



NAVIGATING VISA 6.0

Getting Started

Features of VISA 6.0

- User-friendly interface: quickly and easily navigate through tools necessary to quantify and isolate jitter and other timing anomalies.
- Getting started Wizard
- Menu structure/ toolbars/ adding Tools and Views
- Saving Files: Settings and Measurement data
- Macros
- Annotations and Printing plots with summary information

Introduction

This guide introduces a new user to the basic controls and features of Virtual Instruments Signal Integrity Software (VISA) version 6.0. Refer to the user's manual and the Help files provided in the VISA software for more detailed information on the VISA 6.0 functions and features. Other Getting Started Guides describe each tool in detail, including setup, theory of operation and making measurements.

Opening VISA 6.0

On first opening the VISA 6.0 program, the Getting Started Wizard window will appear (see Figure 1). The initial wizard screen presents the user with three choices. The user can either setup a measurement with the help of the wizard or open a tool that was previously saved. The users may also Cancel out of the Wizard window and navigate through the VISA tools on their own.

The Getting Started Wizard

The Getting Started Wizard presents different statements, options or questions concerning the signal being tested. This question tree is used by the software to select and open the most appropriate tool based on the responses.

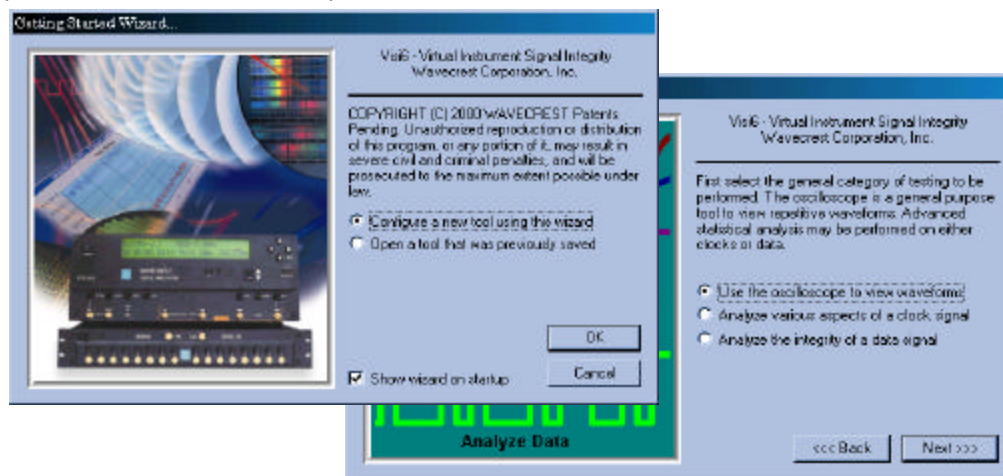


Figure 1. Example of Wizard from Initial VISA 6.0 Screen.

If using the Getting Started Wizard to select the appropriate tool for the measurement, the user would press in the top Wizard window depicted in Figure 1. This leads to the bottom window depicted in Figure 1 and so forth, until a tool is automatically opened.

Using VISI 6.0 without the Wizard

If users decide to cancel out of the Getting Started Wizard and navigate through VISI 6.0 on their own they will be brought to the screen depicted in Figure 2. Specific tools (Histogram, High Frequency Modulation, etc.) are described in other Getting Started Guides or the User's Manual.

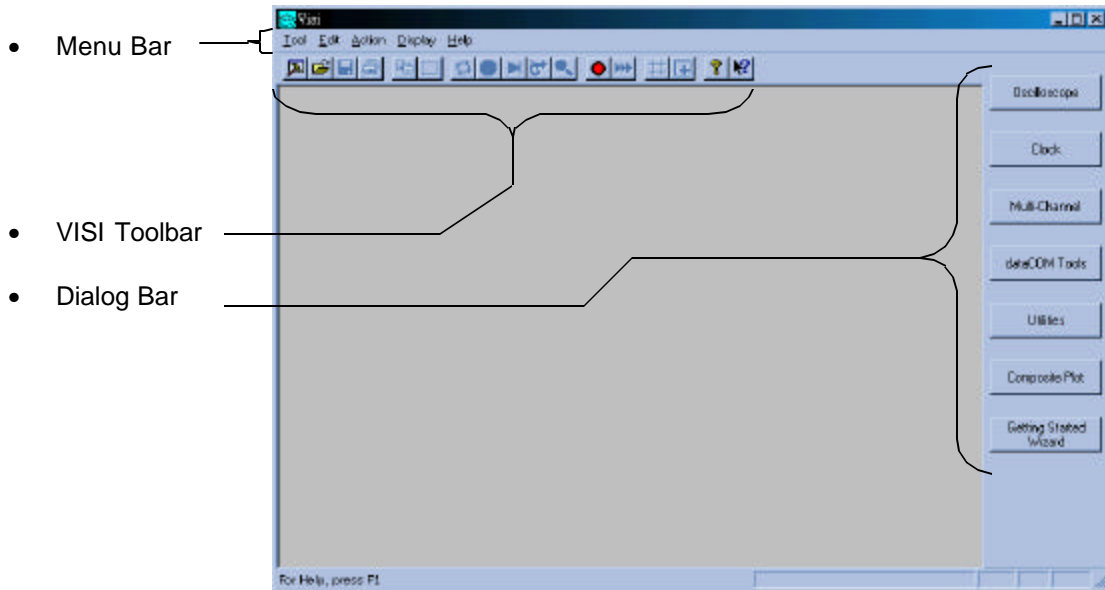


Figure 2. Initial VISI Screen

Initial Dialog Bar

The initial Dialog Bar (Figure 2) shows categories of tools (Clock, DataCom, Utilities, etc.). Each category contains one or more analysis tools to choose from. Figures 3-5 illustrate the breakdown of some categories. The option of going back to the Getting Started Wizard is also available on this initial screen. Once a tool is chosen, the Dialog Bar will remain present showing various pages of menus to control each tool. These configuration menus change to reflect the selected tool window if more than one tool at a time is open.

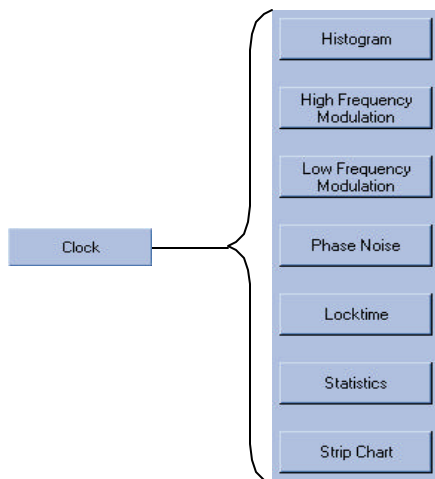


Figure 3. Clock Tools

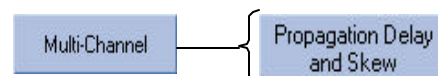


Figure 4. Multi-Channel Tools

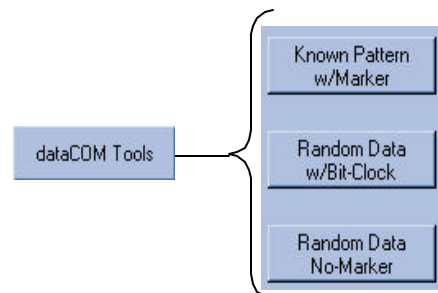


Figure 5. dataCOM Tools

VISI Toolbar

The toolbar along the top of the screen contains the essential controls needed to take measurements with all of the VISI analysis tools. This toolbar (see Figure 6) will be present during all operations in Visi 6.0. Since no particular tool has been selected, users will notice that only five buttons on the toolbar on the initial screen are active. See Figure 2.



Figure 6. VISI 6.0 Toolbar

The following is a brief overview of each of these controls:



“New Tool/Command” button:

Open and display/utilize more than one tool at a time. When chosen, the dialog bar seen on the right side of the initial VISI screen (Figure 2) will appear allowing the selection of a new tool. The new tool appears as a new window enabling the use/viewing of two or more tools. Figure 7 shows three different tools open.





“Clear” Button:

This command acts as a reset and clears the active window of acquired data. The settings in the dialog bar are kept the same.



“Run/cycle” button:

This button commands the DTS to repetitively acquire/cycle new measurements. Either the Stop button  or the Single acquire/Stop run button  will stop the cycling process.



“Stop” button:

The Stop command halts the current measurement.



“Single acquire/Stop run” button:

This button commands the DTS to acquire a single measurement (a histogram, for example). It is also used to stop a series of measurements from being taken after the Run Button is pressed. This only effects the current tool being used.



“Pulse find” button:

Determines the threshold or trip voltages based on the current Tool settings. This function is only available with the Auto option under the Threshold voltage menu.



“Markers” Button:

Activates marker bars. Pressing the button once brings up the horizontal marker bars. Pressing the button once again takes away the horizontal marker bars and brings up the vertical marker bars. Pressing the button a third time brings up both the horizontal and vertical marker bars. Once the marker bars are activated, they may be moved by right-clicking on them to drag and drop. See Figure 8.



“New View” Button:

Simultaneously displays multiple views/plots from one tool. When chosen, a new window opens and becomes active. The view / plot appearing in the window is based on the same data from the tool from which the view was added. To change the view, use the Page Up / Page Dn buttons on the keyboard or use the mouse to select a view. See Figure 9.

Multiple Tools

Displayed from bottom to top are the Oscilloscope, Histogram (With Tail fit Algorithm enabled), and High Frequency Modulation tools. Notice that the top of the High Freq Mod tool window (top window) is highlighted signifying that it is the active window. This also means that the dialog bar menus correspond to active window/tool.

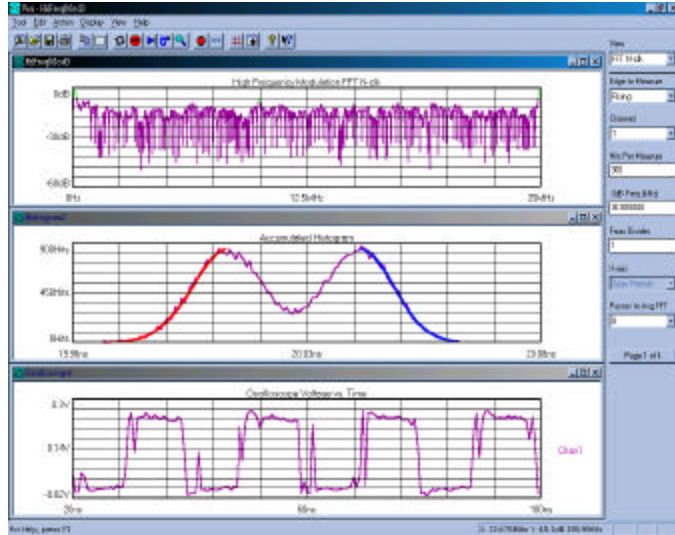


Figure 7. Multiple Tools

Marker Bars

Figure 8 shows the VISI 6.0 oscilloscope tool with both horizontal and vertical bars enabled. Note that the marker measurements are displayed (circled) on the right side of the oscilloscope plot.

These tools can be resized or displayed “tiled” or “cascaded” using the View menu above the VISI toolbar.

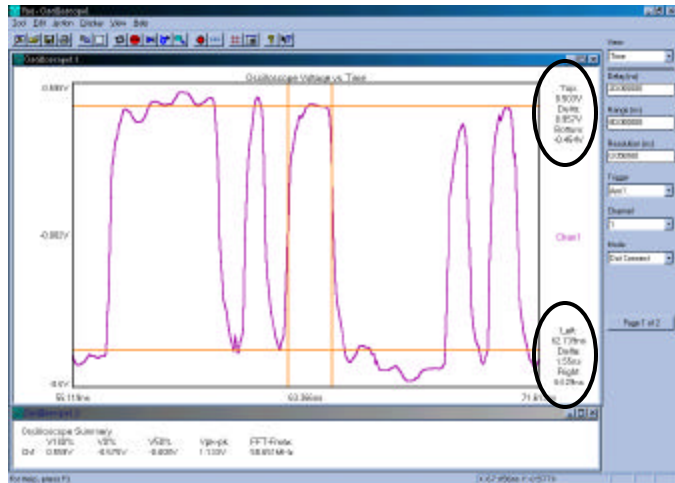


Figure 8. Plot with Marker Bars enabled

Multiple Views

The example on the right shows the Histogram tool with Tail-Fit™ algorithm enabled. The top window shows the histogram; the middle window, a bathtub curve view; and the bottom window, a statistics view. These were added with the “new view” Button. No new measurements were acquired, each new view relates to data already acquired for that tool.

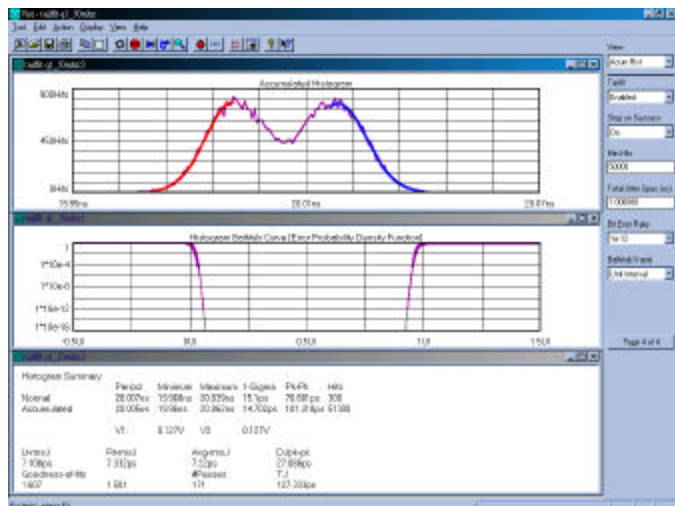


Figure 9. Multiple Views

Opening and Saving VISI Files



"Open File" Button:

This function allows users to open previously saved VISI files.



"Save" Button:

This function allows users to save VISI files.



Figure 10. Save File Formats


The VISI 6.0 software allows users to recall and save measured data and tool settings in a user named setfile. Actions such as changing views, zooming and enabling markers can be performed on recalled data. Setup and data files can be shared to simplify site-to-site correlation or configurations.

Files can be saved in a variety of formats. Figure 10 shows the VISI menu of file save formats. The following is a brief overview of each of these formats:

- **Current Visi tool Settings & Data (*.vtd):**
Saves the settings and acquired measurements for only the active window regardless of the number of tools open.
- **Current Visi tool Settings (*.vts):**
Saves the settings only of the active window. It does not save the acquired measurements.
- **All Open Visi Tool Settings & Data (*.vad):**
Saves the settings and acquired measurements for all open tools.
- **All Open Visi Tool Settings (*.vas):**
Saves the settings for all open tools. It does not save the acquired measurements.
- **Macro Files (*.vbs):**
Macros are saved as Visual Basic Scripts.
- **Bitmap (*.bmp):**
Saves the active view as a bitmap.
- **JPEG Raster Image (*.jpg)**
Saves the active view as a compressed JPEG graphics file.
- **Plot Data (*.txt):**
Saves the relative coordinates from the active plot in a text file, enabling it to be imported into a database program.

Displaying Measurement Values or Statistics on Plots

After opening a tool and first acquiring measurements, only a plot is shown. There are two ways to view the statistical values related to this plot.

- Go to the top tool bar and use the "New view" button  to add a "summary view" for the tool. Use the Page Up / Page Dn buttons to select the statistics view. Refer to Figure 9 for an example of a typical plot layout using the histogram tool.
- In the Menu bar portion of the VISI screen, go to **Display**. Then to **Values on Plot...** From the list of choices (refer to figure 11), select specific measurement values for display. These will appear directly on the plot. See Figure 12.

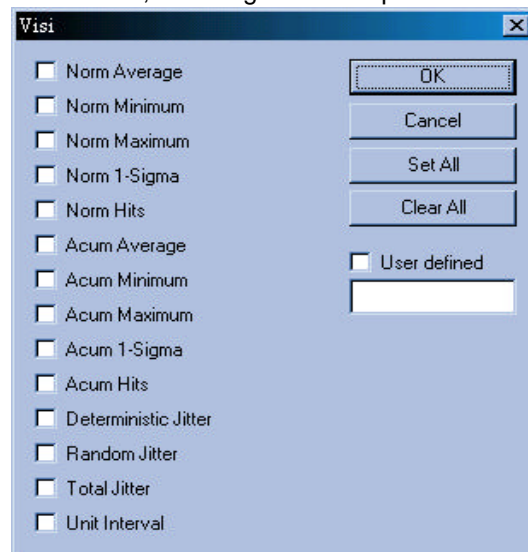


Figure 11. Values on Plot – Options

Annotations on Summary View

Annotations can be easily placed on the Summary view. This is useful to track part numbers, environmental conditions, or other pertinent test setup notes.

To add an annotation to the summary view, right click on a view. A dialog box will appear allowing text to be input.

Or, go to **Edit...** on the menu bar and choose “annotation”. This will also open a dialog box.

Any text input in the box will be displayed on the summary view for that particular tool. See Figure 13.

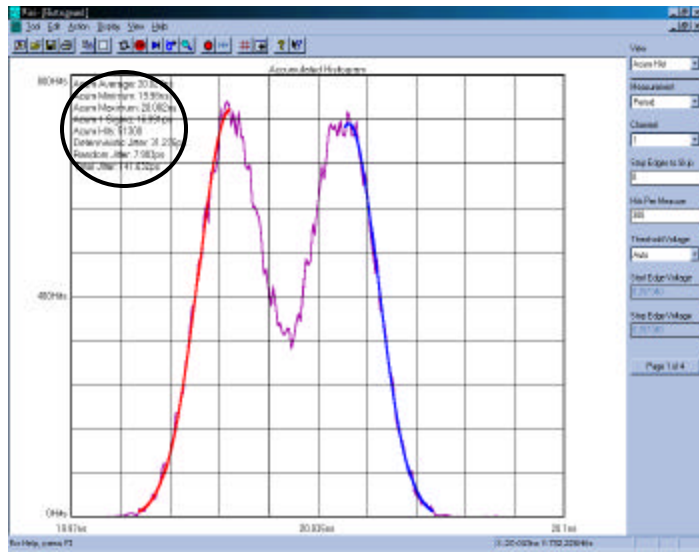


Figure 12. Example of Values on the Plot

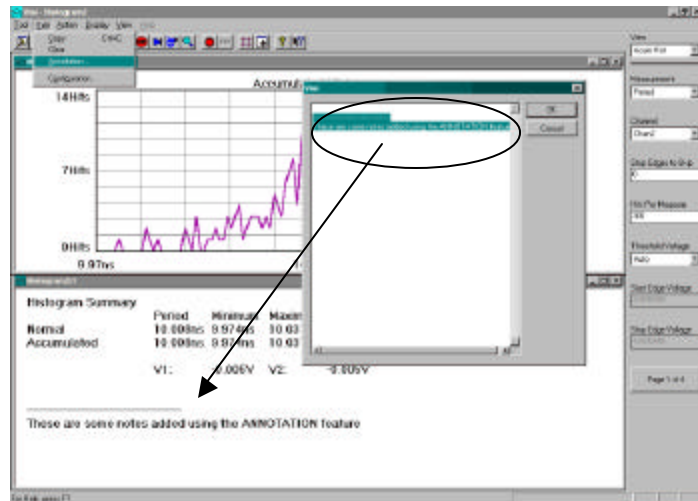


Figure 13. Adding Annotations to Summary View

Print Previews

Under the “tool” menu, choose Print Preview. The active tool will become the file that is printed. The preview shows what will be printed. The information from the Summary view is automatically added to each plot for printing including annotations. See Figure 14.

A print options dialog appears when “print” is chosen. Each possible view for that tool is shown as a page to print. Single pages may be printed or all pages in a range. Also the print view colors are changed to provide a white background with black text—no matter the configuration.

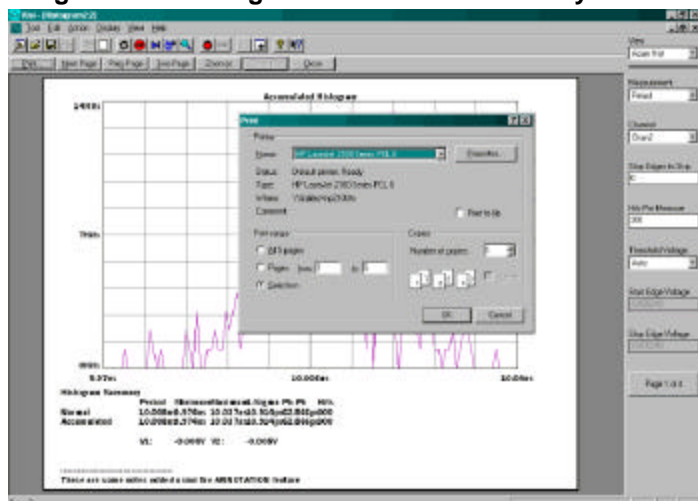


Figure 14. Print Preview

Macros

VISI 6.0 provides the user with the capability of creating custom macros to easily repeat common key strokes. The Macro Record and Playback features allows the user to offload tedious mouse and keyboard sequences to the software. Users can save the macro with session settings and the exact analysis can be duplicated on any instrument operating with the VISI 6.0 software. The Macro interface is based on Microsoft's Visual Basic Script Language which includes the ability to control program execution using conditional and looping statements. The top toolbar contains two controls dedicated to Macro utilization. These are:




Macro Record Button:

This feature allows the user to record a series of steps or keystrokes that can then be saved.




Playback Button:

After recalling a saved macro (.vbs file) the user will initiate the macro by pressing the Playback button.

Note that in the initial VISI screen (see Figure 2.) the macro record button is highlighted indicating that the option to begin recording a macro is available to the user at this point. To select a macro file go to **Action**, in the menu bar portion of the Visi screen and select **Macro**. Once in the Macro sub-menu select **Load...**. This panel (see Figure 15.) will list the *.vbs files residing in the current folder or directory. Once a macro file is opened, it is run by pressing the Playback Button  on the top toolbar.

Macro Files

As can be seen in figure 15 the Macro "Open" file panel is setup to list the macro files (*.vbs). Typically .vbs files will be depicted with a visual basic script icon .

A macro editor is also available to add/delete/or change steps. Message boxes can be added to prompt an action before the macro continues.

To edit a macro, a user will go the to **Action**, then **Macro** and select **Edit...**. This will bring them to the macro edit box (see figure 16).

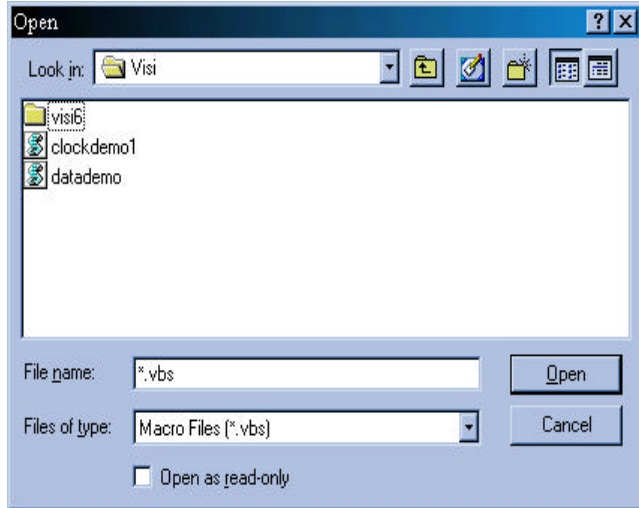


Figure 15. Macro Open file panel

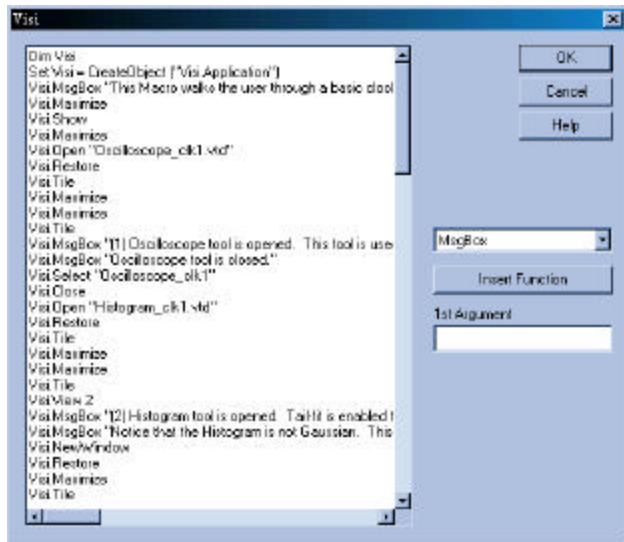


Figure 16. Macro Editor

Status Bar

Since some measurements may take longer to acquire than others, the VISI 6.0 screen includes a status bar on the lower right corner of the VISI application.

The word **RUN** will appear with a moving horizontal black bar (Figure 17). The bar is a direct visual representation of the traffic occurring on the GPIB interface with the host computer.



Figure 17. Status Bar

Composite Plot

The composite tool overlays or displays views of different saved or acquired measurements. These views must all be of similar types. For example, a saved histogram and an acquired histogram can be overlaid for comparison, but an FFT and a histogram cannot be put on the composite plot.

To add plots to the composite, open each view, or acquire each view and then open "Composite Plot", choose "Plot to Add" and press "Add this Plot".

Figure 18 depicts a composite plot of the High Freq Mod Analysis tool 1-sigma views of an input (magenta trace) to a clock recovery circuit and the recovered clock output (green trace).

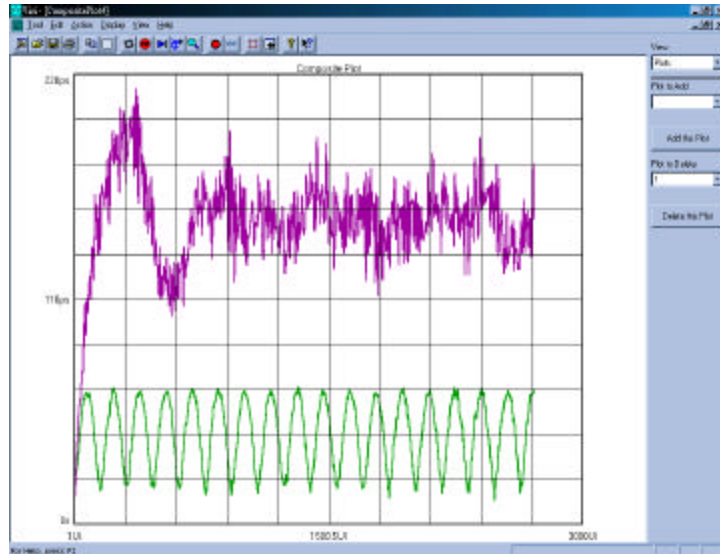


Figure 18. Composite Plot

Zoom on plot

Another feature in VISI 6.0 is "Hold Zoom". As in previous VISI versions, the version 6.0 software allows the user to use the mouse / trackpad and cursor to click, drag and zoom in on a specific area of interest on the plot (see Figure 19).

To zoom in on area of interest and remain zoomed in during subsequent measurements, activate the "Hold Zoom" feature. Go to the top of the VISI screen and enter the **Display** menu. Verify that there is a check mark by **Hold Zoom**. This will signify that the Hold Zoom feature is active.

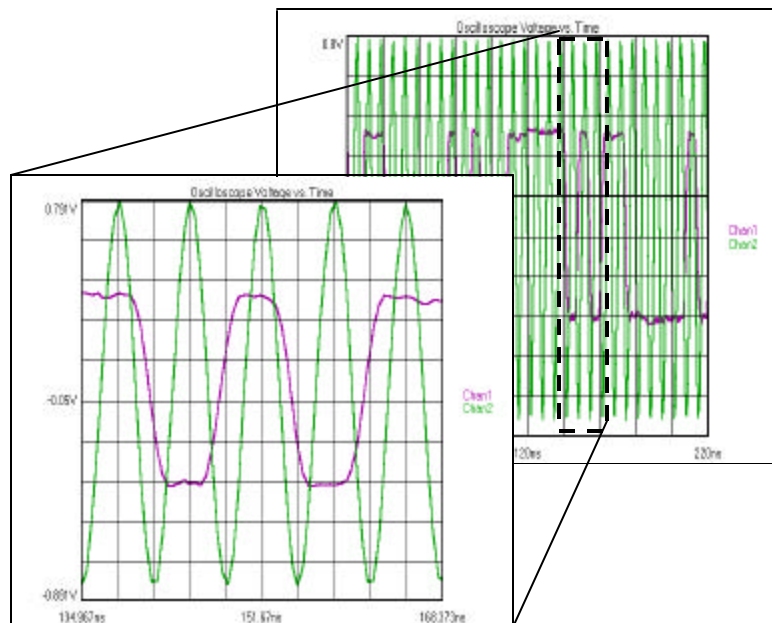


Figure 19. Zoomed In View

Configuration Menu

Configure the look of VISI, choose the instrument GPIB addresses, or the file path for patterns and data.

By going to the top of the VISI screen and entering the **Edit** menu and selecting **Configuration...** the user will access the panel depicted in Figure 20. Here the user will be able to customize signal trace, grid line, and marker bar color and thickness. Plot background colors, font types, Rise and Fall time %, pattern and data paths as well as GPIB board and device addresses may be modified.

For changes to be activated after, the **Apply** button must be clicked on before closing and exiting the configuration menu panel. Clicking on **Reset** will set all parameters to default settings.

	Color	Width
Plot Line 1	Magenta	2
Plot Line 2	Green	2
Plot Line 3	Red	1
Plot Line 4	Blue	1
Grid Lines	Black	1
Markers	Orange	2
Background	White	Font

Rise/Fall %: 10% - 90%

DTS207x: GPIB Board Number: 0, GPIB Device Number: 5, Device Name (UNIX only): dev5, Disable Front Panel Display

DTS550: GPIB Board Number: 0, GPIB Device Number: 4, Device Name (UNIX only): dev4, Disable Front Panel Display

Figure 20. Configuration Menu

Summary

The features of the VISI 6.0 software along with the proven capabilities of the DTS hardware combine to form an unbeatable jitter and timing analysis software package.

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