

This is a readme-file for the Vol 13 article *An Open-Source Electroacoustic Measurement System* by Richard Mann and John Vanderkooy.
This readme file applies to the .m files for part 2: *Sound Card Setup, System Characterization and a few more Examples* by Richard Mann

FILES

SoundCardSetup.m: main program
make_sig_tones.m: generate tones
make_sig_tones_helper.m: helper for above
make_sig_mls.m: generate MLS (white and pink noise)
make_sig_mls_helper.m: helper for above

REQUIRED SOFTWARE

The programs need Octave 4.0 or greater. Release 4 provides the latest GUI features and an interactive editor that is common across Linux/Windows and Mac. Octave can be called from the command line or as an application. The instructions below are for Linux.

Start Octave from the command line and check the version:

```
$ octave  
>> version  
ans = 4.0.2
```

Our software needs the "signal" package. Like Matlab's Toolboxes, packages provide extra function, in this case, all the signal processing, linear filtering and FFT code. Octave toolboxes can be loaded as part of the Linux distribution, or from a central repository called "Octave Forge".

Octave has a simple "package manager" at the command line. To load the signal package, type the following,

```
>> pkg list  
>> pkg load signal
```

If packages are not available for your distribution, or if you want the latest from the Forge, the Signal package can be compiled from its source with the following command.

```
>> pkg install -forge signal
```

Note that this command requires an internet connection and also requires the Octave development libraries (liboctave-dev package).

RUNNING THE PROGRAM

The first step is creating the stimulus files. We recommend changing to a new directory, as many files are written. Once in a new directory, run the programs "make_sig_tones.m" and "make_sig_mls.m". These programs generate pure tone (440Hz) and MLS and pink MLS files, respectively.

If you're running Linux, you can run Octave scripts from the command line directly, with the commands

```
$ octave make_sig_tones.m  
$ octave make_sig_mls.m
```

Each command invokes an Octave shell, runs the script file, and exits. Octave scripts are useful for short programs. Windows users will likely just start an interactive Octave session and run the commands at the Octave prompt. Now you should have a bunch of stereo 16 bit WAV files. These are stereo 44.1k and 48k 16bit. Recall that each stimulus file has only one period, a second or less of sound. You can still load these into a WAV editor to view them interactively, and the reader is encouraged to do this.

The user can now run the main program SoundCardSetup.m.

```
$ octave SoundCardSetup.m
```

A number of windows will pop up, including a dialog to choose the stimulus files.