Assess the Environment

The very first thing on your list when you decide to build a studio, mix or recording room is to evaluate the environment where the studio will be. What we need is the noise spectrum and the SPL (sound pressure level), unweighted or C-Weighted. We must use a standard measuring technique to be confident that the existing environmental noise levels will not interfere with the studio operation. Your studio sound-proofing will need to be adjusted according to what is found during the measuring process.

Failure to do this part first will often result in the failure of the studio as a business or a hobby.

An SPL meter or phone app is not good enough and will only allow you to get a rough idea of the existing environmental noise levels.

Prepare the equipment needed

You will need a calibrated testing mic and your computer or laptop for these tests.

a. Purchase the miniDSP UMIK-1 calibrated USB measurement microphone (Google it. You can find it on Amazon)
b. Download the free software Room EQ Wizard - https://www.roomeqwizard.com/

Setup

1. Install the REW software on your computer. Follow the directions written in the help files.
2. Plug in the USB cable for the UMIK-1 and turn the computer back on.
3. Open REW (it doesn't matter what OS you are running. This works the same for Mac of PC). You will see the following:
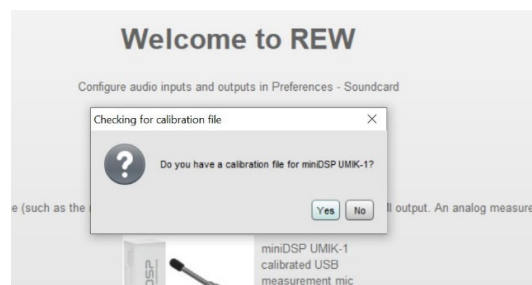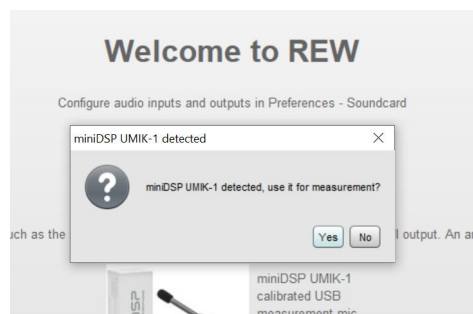
Go to the website https://www.minidsp.com/products/acoustic-measurement/umik-1 and scroll down until you see this:

Unique Calibration File Download

All UMIK-1 are calibrated with a unique calibration file. In addition, a unique auto-generated 90-degree calibration file for use with surround system applications. To download the calibration files, look for the 7 digit Serial Number found on the body of the microphone.

1. Enter the serial number in the form below (three digits then four digits e.g. 700-XXXX).
2. Your calibration files will automatically download in most browsers. If not, click on the links provided to manually download.

Calibration file download

Serial number: 701 6613 Submit

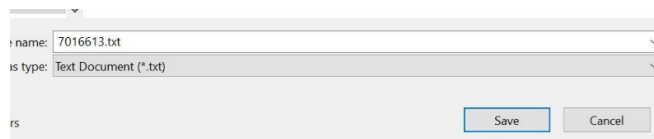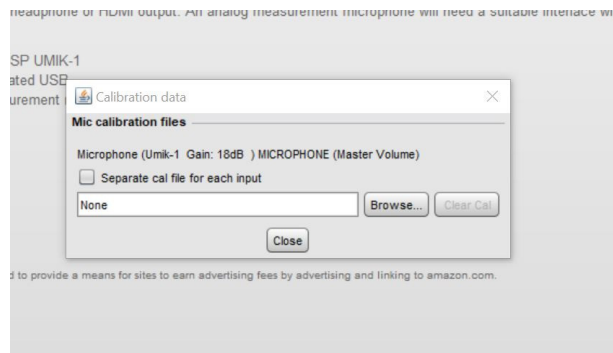## Which calibration file should I use and where to point the UMIK-1?

We provide two calibration files to be used depending on your application.

- For stereo system (e.g. 2ch dirac live, single speaker measurement), use the 0deg file and point the UMIK-1 at the speakers
- For multichannel system (E.g. 5.1/7.1) or a surround application where multiple speakers are spread out around the room, use the 90deg file and point the UMIK-1 at the ceiling.

Enter the serial number that is on the bar-code label ON the microphone. (please don't enter the number that is shown in the screen-shot. That's MY microphone's serial number.

SAVE the text file in a place where you can access it later.

headphone or HDMI output. An analog measurement microphone will need a suitable interface with

SP UMIK-1
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urement

Calibration data ☒

Mic calibration files

Microphone (Umik-1 Gain: 18dB) MICROPHONE (Master Volume)

☐ Separate cal file for each input

None   Browse...   Clear Cal

Close

d to provide a means for sites to earn advertising fees by advertising and linking to amazon.com.

name: 7016613.txt
s type: Text Document (*.txt)

rs   Save   Cancel

In REW, when asked for the Mic calibration files, click Browse. Navigate to the folder where you saved your cal file (text) and select it

as show in the next screen-shot.
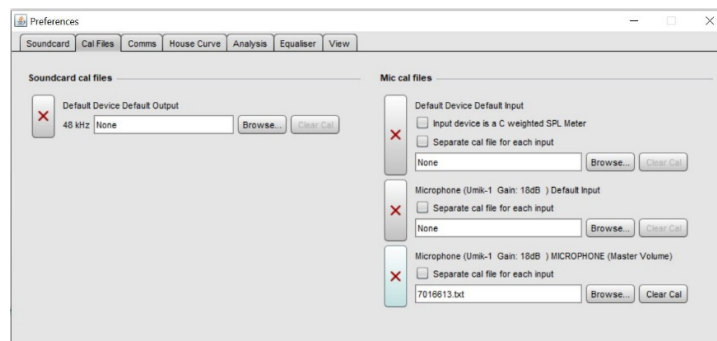
Preferences   ─ ☐ ✕

Soundcard | Cal Files | Comms | House Curve | Analysis | Equaliser | View

Soundcard cal files

✕ Default Device Default Output
48 kHz None   Browse... Clear Cal

Mic cal files

Default Device Default Input
☐ Input device is a C weighted SPL Meter
✕ ☐ Separate cal file for each input
None   Browse... Clear Cal

Microphone (Umik-1 Gain: 18dB) Default Input
✕ ☐ Separate cal file for each input
None   Browse... Clear Cal

Microphone (Umik-1 Gain: 18dB) MICROPHONE (Master Volume)
✕ ☐ Separate cal file for each input
7016613.txt   Browse... Clear Cal

Set up your sound card as shown above.
Click the tab, Cal Files, to check if the cal file is in the correct slot – as shown. Close Preferences.


Next, click Make a measurement. Adjust your settings so that they are as shown here. **Wait for the noisiest moment to test.** Click Start and be very quiet. – We want the 'worst-case' noise when testing.
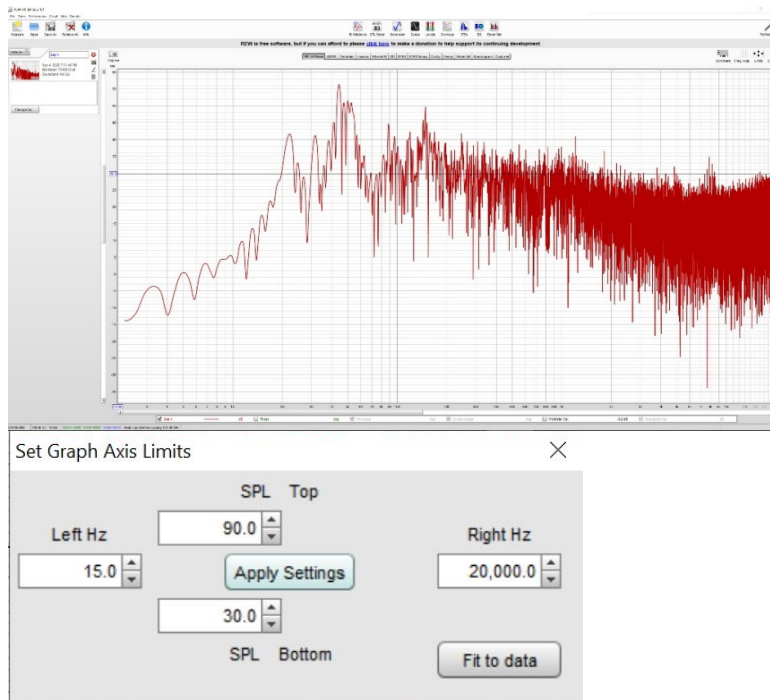
Once the measure appear in the display, you can fit the data to the screen by going to the upper RH corner and clicking Limits. You will see 'Set Graph Axis Limits'. Click 'Fit to data'. Save measurement(s).

You can skip the next steps if you plan to send the data to me. You can use wetransfer.com to send me the REW *.mdat file.
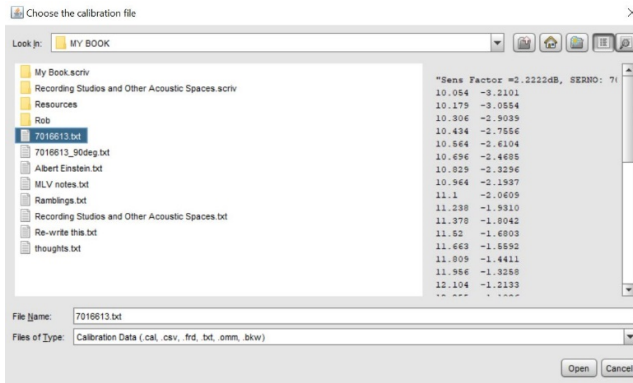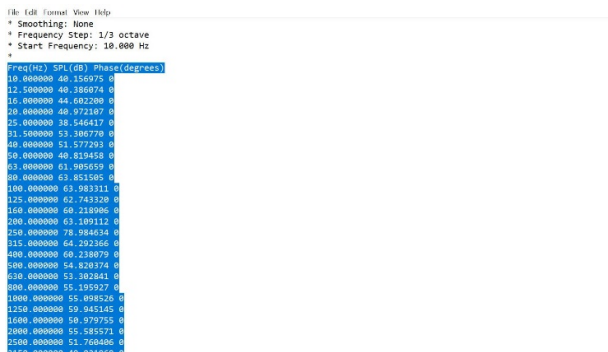
Next we're going to export the data so that we can pull it into a spreadsheet and 'work on it'.
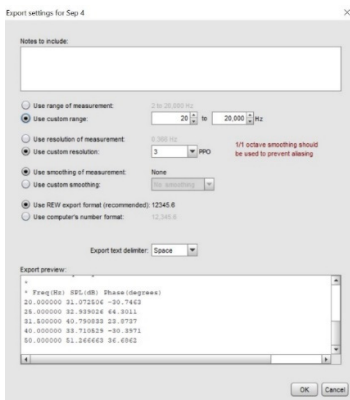

We don't need the high-resolution data that REW is capable of because it would be pages long and we would need to average it anyway. It's best to get no more than 1/3rd octave information.

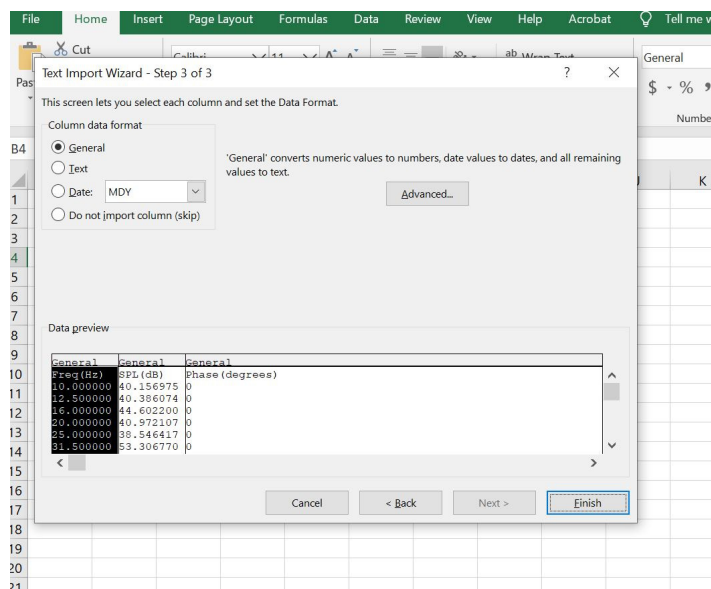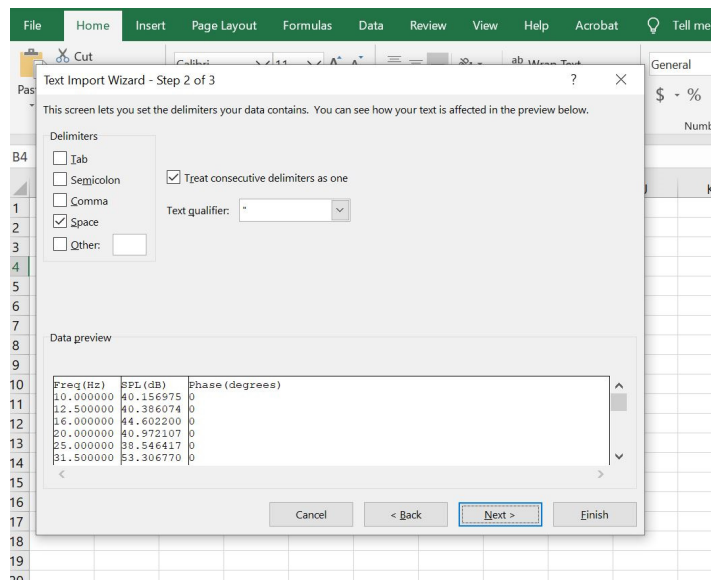So make your Export settings as shown above. Save them where you can access them.

The next step is to import them into an Excel spreadsheet.

Select the text as shown. You don't need the top part of the text file, only the data.
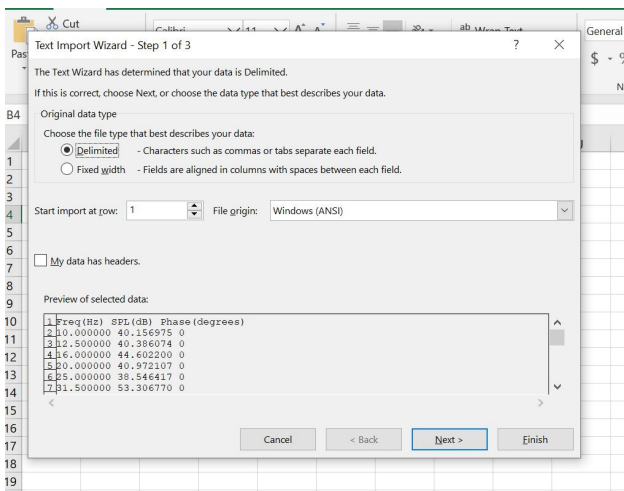
Open Excel. Select cell B2 and then click the arrow under the Paste icon. Select "Use Text Import Wizard" as shown here.

Check the fields as shown… continue.

Press Finish and you have your data displayed.