

## Background

Many fire departments and other agencies in the United States are alerted to incidents using some form of two tone paging. Two tone sequential paging consists of two audio tones that are sent in order in specific timing formats. Detailed information on various two tone paging formats [can be found here](#).

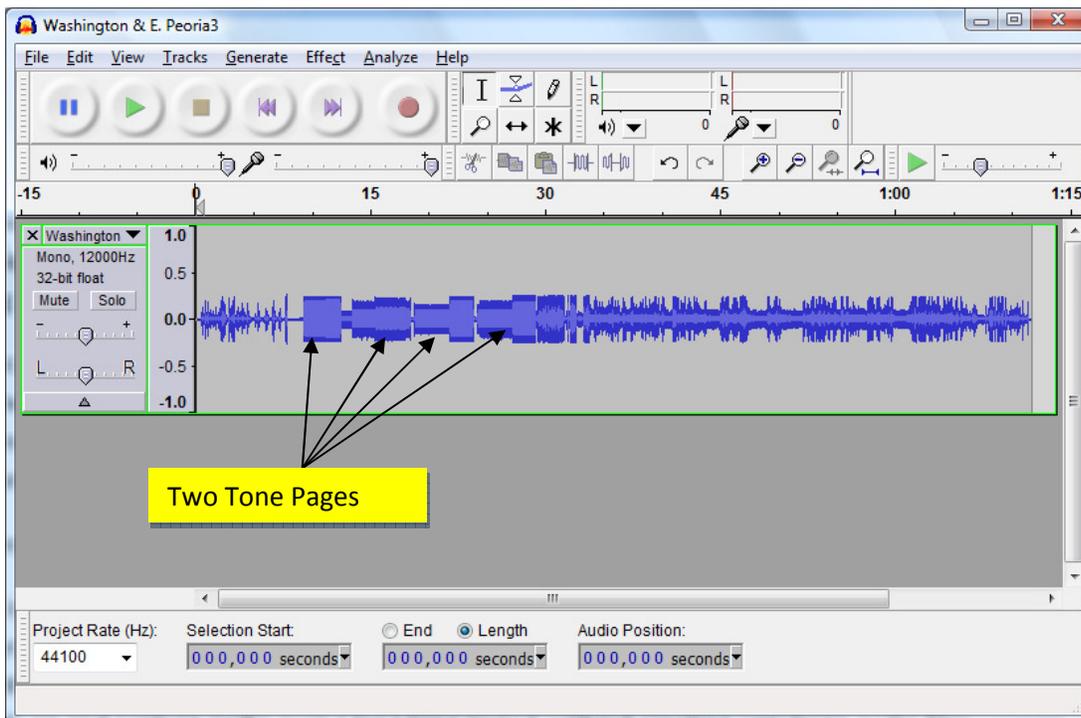
Several new scanners include a fire tone out feature that lets you program tone sets into the scanner so that you will be alerted when a page is sent. In order to use this feature, you must know the tone frequencies (in Hertz) of the page. This document describes how to use [Audacity](#), an open source audio editing program, to find the frequencies of two tone pages.

### Step One – Record Tone Set Audio

The first step is to capture audio of the desired page using a scanner (or other receiver) and recording software for your PC. Audacity can be used to record audio from your soundcard, but a better method is to use a VOX-based recorder that only records when audio is present. This allows you to leave your scanner and PC on and capture audio over a long time period without creating very large audio files. Some examples of VOX recorders include Xcorder and Scancorder. Information about these and other recording programs can be [found here](#).

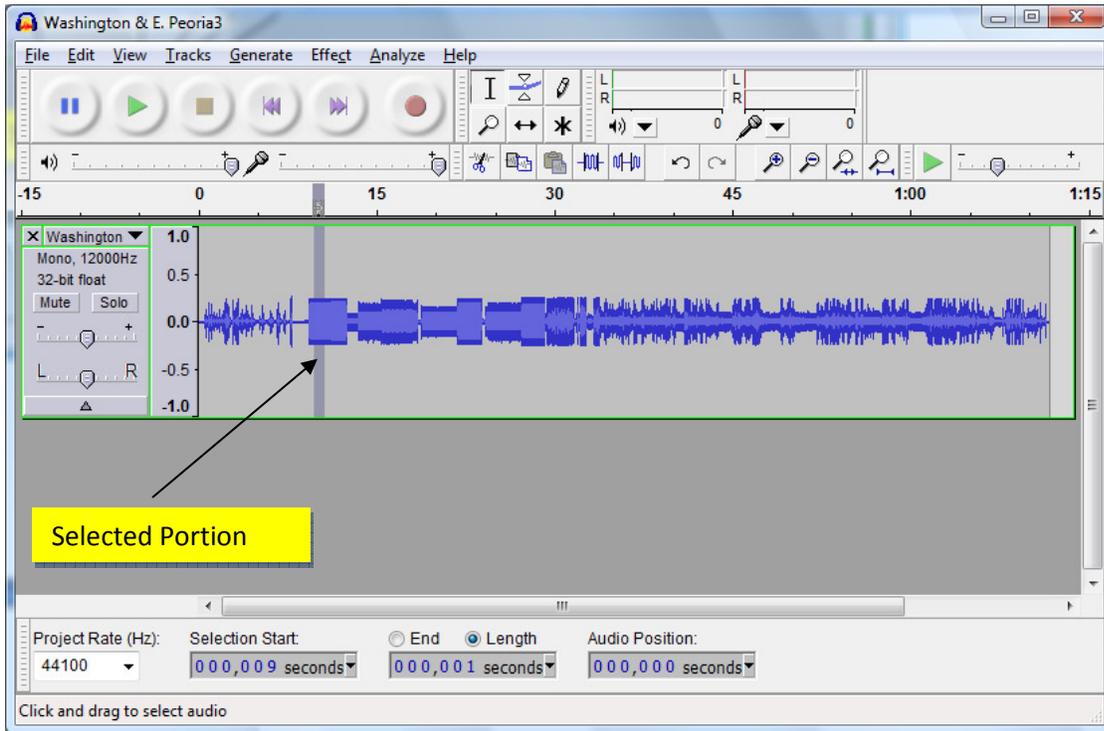
### Step Two – Open Audio File in Audacity & Identify Tones in File

The picture below shows an audio file that has been opened in the Audacity audio editor. The arrows show areas in the file where two tone pages are located. You can play the audio file while watching the cursor to determine which tone sets you are interested in decoding.



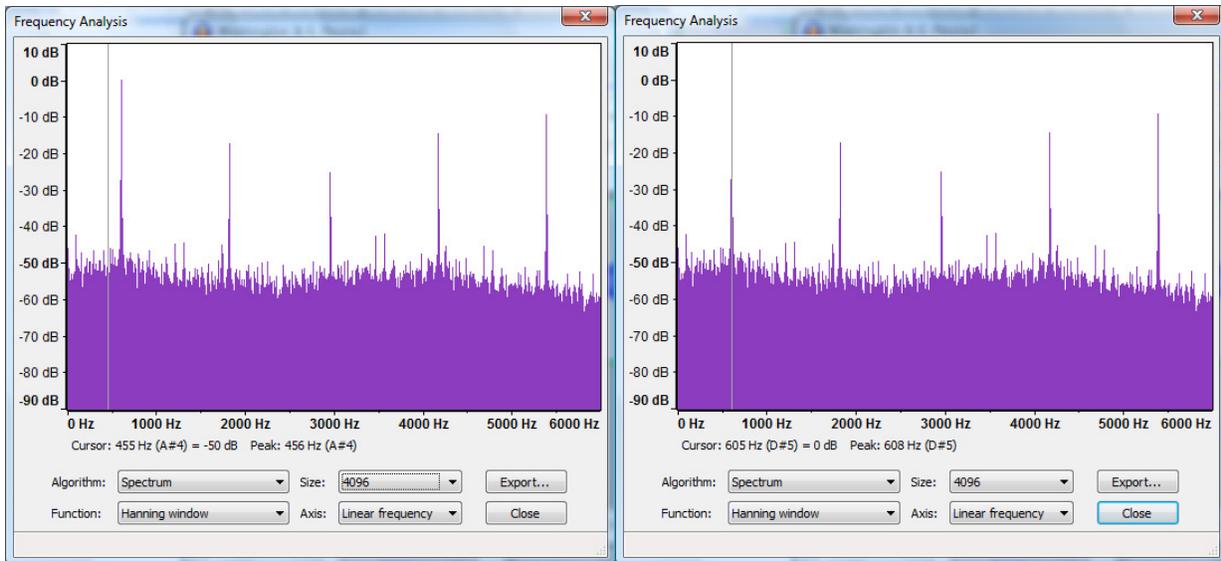
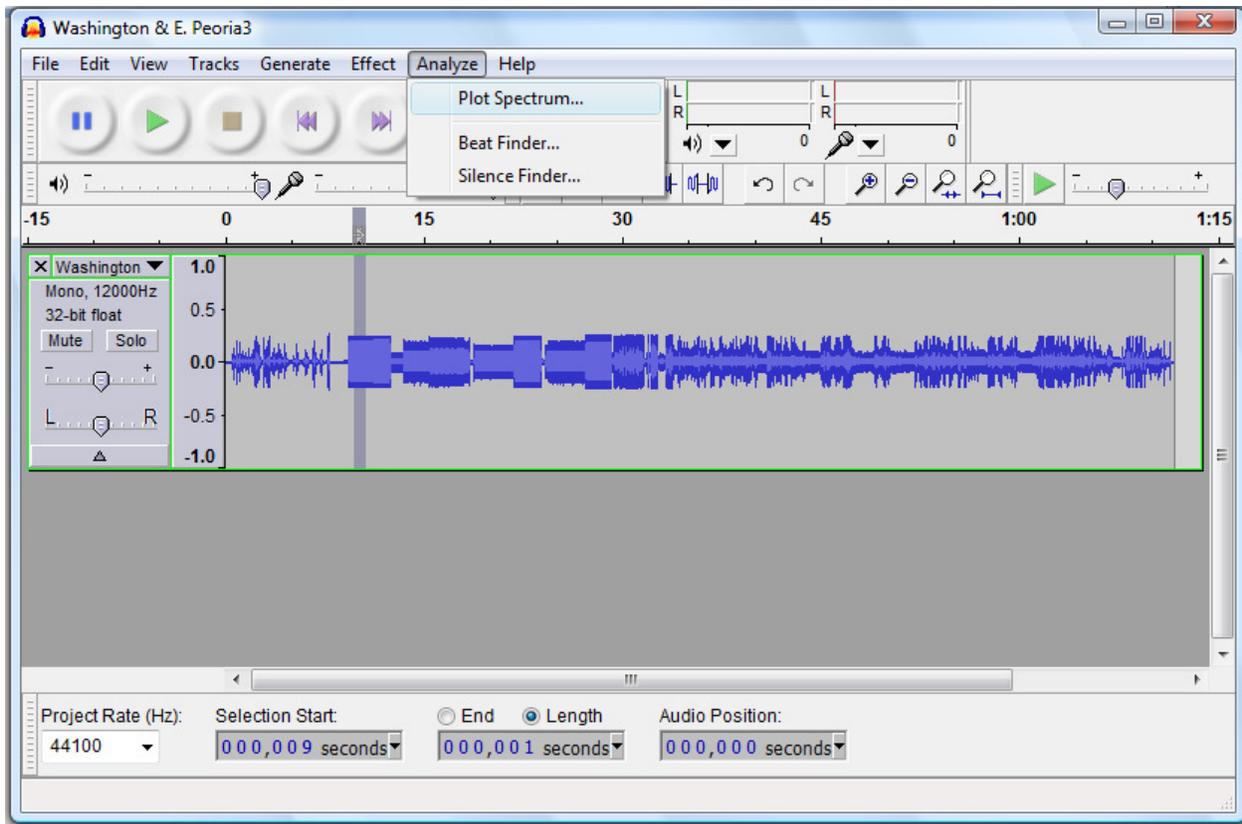
### Step Three – Select Portion of First Tone

The next step is to click and drag the Audacity cursor to select a portion of the first tone in the two-tone sequence. Pick the first portion of the tone to ensure that you're capturing just a single tone, and not portions of both the first and second tones in the sequence. See the picture below.



### Step Four – View the Frequency Spectrum of the Tone

After you have selected the portion of the tone you want to analyze, select Analyze->Plot Spectrum from the menu (see below). A Frequency Analysis window will appear that shows a plot of the frequency spectrum of your selection. Use the cursor to find the frequency of the highest peak in the spectrum. This will be the approximate frequency of the tone. In the example below, the peak frequency is roughly 608 Hz. This frequency can be programmed into the scanner, or it can be compared with tables of known two-tone paging frequencies ([such as this one](#)) in order to find the nearest match.



### Step Five – Repeat Analysis for the Second Tone in the Sequence

Repeat the analysis steps above for the second tone in the sequence, and you'll know the "A" and "B" tones to program into your scanner.