Windowing and Leakage LabVIEW GUI Documentation

INTRODUCTION

The Windowing and Leakage GUI was designed to help students better understand the affects of windows on signal representation. This GUI allows the user to vary the frequency of the input signal, apply various windows, and view the results in both the time and frequency domains.

Instructions on GUI usage are given in this document. Other documents are available which contain more detail on windows and leakage.

USING THE WINDOWS AND LEAKAGE GUI

Fig. 1. shows the appearance of the GUI when it is first opened. Initially the frequency is 100Hz and no windows are applied. These values can be changed by using the respective sliders and scroll buttons.
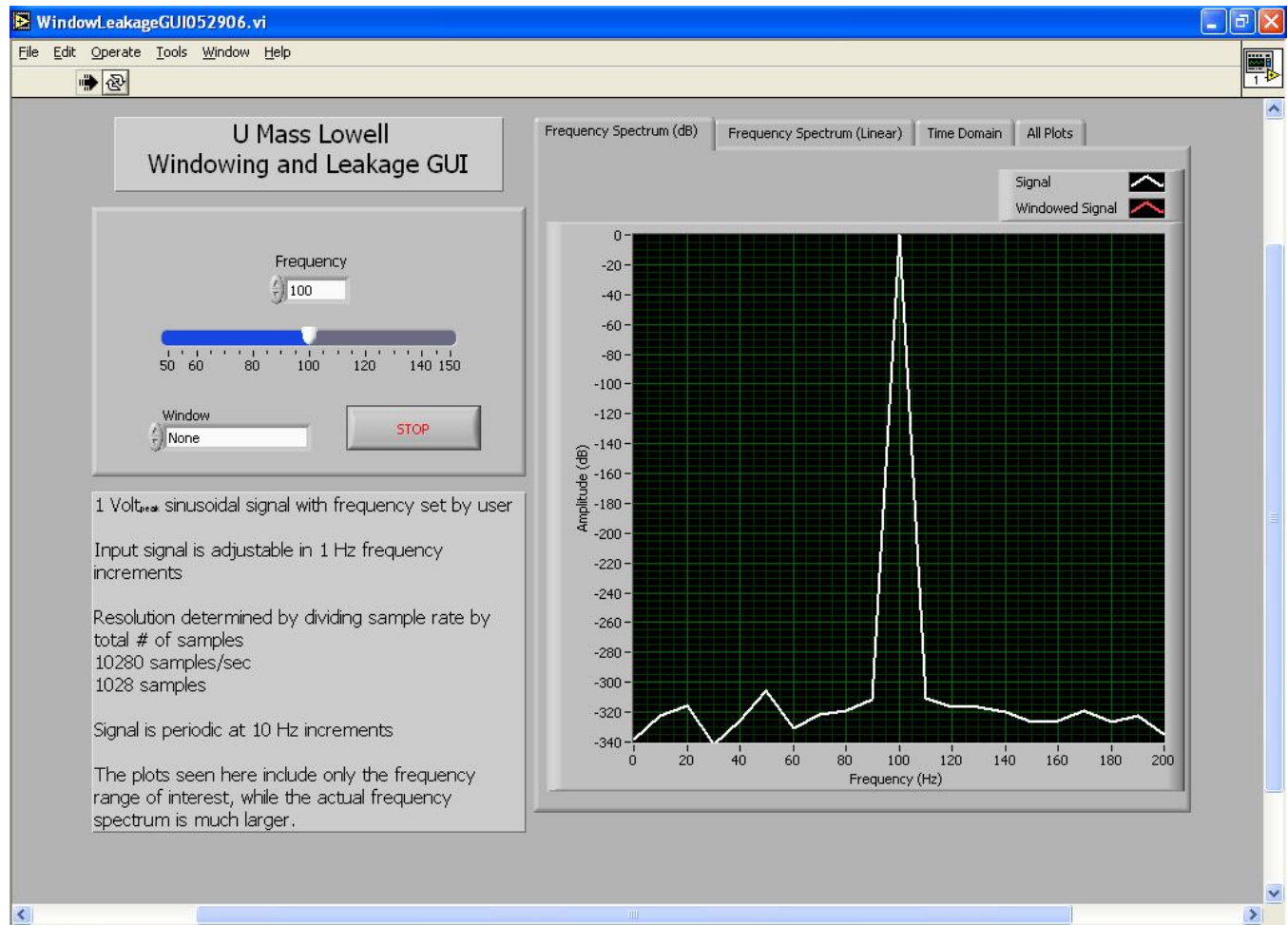

Fig. 1. Windows and Leakage GUI

When a window is applied, the GUI shows the windowed signal plotted against the unwindowed signal for easy comparison. This GUI shows the entire time signal processed by the FFT; however the GUI does not show the entire frequency spectrum for the purpose of making clear the affects of different windows.

The available windows and the allowable frequency range of the GUI can be seen in Table 1.

Table 1: Available Windows and Frequency Range of GUI

Available Windows:	Rectangular
	Hanning
	Hamming
	Blackman
	Flat Top
Frequency Range:	50-150 Hz

In this GUI, frequencies ending in zero, i.e. 50, 60, 70 exc. are periodic in the time domain with all other frequencies being non-periodic

Additional documentation is available for suggested exercises.