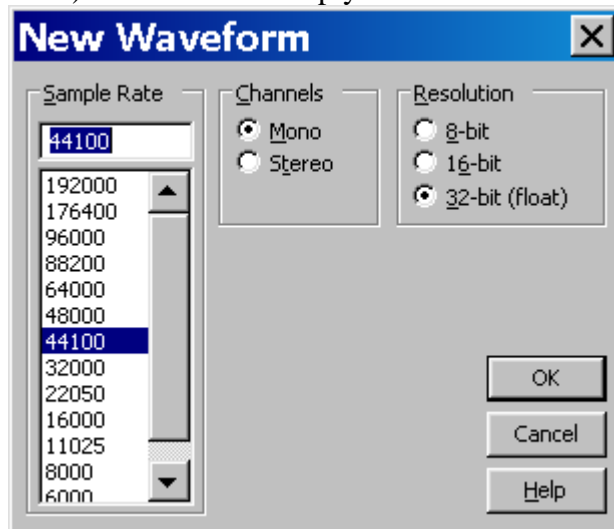
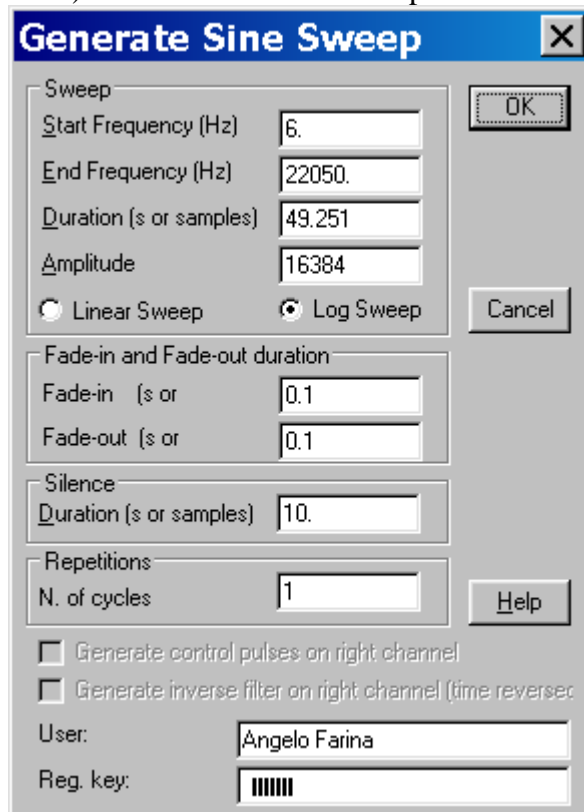


## Measurement of the multiple IR of a not-linear device With Adobe Audition + Aurora Plugins

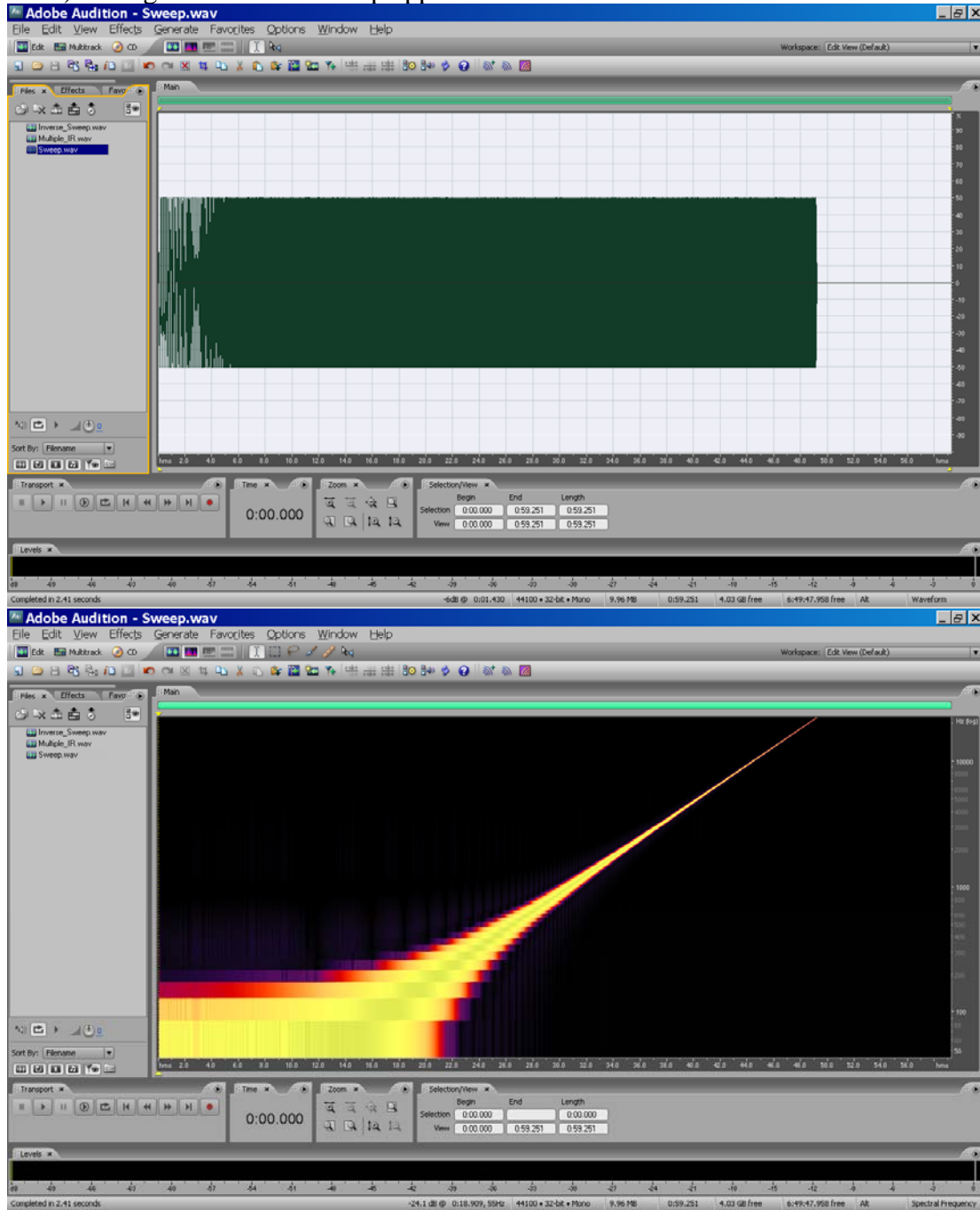
1) Create a new empty wave file:



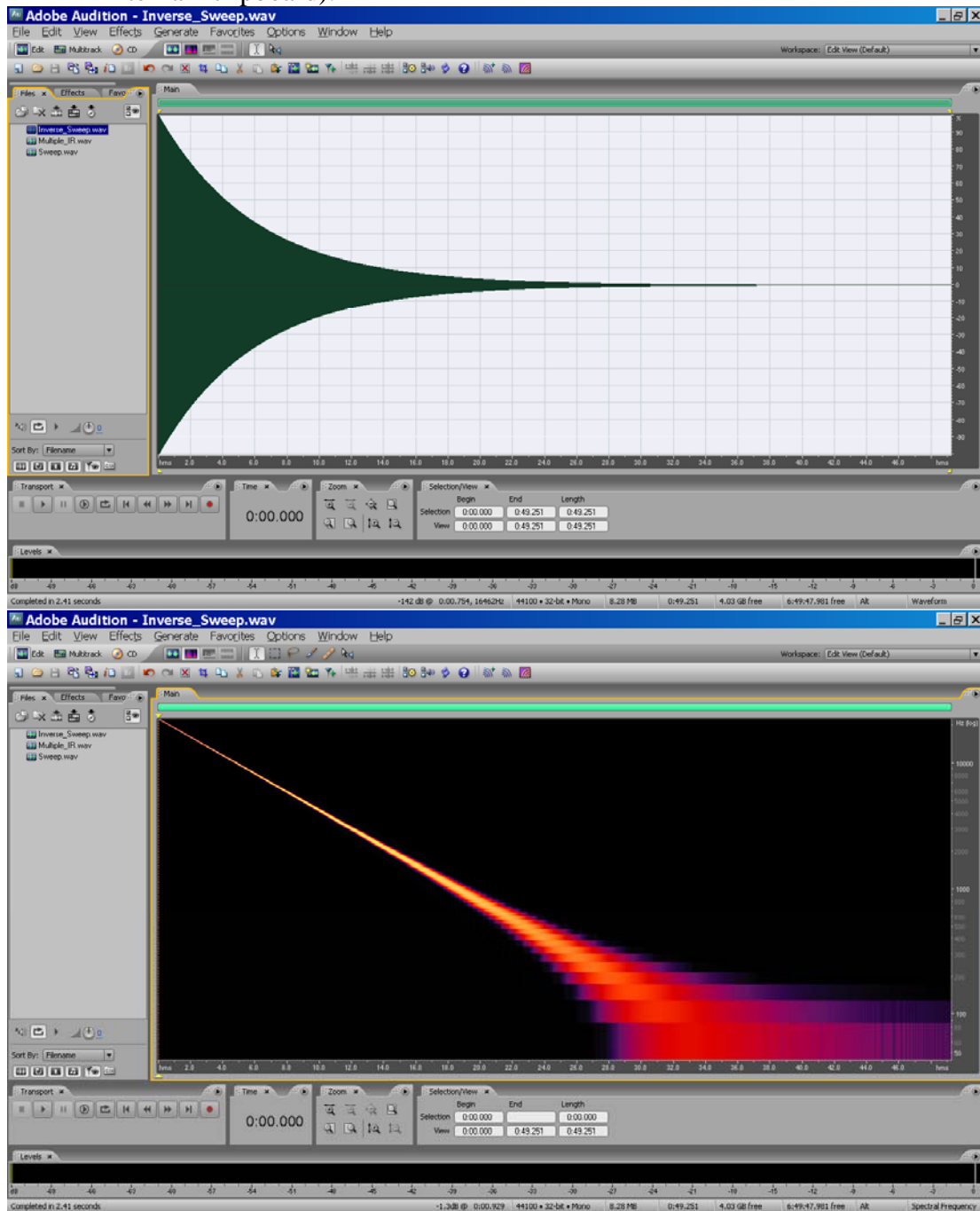
2) Generate the Sine Sweep with the Aurora "gensweep" plugin:



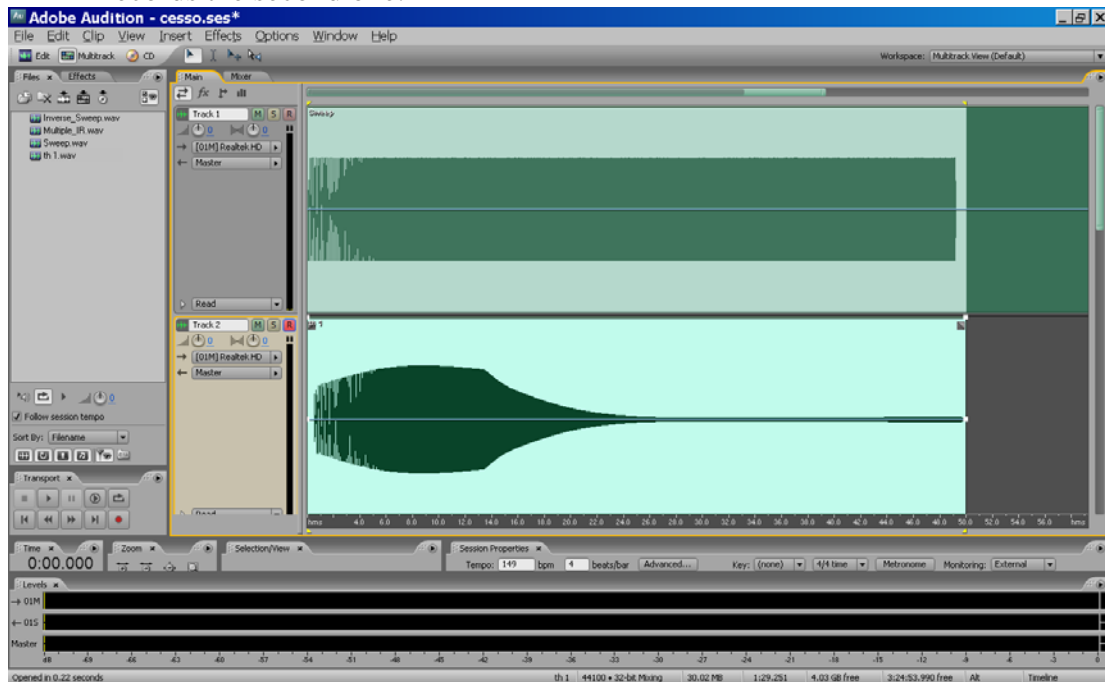
3) The generated sine sweep appears:



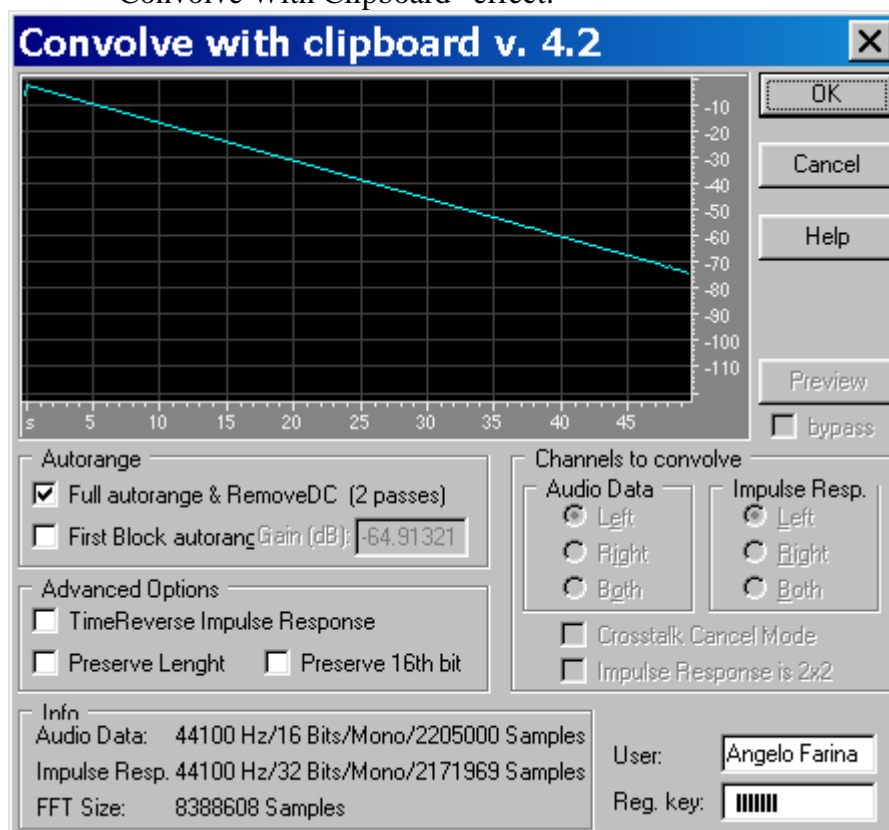
- 4) While the sine sweep was generated, the Inverse Sweep has been generated too, and has been stored on the Windows Clipboard. So we can now extract it from the Windows Clipboard, with the command Edit – Paste to New (be sure that Audition has been set for employing the Windows Clipboard, and not its “internal” clipboard):



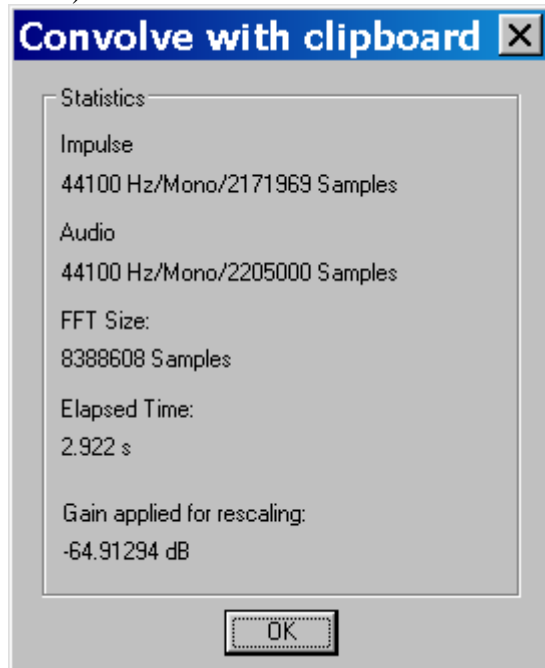
- 5) Now we can perform the measurement of the not-linear device. We switch Audition to Multitrack mode, we insert the Sweep as the first track, being set for “play”, and we set the second track for recording a Mono signal. Then we press the “Record” button, Audition plays the first track and simultaneously records the second one:



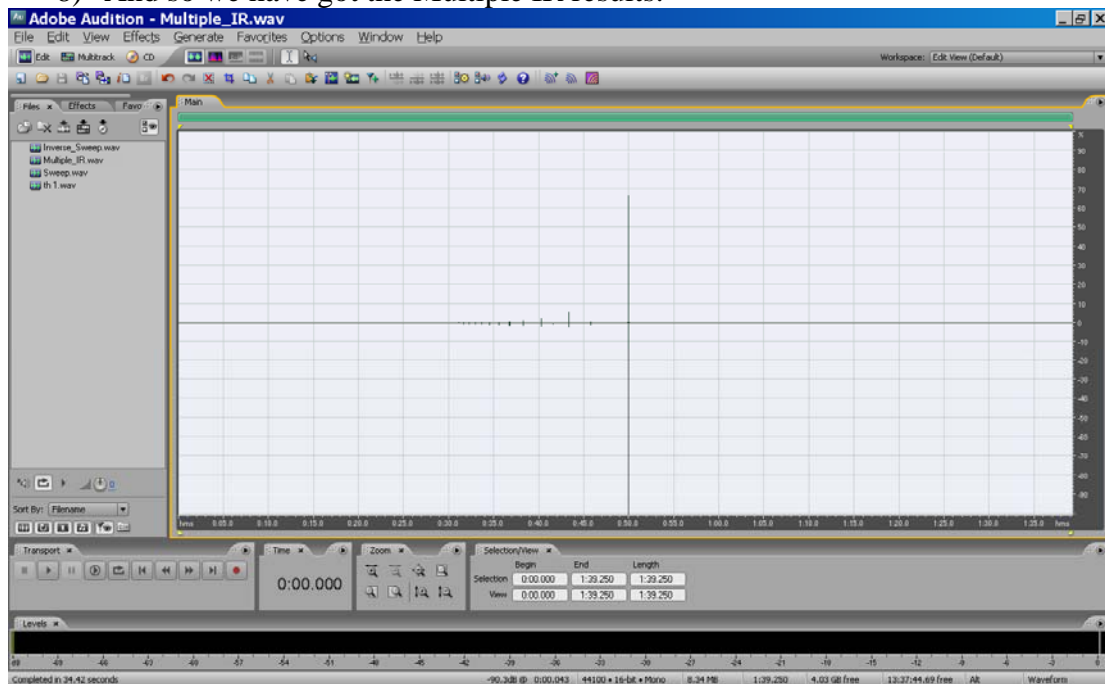
- 6) We go back now to single-track mode, by double-clicking on the re-recorded signal (track 2). We save it in a WAV file, and we invoke the Aurora “Convolve With Clipboard” effect:



7) After the deconvolution has been accomplished, the following appears:

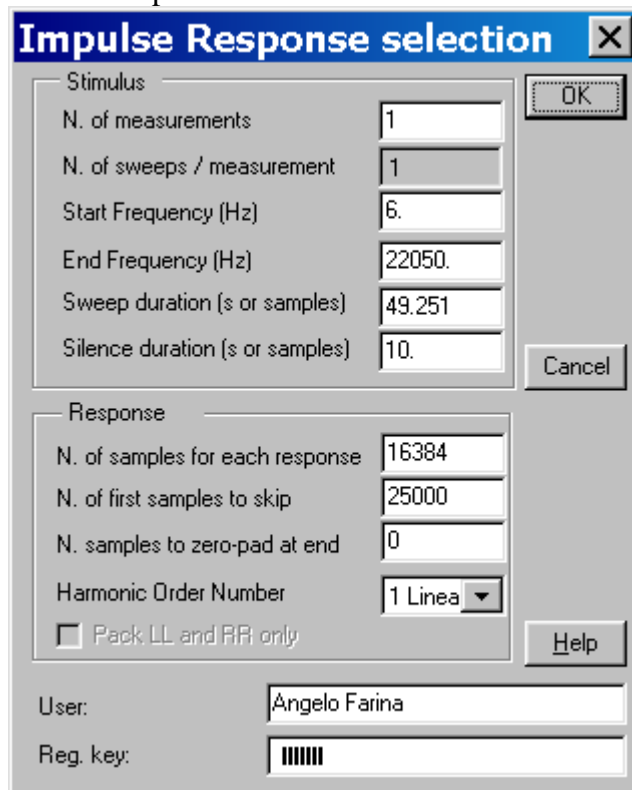


8) And so we have got the Multiple IR results:



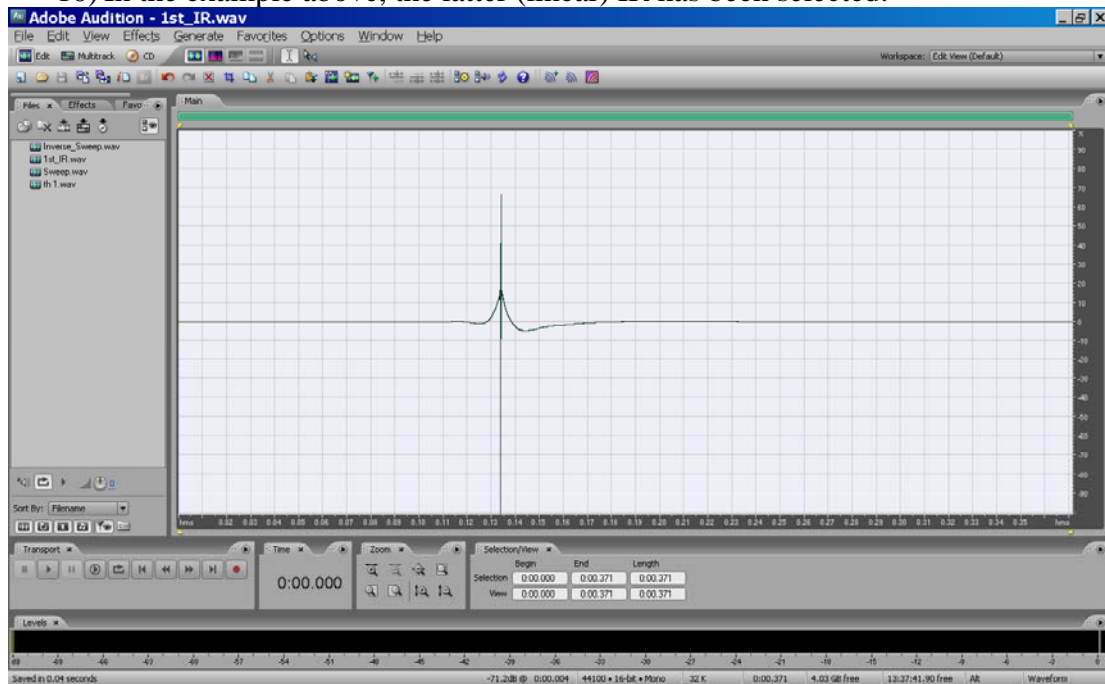
The latter, stronger pulse is the linear one, the preceding ones are the harmonic distortion orders (2<sup>nd</sup>, 3<sup>rd</sup> and so on).

9) We can extract individual harmonic IRs employing the Aurora “Impulse Response Selection” effect:

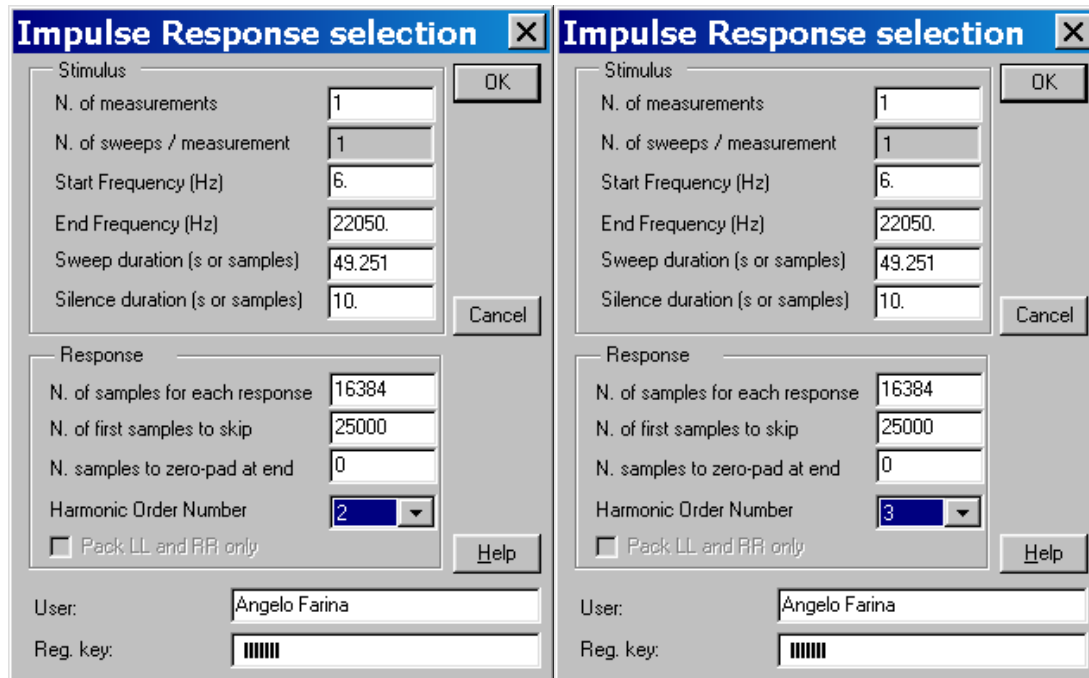


Please notice that we decided to “skip” 25000 samples at the beginning, due to the latency of the playback-recording system (every measurement system has a different latency).

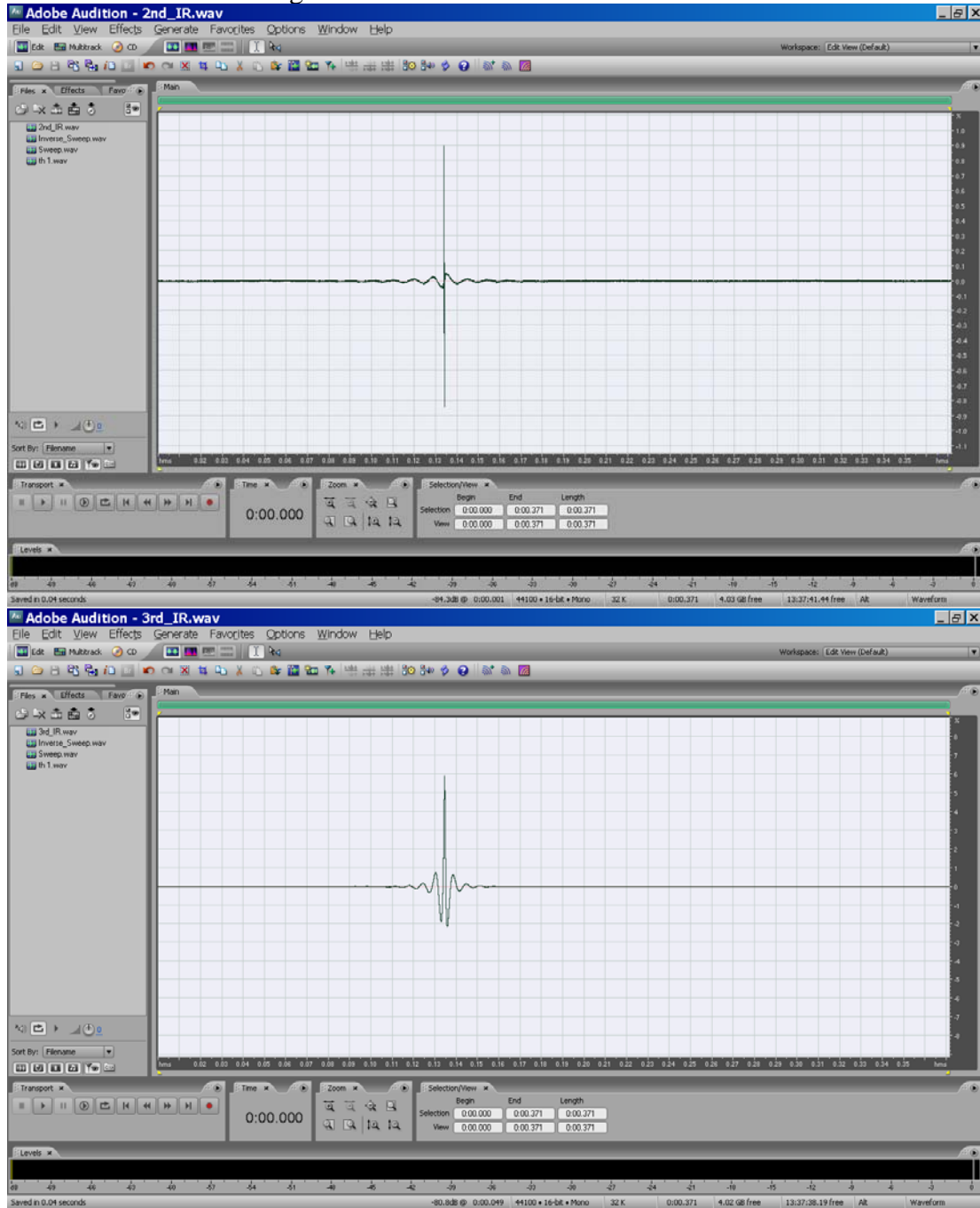
10) In the example above, the latter (linear) IR has been selected:



11) If we load again the Multiple\_IR file, we can now perform the “extraction” of each harmonic IR, for example the second, or the third:



And this is what we get:



We can now repeat the same extraction for all the harmonic orders we want....

Angelo Farina, 15<sup>th</sup> December 2007