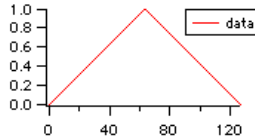**Details**

A "window function" alters the input data by decreasing values near the start and end of the data smoothly towards zero, so that when the FFT of the data is computed the effects of nonintegral-periodic signals are diminished. This improves the ability of the FFT to distinguish among closely-spaced frequencies. Each window function has advantages and disadvantages, usually trading off rejection of "leakage" against the ability to discriminate adjacent frequencies. For more details, see the **References**.

WindowFunction stores the window function's normalization value (the average squared window value) in V_value. This is the value you would get from WaveStats's V_rms*V_rms for a wave of *srcWave*'s length whose values were all equal to 1:

```
Make/O data = 1
WindowFunction Bartlet, data     // Bartlet allowed as synonym for Bartlett
Print V_value                    // Prints 0.330709, mean of squared window values
```



```
WaveStats/Q data
Print V_rms*V_rms               // Prints 0.330709
```

See Also

FFT, **ImageWindow**, **DPSS**

References

For more information about the use of window functions see:

Harris, F.J., On the use of windows for harmonic analysis with the discrete Fourier Transform, *Proc, IEEE*, *66*, 51-83, 1978.

Wikipedia entry: <`http://en.wikipedia.org/wiki/Window_function`>.

WinList

WinList(*matchStr*, *separatorStr*, *optionsStr*)

The WinList function returns a string containing a list of windows selected based on the *matchStr* and *optionsStr* parameters.

Details

For a window name to appear in the output string, it must match *matchStr* and also must fit the requirements of *optionsStr*. *separatorStr* is appended to each window name as the output string is generated.

The name of each window is compared to *matchStr*, which is some combination of normal characters and the asterisk wildcard character that matches anything. For example:

"*"	Matches all window names
"xyz"	Matches window name xyz only
"*xyz"	Matches window names which end with xyz
"xyz*"	Matches window names which begin with xyz
"*xyz*"	Matches window names which contain xyz
"abc*xyz"	Matches window names which begin with abc and end with xyz

matchStr may begin with the ! character to return items that do not match the rest of *matchStr*. For example:

"!*xyz"	Matches window names which *do not* end with xyz

The ! character is considered to be a normal character if it appears anywhere else, but there is no practical use for it except as the first character of *matchStr*.

optionsStr is used to further qualify the window. The acceptable values for *optionsStr* are:

`""`	Consider all windows.
`"WIN:"`	The target window.
`"WIN:`*windowTypes*`"`	Consider windows that match *windowTypes*.
`"INCLUDE:`*includeTypes*`"`	Consider procedure windows that match *includeTypes*.
	Using INCLUDE: implies WIN:128.
`"INDEPENDENTMODULE:1"`	Consider procedure windows that are part of any independent module as well as those that are not. Matching windows names are actually the window titles followed by `" [<independent module name>]"`.
	Using INDEPENDENTMODULE: implies WIN:128.
`"INDEPENDENTMODULE:0"`	Consider procedure windows only if they are not part of any independent module. Matching windows names are actually the window titles, which for an external file includes the file extension, such as "WMMenus.ipf".
	Using INDEPENDENTMODULE: implies WIN:128.
"FLT:1"	Return only panels that were created with NewPanel/FLT=1. Specifying "FLT" also implies "WIN:64".
	Omit FLT or use "FLT:0" to return windows that do not float (and most do not).
"FLT:2"	Return only panels that were created with NewPanel/FLT=2. Specifying "FLT" also implies "WIN:64".
"VISIBLE:1"	Return only visible windows (ignore hidden windows).

windowTypes is a literal number. The window name goes into the output string only if it passes the match test and its type is compatible with *windowTypes*. *windowTypes* is a bitwise parameter:

1:	Graphs
2:	Tables
4:	Layouts
16:	Notebooks
64:	Panels
128:	Procedure windows
512:	Help windows
4096:	XOP target windows
16384:	Camera windows in Igor Pro 7.00 or later
65536:	Gizmo windows in Igor Pro 7.00 or later

See **Setting Bit Parameters** on page IV-12 for details about bit settings.

Procedure windows and help windows don't have names. WinList returns the window title instead.

includeTypes is also a literal number. The window name goes into the output string only if it passes the match test and its type is compatible with *includeTypes*. *includeTypes* is one of:

1:	Procedure windows that are not #included.
2:	Procedure windows included by #include "*someFileName*".