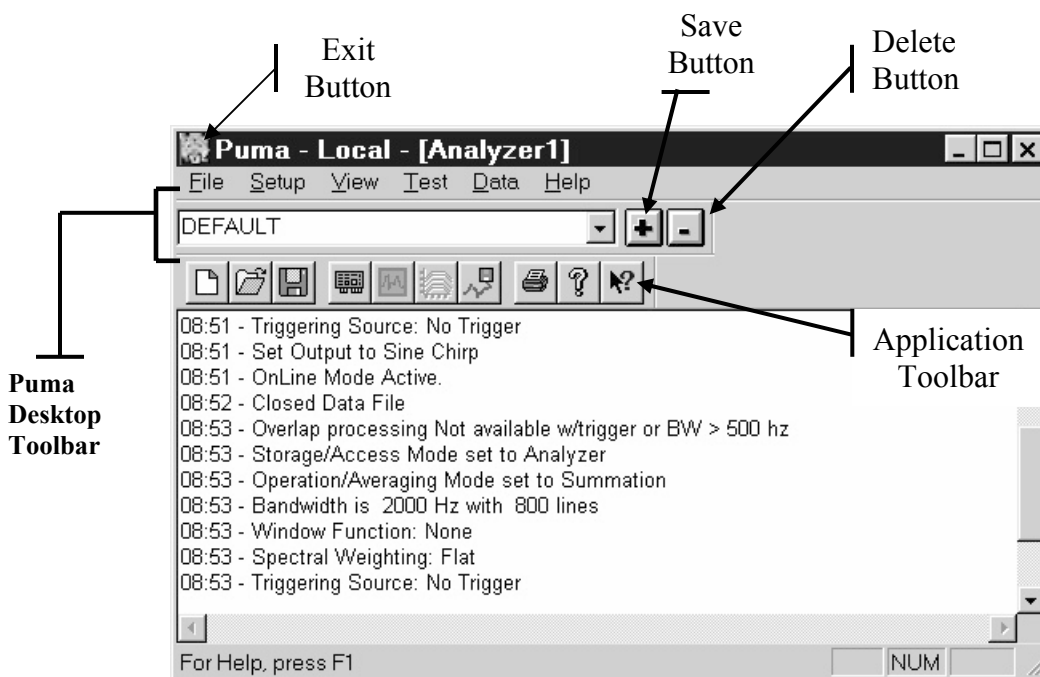


Figure 2-11. Puma Local Window

Clicking the Exit Button launches the **APPLICATION CONTROL MENU**. See Figure 2-12. This is a common Windows menu that can also be launched by right clicking the Title Bar. One set of options is available in the maximized window presentation. Another set of options is available from a restored size window.



Figure 2-12. Application Control Menus

## 2.3 Common Areas of Host Dialogs

The layout of dialog boxes sometimes differs from one menu option to another. Even though the command buttons may be in a different position they will work the same from one menu option or window to another.

### 2.3.1 File Selection Box

Throughout PUMA there is a need to save the parameters of tests, load those same parameters for another test or just start on something brand new. The File Selection Box (FSB) (Figure 2-13) is seen in Figure 2-5. It is a common Windows tool and is used throughout the PUMA platform though sometimes the format is somewhat different. The components of the FSB are outlined below for the primary setup areas of Channel Definition, Profile Settings and Schedule Setup.

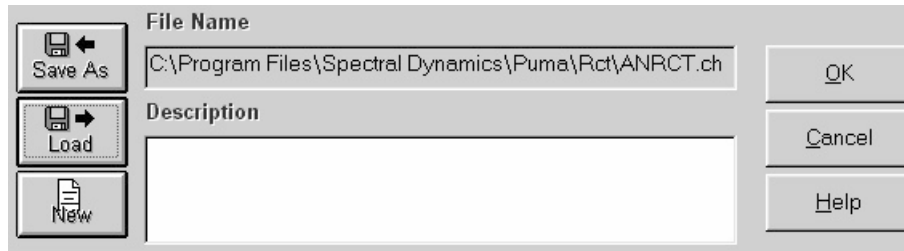


Figure 2-13. File Selection Box

#### 2.3.1.1 New Selection Command Button

- ☐ Channel Definition      The path / name of the currently open file is deleted from the File Name text box. It does not delete the numbers from any of the columns. It is **not** active during a test.
- ☐ Profile Settings      Clears all columns of data. It is **not** active during a test.
- ☐ Schedule Setup      Clears all columns of data. The path / name of the currently open file is deleted from the File Name text box. It is **not** active during a test.

#### 2.3.1.2 Load File Command Button

This button reacts the same way in all three parameter input areas. The **Open** Dialog Box is displayed for the user to choose a file to be loaded. All three areas are **active** during a test.

#### 2.3.1.3 Save As Command Button

This button also reacts the same way in all three parameter input areas. The **Save As** Dialog Box is displayed for the user to save a file. All three areas are **not** active during a test.

#### 2.3.1.4 OK Command Button

This button accepts any changes made, applies them and closes the **Open** Dialog Box.

#### **2.3.1.5 Cancel Command Button**

This button closes the **Open** Dialog Box without applying any changes that may have been made.

#### **2.3.1.6 Apply Command Button**

This button applies any changes that have been made and keeps the dialog box open.

#### **2.3.1.7 Help Command Button**

This button launches the on-line help. If a dialog box is open it must first be closed to launch the help menus.

## Chapter 3 - File Menu

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### 3.1 Introduction

The first of the six menu options in the PUMA Analyzer Application is the **FILE** Menu. Refer to following chapters for other menu options.

### 3.2 The File Menu

When the Analyzer is first launched the **FILE** Menu options available are different from those available after test parameters are input. Figure 3-1 displays those options. The menu options available after a test is started are shown in Figure 3-2. The **FILE** menu option has 16 sub-menus and a seven-file list (called a recent-file list) contained in a seven-section drop-down menu list. The recent-file list allows rapid access to files that have recently been used.

#### 3.2.1 File Sub-Menus

The sub-menus of the PUMA Analyzer File Menu option are outlined below.

##### 3.2.1.1 New Menu Option

When **NEW** is selected, the **New Option List Box** will display. See Figure 3-3. This will initialize the test parameter settings for the test application chosen. Only test applications that are licensed for the system will appear in the box. Available test applications could be:

- |                        |                    |
|------------------------|--------------------|
| ▪ Analyzer             | ▪ Sine             |
| ▪ Multi-Ref            | ▪ Random On Random |
| ▪ Modal Acquisition    |                    |
| ▪ Waveform Replication | ▪ Sine On Random   |
| ▪ Random               | ▪ Classical shock  |
| ▪ Rotating Machinery   | ▪ Shock Synthesis  |

# Analyzer Operating Manual

## Chapter 4 - Setup Menu

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### 4.1 Introduction

The **S**ETUP Menu is where all of the test parameters are entered for the Analyzer application test setup. In most of the test setup submenus the individual test settings may be saved in a separate file that may be recalled by another test setup to speed creation of subsequent tests.

### 4.2 Submenus

The following paragraphs give information about the five **S**ETUP submenu options available. See Figure 4-1.

#### 4.2.1 Channels

The **C**HANNELS Menu option produces a Channel Definition Window (Figure 4-2) that allows the user to:



Figure 4-1. Setup Menus

- ☐ Print a listing of the Channel Definition settings
- ☐ Open a new file
- ☐ Load a previously saved test/file
- ☐ Use the **Save As** option to name/save a file
- ☐ Accept default / user selected file names and initiate selected action
- ☐ Cancel selection / window
- ☐ Get Help

#### 4.2.1.1 Channel Definition

The **Channel Definition Window** options are described below.

##### **Name**

Up to 18 characters can be used to designate a unique user defined name for the channel.

##### **Serial #**

Up to 10 characters can be used to designate a unique user defined transducer serial number for the channel.

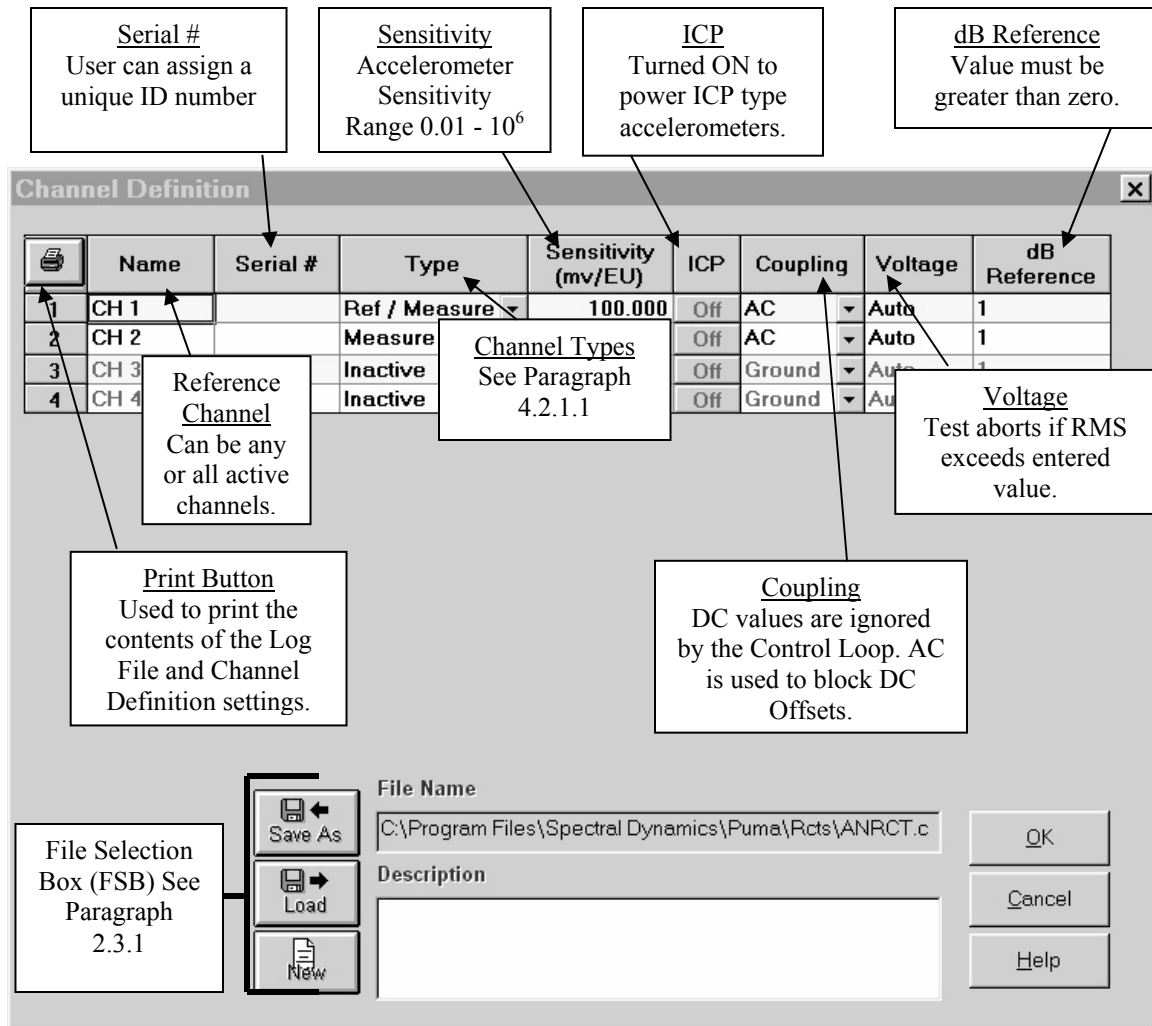


Figure 4-2. Channel Definition Window

**Type**

Select from three channel types:

- ☐ Inactive – Off. Contains no parameters / collects no data.
- ☐ Ref/Measure – Channel is designated as reference point channel. There may be multiple designations but at least one must be active.
- ☐ Measure –An active input channel not used in control averaging. Loop check is optional.

**Sensitivity mv/EU**

Accelerometer sensitivity is entered in milli-volts per EU. Range is 0.01 to 1,000,000.

**ICP**

The ICP function can either be **On** or **Off** (default). It provides a constant DC current source to power ICP type accelerometers. AC Coupling must be on to use this function.

**Coupling**

Input channel coupling:

- ❑ AC Coupling – A high pass filter with a 3dB cutoff point at 0.2Hz is used to block the DC component of the signal.
- ❑ DC Coupling – It is used to pass the DC component of the signal. DC values are ignored by the control loop.
- ❑ Ground Coupling – It grounds the input channel. This is used when the channel is inactive.

**Voltage**

The user may select **Auto** or a number between 0 - 10. Auto or zero indicates automatic detection.

**dB Reference**

This is the level used in displaying data from this channel on a dB scale,  $\text{dB} = 20 \log (\text{level}/\text{level}_{\text{ref}})$ . The field must be greater than zero and should be in a valid floating-point format.

## 4.2.2 Acquisition

The **ACQUISITION** menu option displays the **Acquisition Dialog**. See Figure 4-3. This window allows the user to select a different **Type** and **Mode** of data acquisition. Three of each is available.

### 4.2.2.1 Acquisition Types

*Analysis*

*Modal*

*Transient*

### 4.2.2.2 Acquisition Modes

The mode governs the duration, size of the data frames and the resolution. One setting determines the limits of the other two.

#### 4.2.2.2.1 Resolution

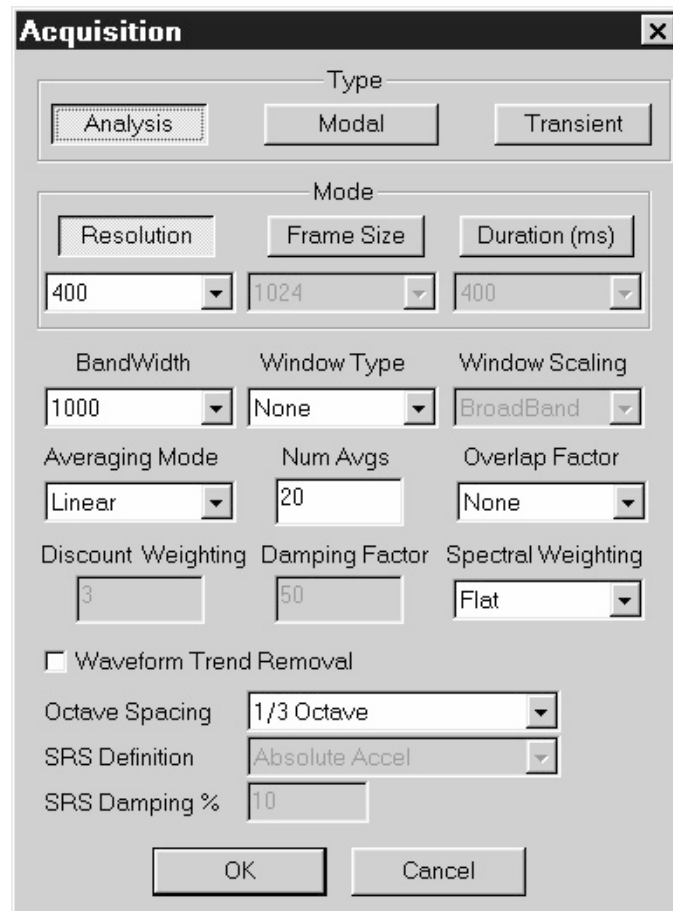
There are eight settings between 100 and 12,800 in ascending order; each is twice the amount of the prior setting. This setting determines how many calculated points there are within the bandwidth. A high resolution and a low bandwidth will slow the test but increase accuracy.

#### 4.2.2.2.2 Frame Size

There are eight settings. It starts at 256 and increments at that value until ending at 32,768.

#### 4.2.2.2.3 Duration (mS)

There are six settings between 50 and 1,600. Each one is double the previous in ascending order.



The Acquisition Window dialog box is titled "Acquisition" and contains the following settings:

- Type:** Analysis (selected), Modal, Transient
- Mode:** Resolution (400), Frame Size (1024), Duration (ms) (400)
- BandWidth:** 1000
- Window Type:** None
- Window Scaling:** BroadBand
- Averaging Mode:** Linear
- Num Avgs:** 20
- Overlap Factor:** None
- Discount Weighting:** 3
- Damping Factor:** 50
- Spectral Weighting:** Flat
- ☐ Waveform Trend Removal
- Octave Spacing:** 1/3 Octave
- SRS Definition:** Absolute Accel
- SRS Damping %:** 10

Buttons: OK, Cancel

**Figure 4-3. Acquisition Window.**



### 4.2.2.3 Other Parameters

#### 4.2.2.3.1 Bandwidth

The nine settings are;

50 | 100 | 200 | 500 | 1,000 | 2,000 | 5,000 | 10,000 | 20, 000.

#### 4.2.2.3.2 Window Type

The types available are:

NONE (default) - Used when all the data in a time a time record is used equally or uniformly.

HANN & BLACKMAN - Generally used for random or non-periodic signals.

CALIBRATION - Used for pure sinusoid input. It is corrected such that a sine wave input at any frequency produces the same spectral amplitude that it would have if no window were applied and the sine frequency fell exactly on one of the computed discrete spectral lines.

FORCE/IMPACT - Applied to the output of a transducer to avoid collecting extraneous signals caused by a device other than a hammer.

CORRELATION - This window must be used for AUTO or CROSS CORRELATION

These are for use in Analysis and Modal Type settings only.

#### 4.2.2.3.3 Window Scaling

The choices are BROADBAND or NARROWBAND.

#### 4.2.2.3.4 Averaging Mode

Averaging is a technique used to decrease system noise.

The choices are:

LINEAR - All data collected is treated equally in terms of the effect it has on the averaged result.

EXPONENTIAL - This requires a weighting factor, which either increases or decreases the effect of each new data block on the resulting average.

MAX. - The resultant block is a collection of points that represent the peak amplitude for each point. With each new block of data, the current data is compared with the new data on a point-by-point basis. The highest amplitude for each point in the block is retained.

#### 4.2.2.3.5 Num Avgs.

This is the number of averages the test will perform. This is the number of repetitive data samples collected.

#### 4.2.2.3.6 Overlap Factor

Choices are: None, 25%, 50%, 75% and Max.

#### 4.2.2.3.7 Discount Weighting

There are  $\frac{1}{w}$  averages used for the initial H(f) calculation. The  $\frac{1}{w}$  weighting factor is also used as an exponential discount factor for averaging the H(f) from loop to loop. The allowable range is 0.05 to 1.0.

#### 4.2.2.3.8 Damping Factor

Available only in **Force/Impact Type**. This is a percentage of the full-scale voltage available.

#### 4.2.2.3.9 Spectral Weighting

The choices are: Flat, A, B or C.

#### 4.2.2.3.10 Waveform Trend Removal

This checkbox allows the user to enable (checked) or disable (clear) the DC offset removal from the Acceleration Waveforms before they are integrated to Velocity and Displacement. It should normally be enabled for all cases except Classical Shock Reference where the imported waveform may not have final zero velocity / displacement.

#### 4.2.2.3.11 Octave Spacing

This label is for **Analysis** Type only. When using **Transient** Type the label reads SRS Spacing. The choices are:

$$\frac{1}{1} \quad \frac{1}{3} \quad \frac{1}{6} \quad \frac{1}{12} \quad \frac{1}{24}$$

#### 4.2.2.3.12 SRS Definition

Available only with **Transient** Type. The choices are: ABSOLUTE ACCEL (acceleration) or RELATIVE DISPLACEMENT the latter being based on a base of the single degree of freedom (SDOF) system.

#### 4.2.2.3.13 SRS Damping %

Available only with **Transient** Type. The value must be between 0.1% and 99.0%.

### 4.2.3 Transient Tolerances

The **TRANSIENT TOLERANCES** Menu Option is available for use with the Analyzer application of PUMA. Two primary reasons for performing a transient capture is for analysis of a transient data pulse or for the import of a captured pulse into the Analyzer program as a reference pulse.

The acquired data from the trigger and active channels, resulting from each capture event is called a data set. Data may be captured from a transient event or a continuous data stream. Captures from the data stream are only segments of the full stream.

#### 4.2.4 Tone Calibration

The **Tone Calibration** Dialog allows the user to set the Start / End Channels, the Calibration Type (dB Log or Linear), the Calibration Level, the dB Reference and the Channel Gain. The command buttons are: <CALIBRATE>, <DONE> and <STOP>. See Figure 4-4.

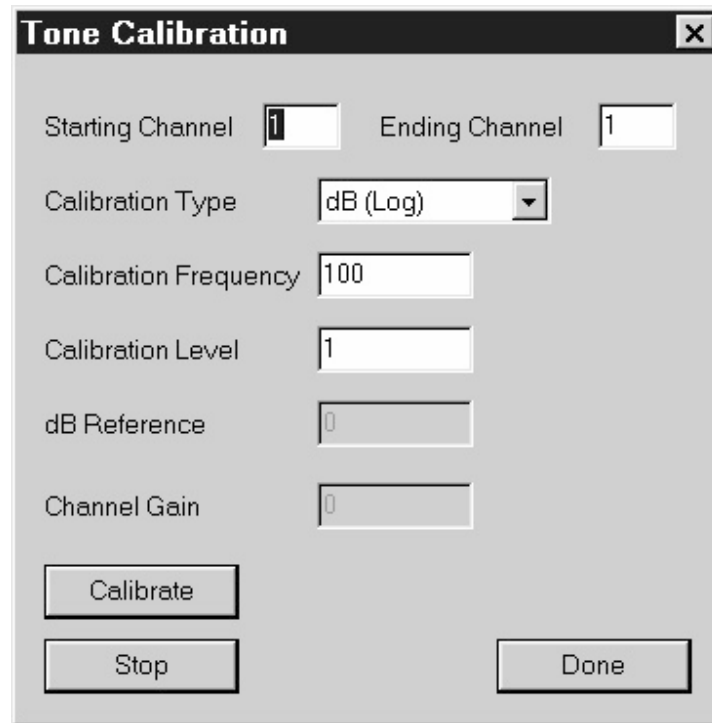


Figure 4-4. Tone Calibration Dialog

#### 4.2.5 Controls

The following paragraphs address the control windows accessible under the **CONTROLS** Menu. There are three tabs on the **TEST SETTINGS** Window. They are: **Data Storage**, **Database and Print Automation**. See Figure 4-5 thru 4-7.

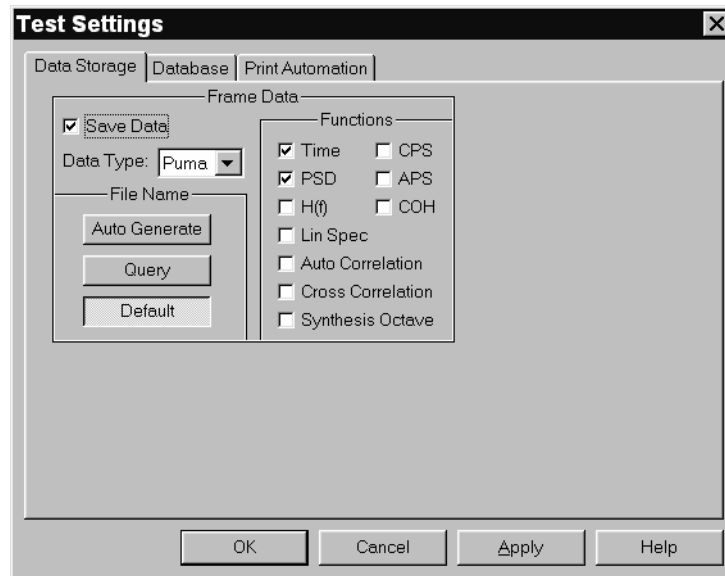
##### 4.2.5.1 Data Storage Tab

The Frame Data options are not available until the **Save Data** Checkbox is checked. The *Data Type* options are PUMA and UFF (**Universal File Format**). The File Name may be defined by the user using either an *Auto Generate* or *Query* option. If neither of those options are activated the file will be named by *Default* settings. Ten *Functions* are available for the user to collect data on.

*Auto Generate* - Creates a unique file name based on the setup file name, day, date and time that the test started.

*Query* - Prompts user for a file name after starting test.

*Default* – All test data is saved in a default file named *RandomTestData.sdd*. The default file is overwritten each time the test starts.



**Figure 4-5. Data Storage Tab of Test Settings Window**

#### 4.2.5.2 Database Tab

Storage is enabled on the **Database** Tab (Figure 4-6). The database is generated according to the parameters input on the **DBConfig** Dialog, (Figure 4-7) which is launched by clicking on the **<SETUP DATABASE>** Button. Once the database has been established, test runs may be added to it. With the **ENABLE STORAGE** Check Box checked, saved data frames will automatically be entered into the selected field(s) of the database as specified by the settings on the **Data Storage** Tab. The **Auto Generate** option is recommended for use with the database. See Figure 4-8.

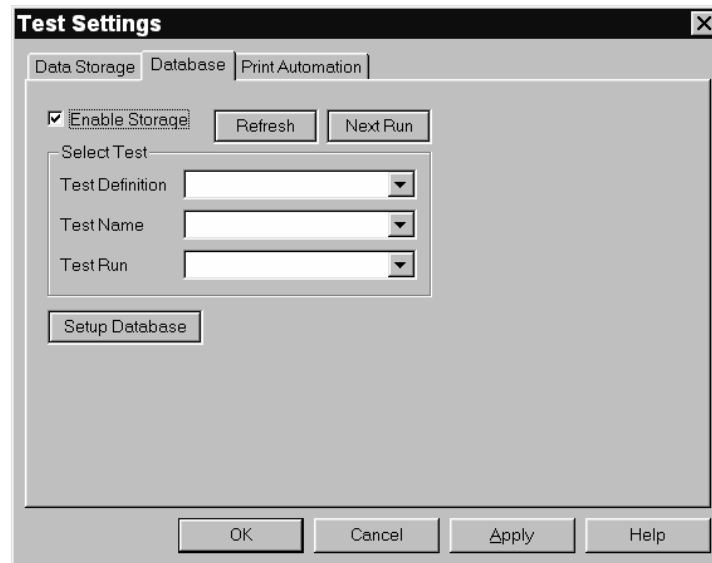


Figure 4-6. Database Tab of Test Settings Window

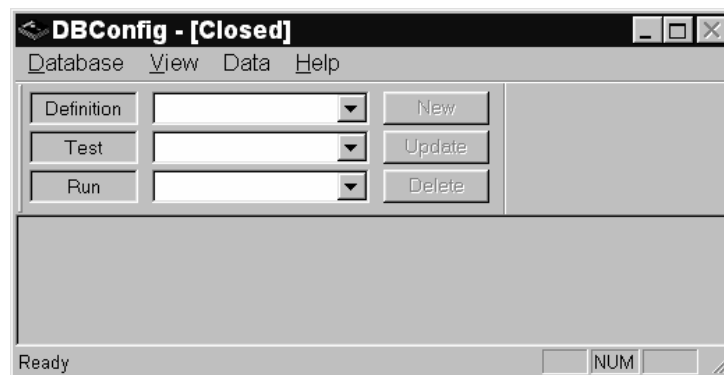


Figure 4-7. DBConfig Dialog.



Figure 4-8. Enable Storage Checkbox Notice

### 4.2.5.3 Print Automation Tab.

The **Print Automation** Tab (Figure 4-9) is an **optional feature** that allows the user to define a series of print layouts to be automatically printed at the end of each test. Depending on graphics options, each layout can be up to 8 pages.

#### ❑ Command Buttons

The *Add* and *Remove* buttons are used to build the table of print layouts from existing print layouts. The *Add* button is used to browse for a template file (.sgt).

The *Save* and *Load* buttons are used to load a previously generated database that may be wholly or partially integrated into the current database and saved as a new file.

#### ❑ Check Boxes

##### ENABLE PRINTING

The check box will enable /disable automatic printing at the completion of the test run.

##### AUTO SCALE

This scales the X and Y data to fit the graphs. Its use is recommended.

#### ❑ Radio Buttons

ALL FRAMES prints each frame of data saved during the test (see Data Storage above).

LAST FRAME prints only the final data frame of the test.

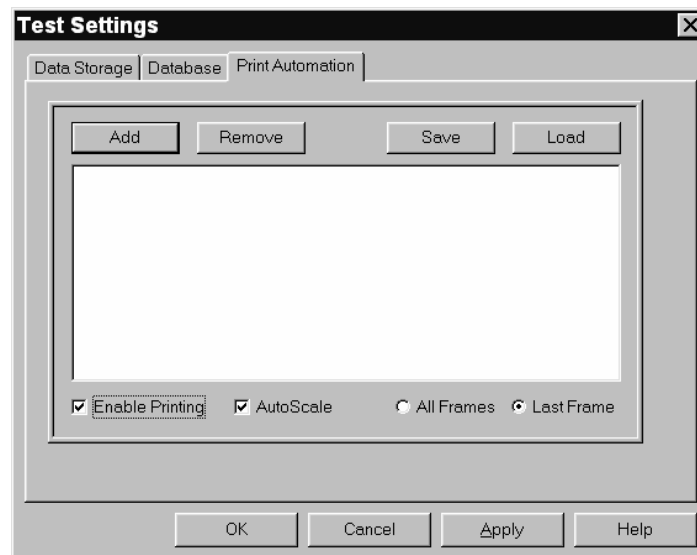


Figure 4-9. Print Automation Tab of Test Settings Window

## Command Buttons

<OK>	This button accepts the changes made and closes the dialog box.
<CANCEL>	This button cancels any changes made and closes the dialog box.
<HELP>	This button opens the on-line help option and enables the user to find answers to questions about the system / settings.

### 4.2.6 Security

The **SECURITY** Menu Option displays the **Update Security File** Window. See Figure 4-10. **This is a purchase option.** This window is used to install and update the security options by either adding or deleting employees names, their privileges or both. User privileges are added by highlighting the privilege in the **Privilege Table**.

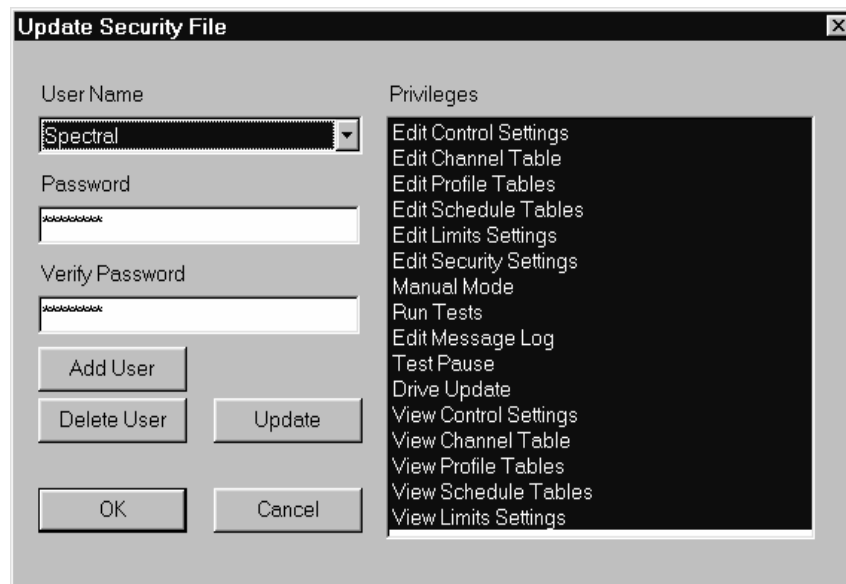


Figure 4-10. Update Security File Window

<u>N</u> ew	Ctrl+N
<u>O</u> pen...	Ctrl+O
<u>C</u> lose	
<u>S</u> ave	Ctrl+S
Save <u>A</u> s...	
Save As <u>D</u> efaults	
Print Setup...	
Print <u>P</u> review	
<u>P</u> rint...	Ctrl+P
<u>S</u> end...	
Log <u>I</u> n	
Log <u>O</u> ut	
System <u>L</u> ock	
System <u>U</u> nLock	
Recent File	
Defaults	
<u>E</u> xit	

**Figure 3-1. File Menu Options at Start UP**





Figure 3-2. File Menu Options During Test

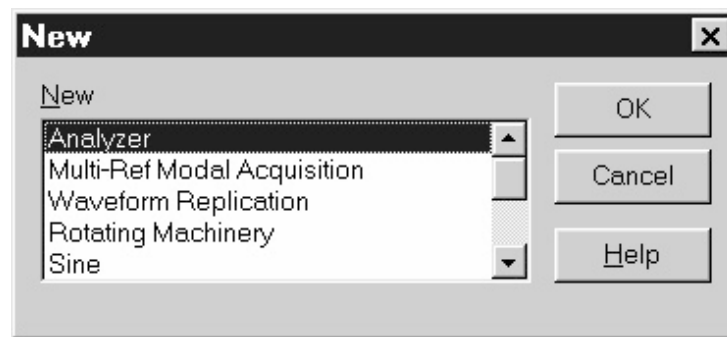


Figure 3-3. New Option List Box

Clicking on the **N**EW menu option and selecting another test while working on a test will initiate the display of a **S**AVE prompt unless there were no changes made to the currently selected test.

### 3.2.1.2 Open Menu Option

The **O**PEN menu option allows the user to select a previously stored test file. It displays a standard Windows **O**pen (file) **D**ialog **B**ox. The user can navigate to the desired file and open it. If the user wants to load a test type different from that currently being worked on, simply select the application and Puma will automatically launch it.

### 3.2.1.3 **C**lose Menu Option

The **C**LOSE menu option closes the currently loaded test setup. When **C**LOSE is clicked a **S**AVE prompt is displayed if the current test setup has had changes made to it. If no changes were made the currently displayed window will close.

### 3.2.1.4 **S**AVE Menu Option

When **S**AVE is clicked the standard Windows **Save As Dialog Box** appears. It allows the user to save the currently loaded test setup.

### 3.2.1.5 **S**AVE **A**S Menu Option

When **S**AVE is clicked the standard Windows **Save As Dialog Box** appears. It allows the user to save the currently loaded test setup.

### 3.2.1.6 **Save As Defaults**

*This option is no longer available in PUMA.*

### 3.2.1.7 **P**rint Setup

**P**rint **S**ETUP is a standard Windows command that allows the user to select a printer, the size and source of paper and the orientation of the page. These selections will affect how things are printed when the **P**rint option is used.

### 3.2.1.8 **P**rint **P**review

*This option is no longer available in PUMA.*

### 3.2.1.8 **P**rint

Click on **P**rint to launch the standard Windows **Print Dialog Box**. From here the user may select a printer, what is to be printed and how many copies are required. The option to print to a file is also available.

### 3.2.1.9 **S**end

**S**END is a standard Windows command for sending files / tests via e-mail.

### 3.2.1.10 **L**og **I**n

The **L**OG **I**N option is not available when the user is already using PUMA. It becomes available after logging out.

### 3.2.1.11 **L**og **O**ut

The **L**OG **O**U**T** option is only available when the user is logged in to PUMA.

### 3.2.1.12 **S**ystem **L**ock / **S**ystem **U**nlock

These two features come with the security options. When **S**YSTEM **L**OCK is selected, the system is locked and that option becomes disabled. The **S**YSTEM **U**NLOCK option is then enabled. To regain access to the program, the user must select **S**YSTEM **U**NLOCK. The **User Log In Dialog Box** will display and allow you to login.

### 3.2.1.13 Recent File List

The recent file list is a standard Windows feature that has been adopted for Puma. It allows the user quick access to the most recently used setup files that have been opened. These files are also available from the Windows Start menu. The path for usage is:

<Start> ⇨ **D**OCUMENTS ⇨ **F**ile Name

### 3.2.1.14 Defaults

*The **DEFAULTS** option is no longer available in PUMA.*

### 3.2.1.15 Exit

**ExIT** is a standard Windows command. Clicking on this command will cause the current window to close and the application will terminate.

## 3.2.2 Menus Not Available During The Test

While a test is running, not all of the **FILE** Menu options are available for use. The unavailable **FILE** Menu options during a test are:

- |                                    |                                  |                         |                                  |                                   |                             |
|------------------------------------|----------------------------------|-------------------------|----------------------------------|-----------------------------------|-----------------------------|
| ▪ <b>S</b> A <u>V</u> E A <u>S</u> | ▪ <b>P</b> R <u>I</u> N <u>T</u> | ▪ <b>S</b> E <u>N</u> D | ▪ <b>L</b> O <u>G</u> <b>I</b> N | ▪ <b>S</b> Y <u>S</u> TE <u>M</u> | ▪ <b>D</b> E <u>F</u> AULTS |
| <u>D</u> E <u>F</u> AULTS          | P <u>R</u> E <u>V</u> IEW        |                         |                                  | <u>U</u> NLOCK                    |                             |

# Analyzer Operating Manual

## Chapter 5 - View Menu

---

### 5.1 Introduction

When **V**IEW is selected from the Menu Bar, the image shown in Figure 5-1 will display. The checkmarks indicate items that will be seen either in a window or on the desktop during the test. If the menu appears like the one seen in Figure 5-2 the menu belongs to the PUMA Local Window and an analyzer file must be loaded through one of the following paths:

**FILE**⇒**OPEN**⇒Appropriate Directory⇒File Name⇒<**OPEN**> or

**FILE**⇒**NEW**⇒**ANALYZER**⇒<**OK**>

The number of channels being monitored depends on the package purchased. There can be 4, 10 or 16 channels available.

### 5.2 View Submenus

Each of the remaining **V**IEW submenu items are described next

#### 5.2.1 Toolbar

The **T**OOLBAR buttons are shortcuts for various menu items. The first three, and the last three, are standard Windows Toolbar Buttons. These are described in your Windows documentation. Information for the middle four buttons, **SETUP CHANNEL TABLE**, **DATA ACQUISITION**, **SETUP TRANSIENT TOLERANCES**, and **TEST CONTROLS**, can be found later in this chapter. See Figure 5-3.

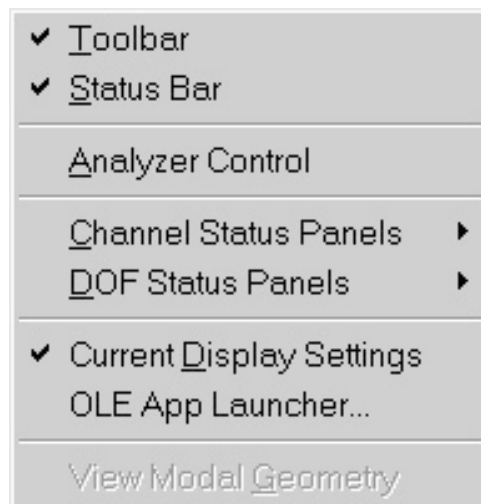


Figure 5-1. **V**iew Menu

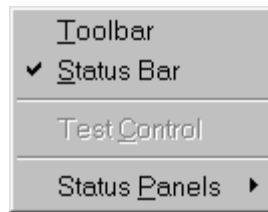


Figure 5-2. Puma Local View Menu

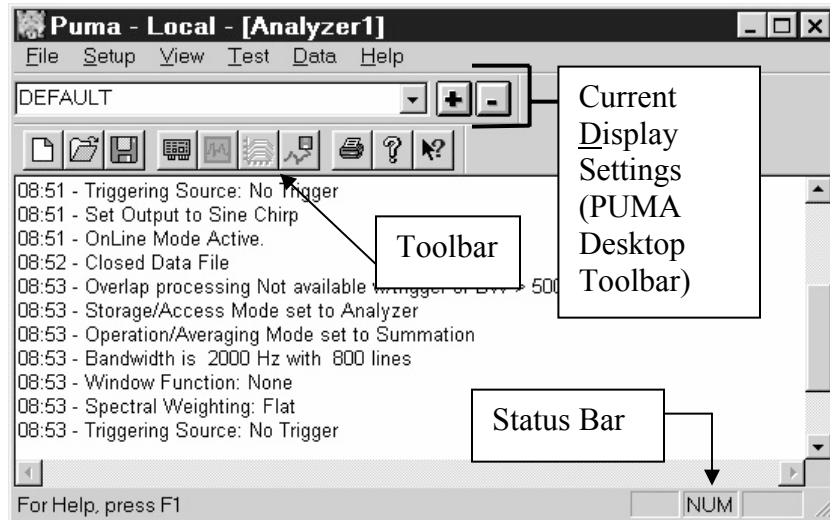


Figure 5-3. Toolbars and Status Bar

## 5.2.2 Status Bar

The **STATUS BAR** gives information about various activities currently running on the system. A message displays whenever the cursor touches a shortcut icon. It also has three boxes that act as text boxes to indicate certain functions are available. Refer to the Windows documentation for more information.

## 5.2.3 Analyzer Control

When **ANALYZER CONTROL** is selected from the **VIEW** menu, a Test Control showing one of its five tabs will display. See Figures 5-4 through 5-8. Each tab is described in the following paragraphs. Each tab has various buttons, sliders and text boxes used to control the test.

### 5.2.3.1 Control Tab

The Control Tab control elements are described below. See Figure 5-4.

### Start/Stop Button

Select the <**Start/Stop**> button to begin the currently loaded test as it was defined in the **SETUP** Menu options.

### Manual Arm Button

This button is enabled with the settings selected on the **Trigger** Tab. Click the <**Manual Arm**> button to activate the trigger event.

### Store

Click the <**Store**> button to manually save the current frame of data to a file.

### Accept / Reject Buttons

If the Arming Mode is set to **Manual** on the **Trigger** Tab, these buttons will be enabled. One of these buttons must be selected if a trigger event has occurred.

### Log Window

The Log Window displays information about the currently running test. The information displayed is listed under headings relating to test parameters applied either from one of the Test Control Tabs or from **SETUP** Menu Submenus.

Current Mode - This setting is done at **SETUP** ⇒ **ACQUISITION** ⇒ **Type**

Current Average - This setting is done at **SETUP** ⇒ **ACQUISITION** ⇒ NumAvgs

Data File - Lists the name of the current test file selected with the **Open/Close Data File** Button below the window.

DOF Table File - Lists the mode of the current test file's DOF Table

DOF Set - Lists the name of the current test file's DOF Set

There is an <Up> and <Down> button available for the user during **Modal** Type Data Acquisition as defined in the **SETUP⇒ACQUISITION** Menu.

### On Line Button

Select the <**On Line**> button to activate the online averaging capabilities. A green light indicates the button is active.

### OL Reject

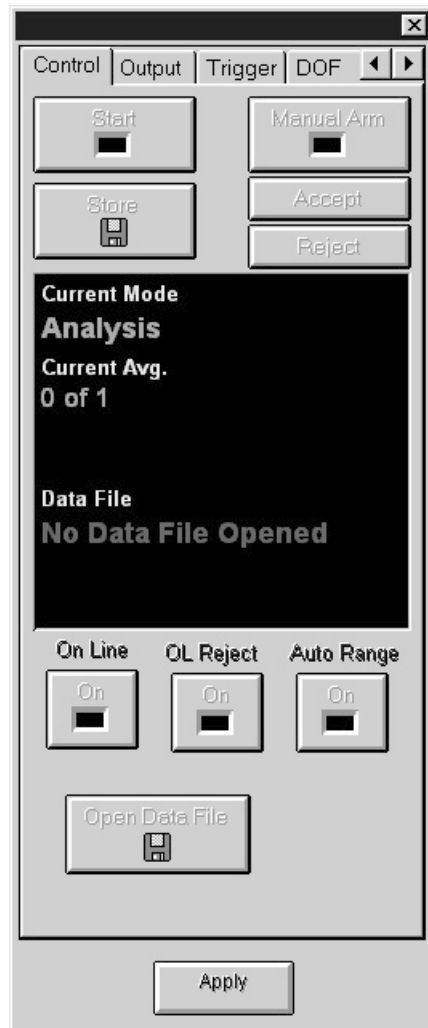
Select the <**OL Reject**> button to enable the automatic rejection in the event of an overload on an input channel. A green light indicates the button is active.

### Auto Range Button

Select the <**Auto Range**> button to turn on the auto ranging capabilities. A green light indicates the button is active.

### Open / Close Data File Button

Select the <**Open / Close Data File**> button to navigate to a new test file to be loaded or close the current test file.



**Figure 5-4. Analyzer Control  
Showing the Control Tab**

### 5.2.3.2 Output Tab

The Output Tab control elements are described below. See Figure 5-5.

#### Type Drop-Down List

The user may select from a list of six types of output. They are:

OFF SINE SINE CHIRP RANDOM PSEUDO USER  
(Random) DEFINED

Table 5-1 displays which **Type** activates which text box.

### On / Off Switch

Turns waveform generator on or off.

### Frequency Text Box

Enabled with Sine or Sine Chirp in Type Drop Down List.

### Burst Taper Text Box

Enabled with Random, Pseudo (Random) and User Defined Types. In order to minimize the start up and shut down transients caused by a burst random event, the waveform generation allows the user to specify a sine<sup>2</sup> tapering function to be applied to the beginning and end of the burst event. The taper is defined as a percentage of the burst duration. The pulse taper has a range of 0 - 50% of the burst duration size.

### Delay Text Box

Enabled with Random, Pseudo (Random) and User Defined Types. Controls the delay between bursts. Range is 0 - 32ms.

### Waveform Duration (%)

Enabled with Random, Pseudo (Random) and User Defined Types. The time duration of the burst. It is a percentage of the maximum allowable duration for the sampling rate.

### Output Scale Slider

The user may adjust the active waveform output with any Type setting except OFF. The full scale is  $\pm 12$  volts peak.

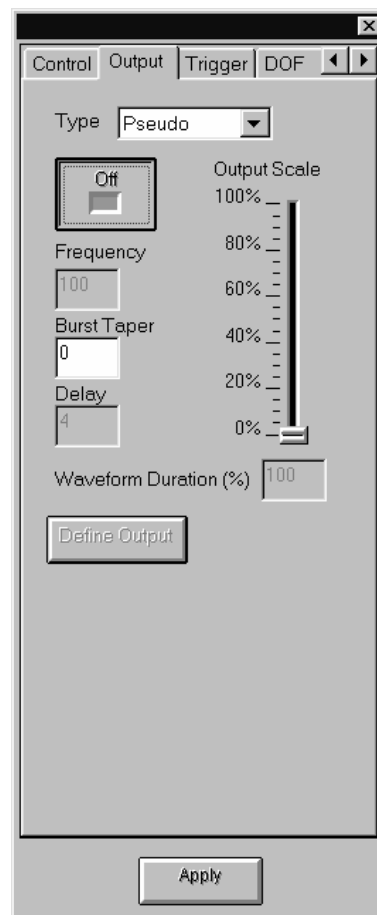
### Define Output Button

If the Type is set to User Defined the user is allowed to define the output parameters by launching the **Output Shape** Dialog. See Figure 5-5. Define the frequency and level, and then save the data in an output shape file (.osh).

A = Active I = Inactive		Frequency	Burst Taper	Delay	Waveform Duration
Type	OFF	I	I	I	I
	SINE	A	I	I	I



	SINE CHIRP	A	I	A	I
	RANDOM	I	A	A	A
	PSEUDO	I	A	A	A
	USER DEFINED	I	A	A	A



**Figure 5-5. Analyzer Control  
Showing the Output Tab**

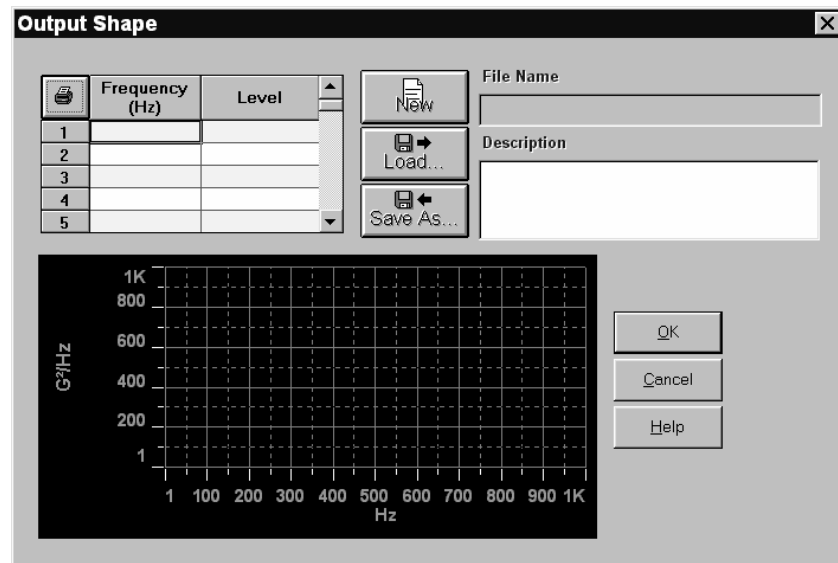


Figure 5-6. Output Tab's Output Shape Window

### 5.2.3.3 Trigger Tab

The Trigger Tab control elements are described below. See Figure 5-7.

#### Source Drop-Down List

User choices include:

**FREE RUN** - Data is continually acquired at the selected sample rate for the number of samples indicated in the **Num Avgs** box on the **Acquisition** Dialog.

**EXTERNAL** - Data is acquired time relative to a TTL input signal on the dedicated **EXT TRIG** input.

**System Channels.** - Internal triggering on the channel number designated.

#### Slope Button

User may set slope option for **RISING** or **FALLING**. The selection dictates whether increasing or decreasing voltage will serve as the trigger.

#### Threshold Text Box

Allows user to set a threshold value. Any signal exceeding the threshold voltage will become the trigger. The threshold is either an integer percentage (-99% to + 99%) or a 1/100th mV increment of the available range (1 to 2K mV).

#### Delay Text Box & Measurement Units Button

Allows user to set a delay measured in either milliseconds or percentages of frames between the trigger and the start of data collection.

### Triggering Button

The options are *Pre-Trigger* or *Post-Trigger*. Allows the user to store the result into the data frame before or after the trigger event. The time element value is set in the **Delay** Text Box.

### Duration Text Box

Displays duration of test. This is pre-set at **SETUP** ⇒ **ACQUISITION** ⇒ **Mode** ⇒ **Duration**.

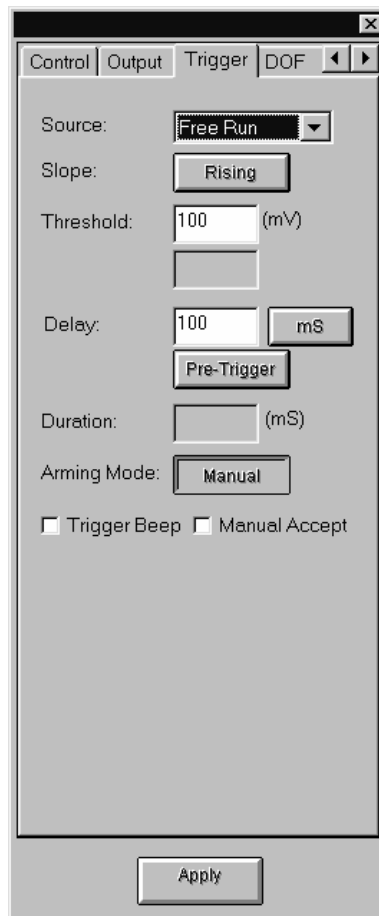
### Arming Mode Button

Allows user to set MANUAL or AUTOMATIC mode of triggering.

### Check Boxes

*Trigger Beep* - Initiates an audible alarm when trigger conditions are met.

*Manual Accept* - This allows acceptance of the last frame of data in averaging.



**Figure 5-7. Analyzer Control  
Showing the Trigger Tab**

#### 5.2.3.4 DOF Tab

The DOF (Degrees Of Freedom) is the confidence factor related to a statistical measurement. The DOF Tab control elements are described below. See Figure 5-8.

##### Response DOF Processing

*Drop-Down List* - The user may choose:

NONE - There is no automation. Enter location and direction for each input channel in the channel table. (SETUP⇒CHANNELS)

AUTO - Automatically increments the response channel's location number by the increment specified. This allows the acquisition of banks of channels without the requirement to enter the location number for each channel of each set.

TABLE - If the numbers are not located sequentially or the user is employing a roving hammer the option exists for entering the location, channel label, direction and status of each input channel for each set of channels in separate channel tables. After the data for each set is collected, the system will automatically go to the next channel table set.

**Reset Button** - Allows the user to reset the DOF input to the Channel Table Setup.

##### Auto Increment Section

*Location Start Text Box* - Active when Response DOF Processing is set to AUTO.

*Location Direction Drop-Down Box* - Active when Response DOF Processing is set to AUTO. Allows the user to set X, Y or Z parameters.

*Location Increment Text Box* - Active when Response DOF Processing is set to AUTO.

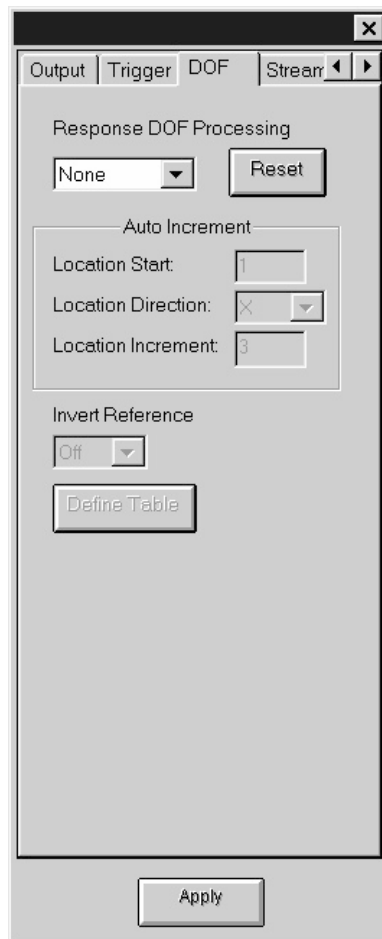
Every time data is saved the location number is specified in the channel table and the **Location Increment** will increase each response channel. The **Location Start** and **Location Direction** numbers will be taken from the channel table for each input channel.

##### Invert Reference Drop-Down List

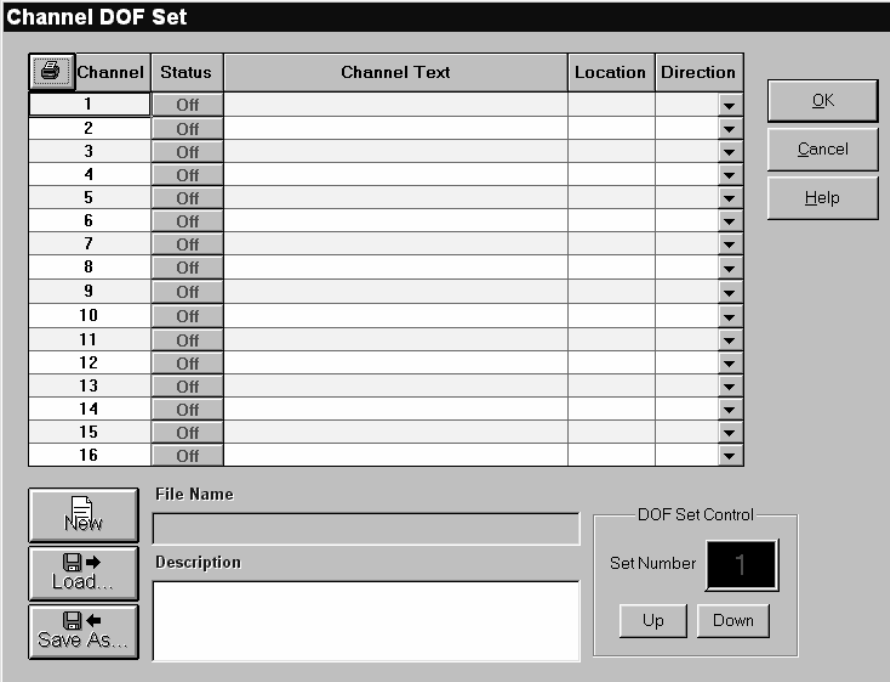
The Invert Reference option is either ON or OFF. When on, it inverts the reference and the response channels when calculating the FRF's.

##### Define Table Button

Active only when the Response DOF Processing is set to TABLE. Allows the user to define multiple sets of channel tables in a **Channel DOF Set** Dialog prior to the start of data acquisition. See Figure 5-9. Every time data is saved it will automatically recall the next channel table set. As a result, the transducers can be moved to the next set of locations and the user will not have to enter the new location(s) for each input channel.



**Figure 5-8. Analyzer Control  
Showing the DOF Tab**



The dialog box is titled "Channel DOF Set". It contains a table with 16 rows, each representing a channel. The columns are Channel, Status, Channel Text, Location, and Direction. All channels are currently set to "Off". To the right of the table are buttons for OK, Cancel, and Help. Below the table, there are three buttons: New, Load..., and Save As... Next to these buttons are input fields for File Name and Description. To the right of these fields is a "DOF Set Control" section with a "Set Number" field showing "1" and "Up" and "Down" buttons.

Channel	Status	Channel Text	Location	Direction
1	Off			
2	Off			
3	Off			
4	Off			
5	Off			
6	Off			
7	Off			
8	Off			
9	Off			
10	Off			
11	Off			
12	Off			
13	Off			
14	Off			
15	Off			
16	Off			

**Figure 5-9. Channel DOF Set Dialog.**

### 5.2.3.5 Stream Tab

Disk streaming allows the very rapid collection of data using a SCSI interface. The Stream Tab control elements are described below. See Figure 5-10.

#### Play Button

This allows the user to play back and analyze data obtained by the streaming-to-disk data storage method.

#### Record Button

This allows the user to record a test to the SCSI interface for later playback.

#### Pause Button

Allows a pause while recording or playback of a test.

#### Transfer Button

This will transfer data between the host drive and the SCSI interface. Because raw data is stored on the SCSI interface, a transfer from SCSI to the host drive is required after recording in order to save the data to a file. Stopping a recording session and starting another will delete all previously recorded information.

#### Step Button Slider

Allows the user to choose the following increments:

$\pm\frac{1}{8}$   $\pm\frac{1}{4}$   $\pm\frac{1}{2}$   $\pm 1$   $\pm 2$   $\pm 4$   $\pm 8$

The selected increment is displayed in the text box just below the slider.

### **Step Button**

Initiates the test with the incremental value residing in the text box to the right.

### **Test Time Text Boxes**

Displays the elapsed test time.

### **Marker Setup Button & Drop-Down List**

Clicking the button launches the **Marker Properties Window**. See Figure 5-11.

### **Set Marker Button**

This sets a break point marker in the data.

### **Go To Marker Button**

Allows the user to find a specific marker.

### **SCSI Info Section**

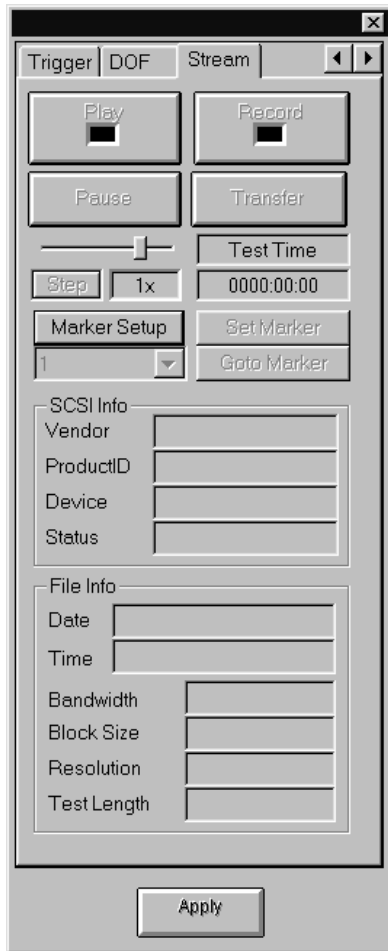
The four text boxes are labeled: *Vendor*, *ProductID*, *Device* and *Status*. They assist the user in keeping track of the scuzzy device being used. The **Status** Text Box indicates either recording or playback mode.

### **File Info Section**

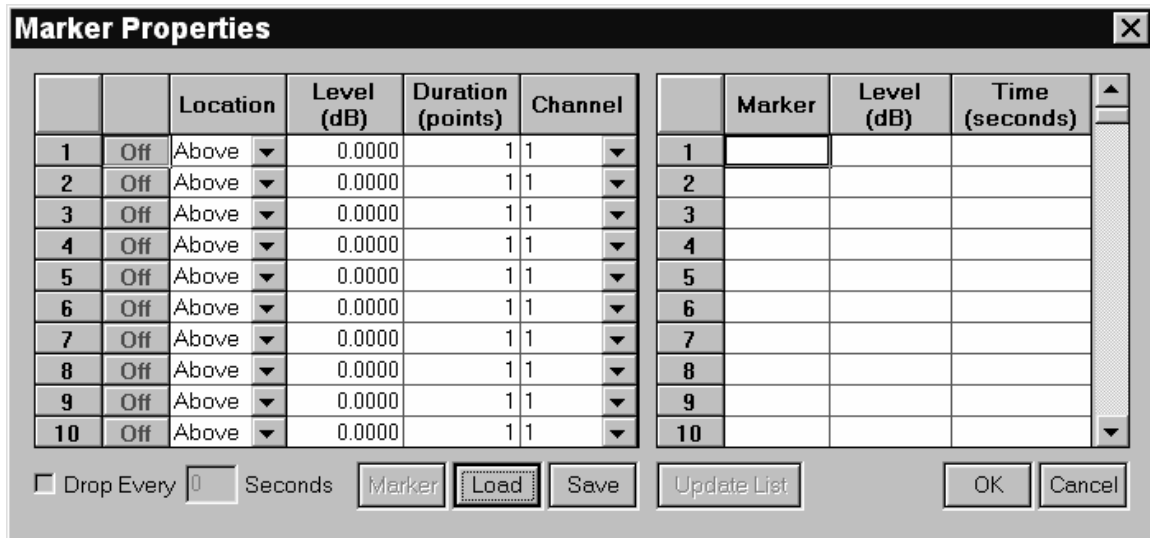
The six text boxes are labeled: *Date*, *Time*, *Bandwidth*, *Block Size*, *Resolution* and *Test Length*. This information makes up the header of the file being worked with.







**Figure 5-10. Analyzer Control  
Showing the Stream Tab**



**Figure 5-11. Marker Properties Window**

### 5.2.4 Channel Status Panels

When the **C**hannel Status Panels option (**C**hannels **1** to **4**, **C**hannels **5** to **8**, etc. to include 32 channels) is selected, a Channel Status Panel similar to that shown in Figure 5-12 will display.

The panel(s) displays GRMS information about the channels being used in four-channel increments. The measurement is rounded to the nearest one thousandth.

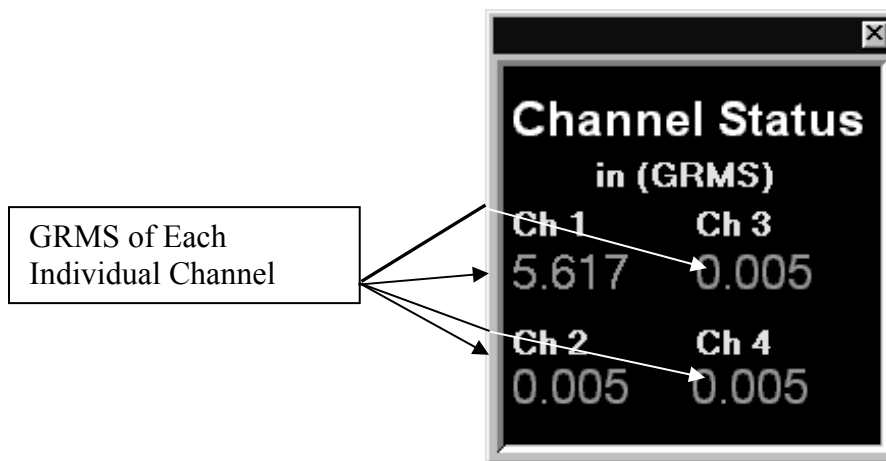


Figure 5-12. Typical Channel Status Panel

### 5.2.5 DOF Status Panels

When the **D**OF STATUS PANELS option is selected from the **V**IEW menu, a panel similar to that shown in Figures 5-13 will display. This panel gives information about the level of the currently loaded test. Two panels, each containing eight channels each are available for use.

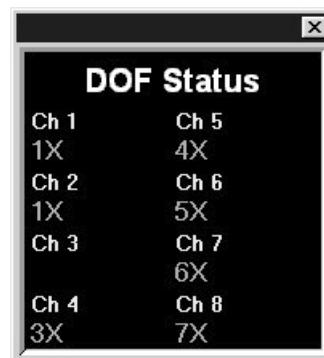


Figure 5-13. Typical DOF Status Panel

### 5.2.6 Current Display Settings

When the **CURRENT DISPLAY SETTINGS OPTION** from the **VIEW** menu is selected, a set of controls consisting of a text box with a drop-down list, an add (+) button and a delete (-) button are displayed. These controls reside between the menu bar and the tool bar and are also called the **PUMA Desktop Toolbar**. See Figure 5-2. When selected, each item in the list will arrange the desktop in a previously defined layout. Each template listed has its particular components that are laid out in a specific arrangement. The user can modify each template and arrange the screen components to suit their needs.

### 5.2.7 OLE App Launcher

This is a link to the folder holding any active-x applications written by the user. After the test is running, clicking on the **OLE APP LAUNCHER** Menu Option of the **VIEW** menu will cause the **OLE App Launcher** Dialog (Figure 5-15) to appear.

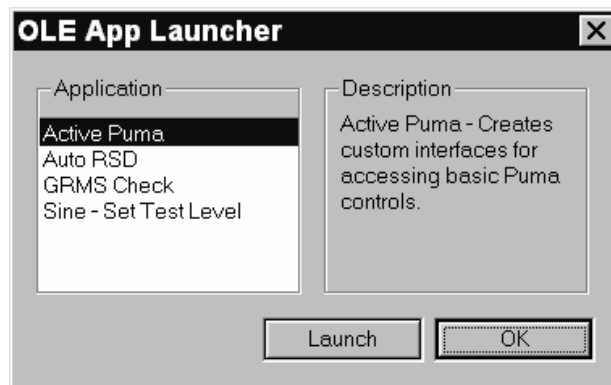


Figure 5-15. OLE App Launcher Dialog

The following table displays the description for each of the other three applications that may be chosen.

Auto RSD	Provides a quick and easy way to run Resonance Search & Dwell Tests.
GRMS Check	Aborts a test when a low GRMS value is detected.
Sine - Set Test Level	Sets the current test level when in manual mode.

### 5.2.8 View Modal Geometry

This option will allow the user to view the mathematics used to construct the test.

# Analyzer Operating Manual

## Chapter 6 - Test Menu

---

### 6.1 Introduction

When the Analyzer Application is first started and the **TEST** Menu option is selected from the Menu Bar, the image shown in Figure 6-1 displays. After the test begins, the options change as shown in Figure 6-2. If the test is terminated and a different file is sought through the NEW Menu Option, the menu options available to the user are shown in Figure 6-3. Most of these commands can also be issued from the Analyzer Control. See Chapter 5.



Figure 6-1. The **Test** Menu Options Prior To A Test

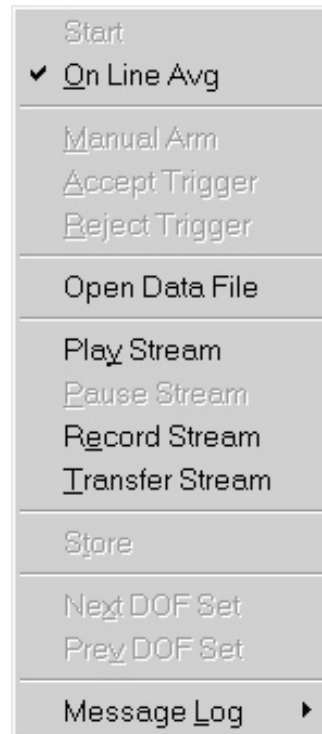


Figure 6-2. The Test Menu Options During A Test



Figure 6-3. Result of New Menu Option

## 6.2 Test Submenus

Each of the items on the **T**EST menu is described in the following paragraphs.

### 6.2.1 Start

The **S**TART menu option starts the test if either of two criteria has been met:

- ❑ A previous test file has been loaded
- ❑ Test parameters have manually been input for all phases of the test.

### 6.2.2 On Line Avg

The **O**N LINE AVG Menu Option

### 6.2.3 Manual Arm

The **M**ANUAL ARM Menu Option allows the user to take manual control of the test so that parameters other than the ones originally started with can be used.

### 6.2.4 Accept Trigger

The **A**CEPT TRIGGER Menu Option allows the user to accept the trigger input.

### 6.2.5 Reject Trigger

The **R**EJECT TRIGGER Menu Option allows the user to reject the trigger input.

### 6.2.6 Open Data File

The **O**PEN DATA FILE menu option allows the user to open a different data file to be worked on.

### 6.2.7 Play Stream

The **P**LAY STREAM menu option allows the user to play a previously recorded SCSI data file.

### 6.2.8 Pause Stream

The **P**AUSE menu option stops the test and waits for a command to continue or stop

### 6.2.9 Record Stream

The **R**ECORD STREAM menu option allows the user to record the current data stream to a SCSI drive.

### 6.2.10 Transfer Stream

The **T**RANSFER STREAM option allows the user to transfer data from the SCSI drive to the hard drive to be saved.

### 6.2.11 Store

The **S**TORE menu option allows the user to save the data to a file.

### 6.2.12 Next DOF Set

The **NEXT DOF SET** allows the user to use the next set of DOF parameters in the test.

### 6.2.13 Prev DOF Set

The **PREV DOF SET** allows the user to use the preceeding set of DOF parameters in the test.

### 6.2.14 Message Log

The **MESSAGE LOG** is the file of information that being generated and is displayed as the test is running. The **MESSAGE LOG** submenu has submenus of its own. See Figure 6-3. There is a **PRE-TEST** and **POST-TEST DUMP** and a **MESSAGE PRIORITY** selection with three submenus of its own. The submenus are discussed below.

#### 6.2.14.1 Message Priority

Message Priority The three levels of Message Priority are **High**, **Medium** and **All**. While it is highly recommended that the default (All) is used, the other choices are offered for those users that continually run the same test or repeat a number of cycles of the same tests and do not need to see all the log file messages



Figure 6-4. Message Log Sub-Menus

# Analyzer Operating Manual

## Chapter 8 - Help Menu

### 8.1 Introduction

When the Spectral Dynamics Analyzer **H**ELP Menu Option is selected, the menu shown in Figure 8-1 will display. This menu consists of **H**ELP TOPICS and **A**BOUT PUMA.

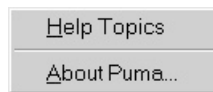


Figure 8-1. The Help Menu

#### 8.1.1 Help Topics

The **H**ELP TOPICS option launches the Welcome Page of the online help application. See Figure 8-2.

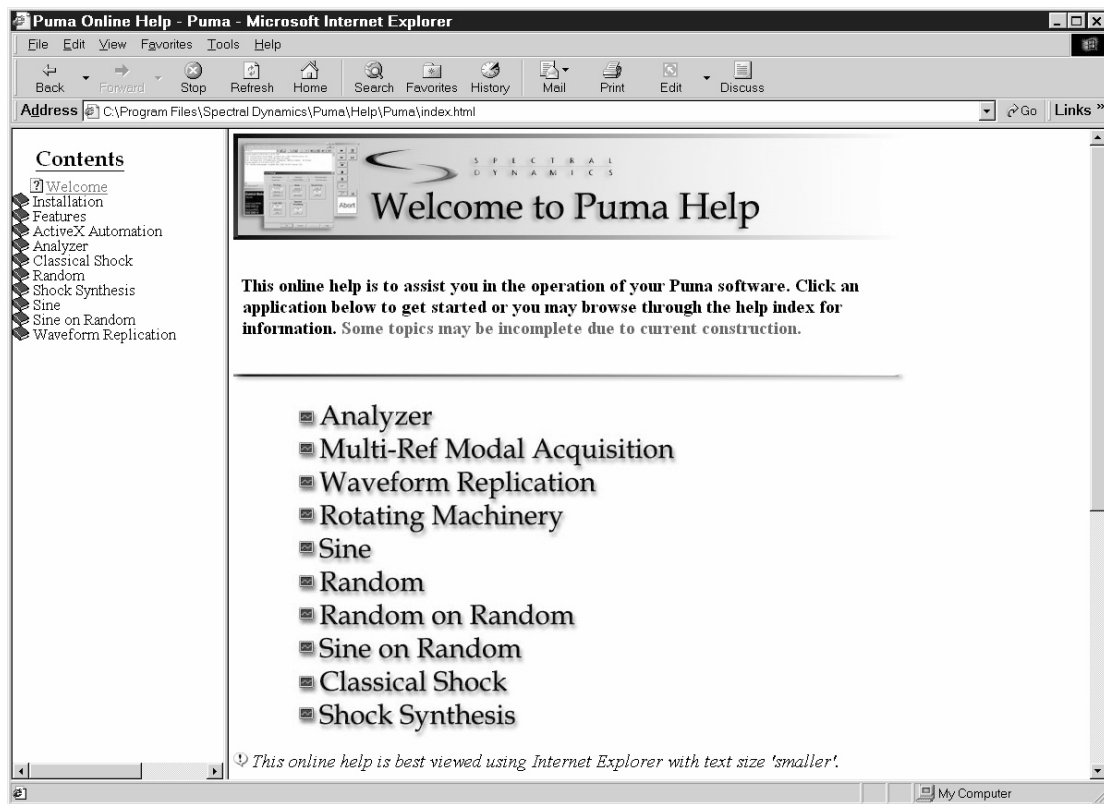
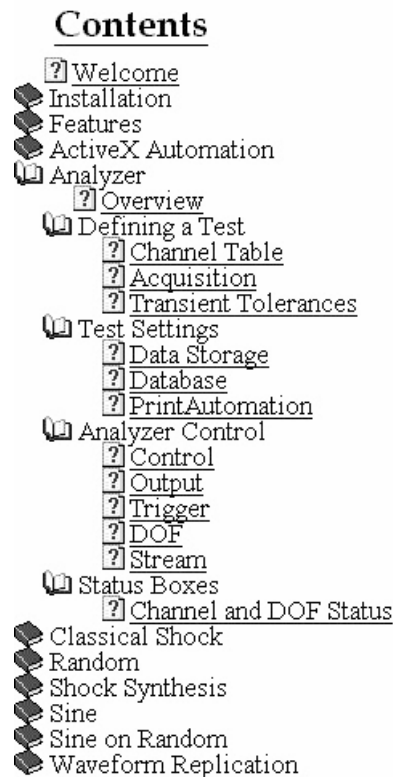


Figure 8-2. Help Topics Online Welcome Page



### 8.1.1.1 Contents Pane

The **Contents** Pane (Figure 8-3) allows the user to view all of the online help subjects within each application. Each category is introduced by a closed book symbol. Double clicking on the book will open it and display two types of sub-category options. One option is another closed book indicating further sub-categories. The other sub-category option is a page with a question mark on it. Double clicking on this will display the information dealing with the subject. The Analyzer's **H**ELP file can display three levels of information.

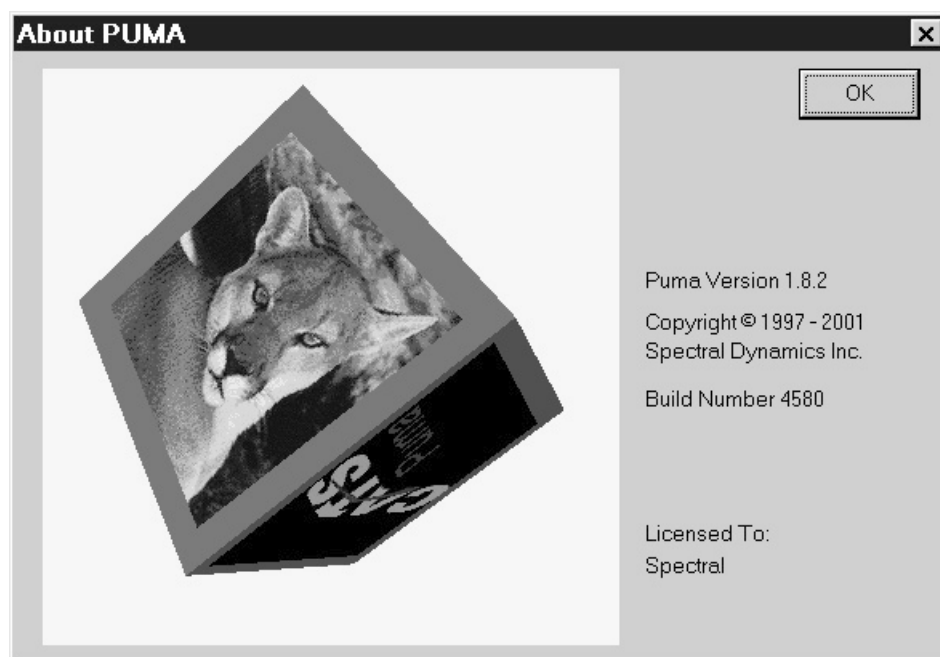


**Figure 8-3. Help Topics  
Contents Pane Listing**

The main difference between this pane and the main one is that the user can jump around to anywhere within the online **H**ELP topics of any of the applications in the Contents Pane. Navigating the topics in the main pane only allows the user to advance or go back one frame at a time with one exception. An underlined word(s) indicate a link to another subject. The user can click this link to view the information. From here the Forward Arrow  $\Rightarrow$  will advance the user one frame forward but the Backward Arrow  $\Leftarrow$  returns the user to the original starting place.

## 8.3 About PUMA

The About PUMA Window (Figure 8-4) features a rolling, bouncing cube with pictures of a Puma and the CATS PUMA logo. The right side of the window displays version and build information along with copyright information.



**Figure 8-4. The About Puma Screen**

# Analyzer Operating Manual

## Chapter 7 - Data Menu

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### 7.1 Introduction

When you select the DATA option from the Menu Bar the menu shown in Figure 7-1 will display.



Figure 7-1. The Data Menu After Launching The Analyzer Application

The DATA menu consists of: **D**ISPLAY, **C**HOOSE **R**EPORT, **F**ILE **S**UMMARY **I**NFO, **G**IM **I**MPORT/**E**XPORT and **S**UMMARY.

### 7.2 Data Submenus

All of the DATA Menu items are described next.

#### 7.2.1 Display

The **D**ISPLAY option is not available until after the testing begins.

#### 7.2.2 Choose Report

The **C**HOOSE **R**EPORT option activates an **O**PEN Dialog Box similar to the **S**AVE**A**S Dialog Box, which allows the user to search for and select the file that contains the required report. See Figure 7-2.

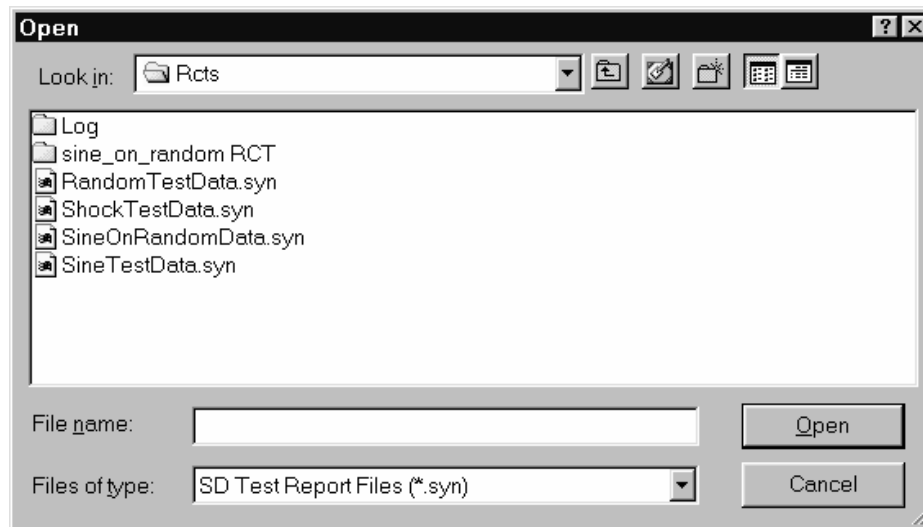


Figure 7-2. Results of Selecting **D**ata ⇒ **C**hoose **R**eport

### 7.2.3 File Summary Info

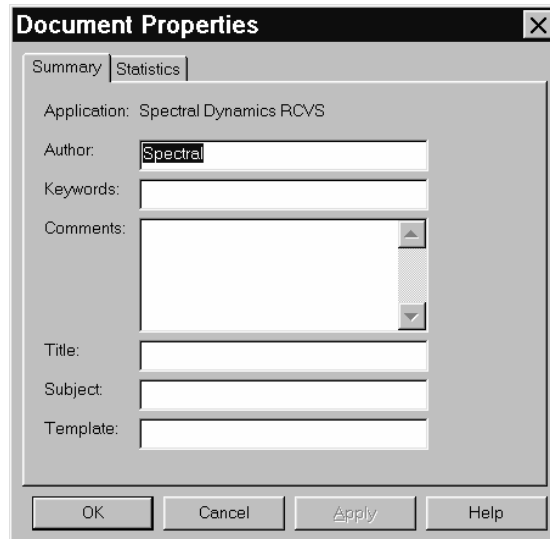
When the **F**ILE **S**UMMARY **I**NFO option is selected, the **D**ocument **P**roperties Dialog Box shown in Figure 7-3 will display. It has two index tabs, labeled: **S**ummary and **S**tatistics, which are described next. At the bottom are the standard Windows buttons <OK>, <Cancel>, <Apply>, and <Help>. For information about these buttons see your Windows documentation.

#### 7.2.3.1 Summary Tab

The **S**ummary Index Tab contains seven fields. The first field Application, names the software program that is currently loaded. The other six fields Author, Keywords, Comments, Title, Subject and Template allow you to add summary information.

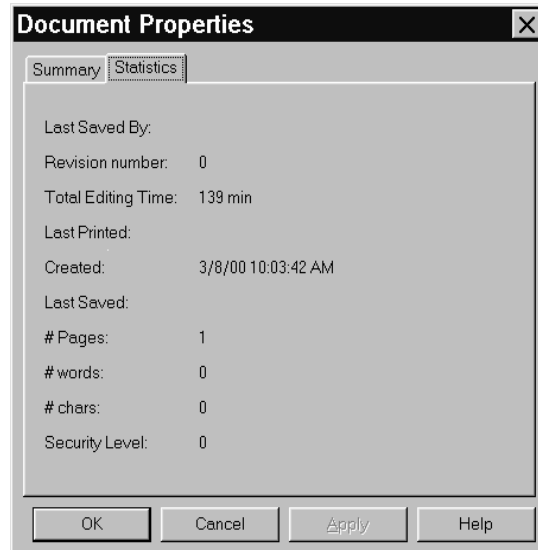
#### 7.2.3.2 Statistics Tab

Figure 8-4 displays the **S**tatistics Index Tab information. It lists ten lines of basic information about when the file was created, how large it is, and so forth.



The image shows the 'Document Properties' dialog box with the 'Summary' tab selected. The dialog has a title bar with a close button. Inside, there are two tabs: 'Summary' and 'Statistics'. The 'Summary' tab contains the following fields: 'Application: Spectral Dynamics RCVS', 'Author: Spectral' (text box), 'Keywords: ' (text box), 'Comments: ' (text area with scrollbars), 'Title: ' (text box), 'Subject: ' (text box), and 'Template: ' (text box). At the bottom, there are four buttons: 'OK', 'Cancel', 'Apply', and 'Help'.

**Figure 7-3 Document Properties Dialog Box**



The image shows the 'Document Properties' dialog box with the 'Statistics' tab selected. The dialog has a title bar with a close button. Inside, there are two tabs: 'Summary' and 'Statistics'. The 'Statistics' tab contains the following information: 'Last Saved By:', 'Revision number: 0', 'Total Editing Time: 139 min', 'Last Printed:', 'Created: 3/8/00 10:03:42 AM', 'Last Saved:', '# Pages: 1', '# words: 0', '# chars: 0', and 'Security Level: 0'. At the bottom, there are four buttons: 'OK', 'Cancel', 'Apply', and 'Help'.

**Figure 7-4. Statistics Index Tab**

#### 7.2.4 Puma Local Data Menu Option

Upon initial launch of Puma if no application has been launched and the **D**ATA Menu Option is selected the available choices are shown in Figure 7-5.



**Figure 7-5. Puma Local Menu  
Options Prior to Selecting An Application**