



## Off-Site Analysis Instructions

**Please read through this entire document prior to setting anything up or running any tests.**

Thank you for considering **Auralex** for your acoustical needs. The following is a list of instructions that will guide you through the steps of the **Auralex Room Analysis Plus** off-site testing service. The required test can be conducted at any position in the room where sound quality is crucial to the performance of the space.

### What You Will Need

- The stimulus signal (*downloaded from [www.auralex.com/raplus](http://www.auralex.com/raplus)*)
- A tape measure.
- Omni-Directional Measurement Microphone (*provided in the package*)
- One (1) test loudspeaker. This is true even for stereo and multi-channel setups, one (1) loudspeaker is all that is needed for this process. For studio control rooms, listening rooms, or home theaters, you should use the left loudspeaker. For a recording live room, any loudspeaker and location will work.
- A solid-state (*no tubes*) microphone preamp.
- The ability to playback and record WAV files simultaneously.

### Measurement Setup

1. The appropriate stimulus signal should be selected from the website URL provided in the package. Select the stimulus signal that has the same sampling rate (*44.1k, 48k, 96k, 192k*) and bit depth (*16 or 24*) as your recording platform. Use this file to play through your system as described below.
2. Prepare to play the stimulus signal through your (*single*) test loudspeaker. **The audio should only be played through one loudspeaker.** If you prefer, you can burn this file to an audio CD, or otherwise record it to your preferred playback media. Any medium or format that uses compression is unacceptable. WAV file playback (*e.g., via ProTools, Cubase, Logic, etc.*) is preferred.
3. Setup the measurement microphone at the preferred measurement location – typically at ear height for mix/listening positions or microphone height for recording applications. The orientation of the microphone does not matter since it is omni-directional.
4. Fill out the **Room Analysis Plus Form**. Be sure to document the following on your room diagram:
  - a. Exact room dimensions; length, width and height.
  - b. Exact location of the center of the test loudspeaker - the physical center of the loudspeaker box.  
Measure:
    - i. Distance from front wall
    - ii. Distance from left wall
    - iii. Distance from floor
  - c. Exact location of test microphone.  
Measure:
    - i. Distance from front wall
    - ii. Distance from left wall
    - iii. Distance from floor
5. Prepare to record the WAV file (*“Arm” the recorder.*) Be sure to document the bit depth and sampling rate that you are using for the recording on the form. The bit depth and sampling rate must match the stimulus signal you downloaded or the test will not work. The playback signal and the recorded signal must bypass any processing. The most direct path from playback medium to loudspeaker and from microphone to recorder is strongly encouraged. If it is possible to plug the playback device (*PC, Mac, CD-player, etc*) directly into the powered loudspeaker or the loudspeaker amplifier, this is recommended.

Likewise, the microphone should only be plugged into the pre-amp. The output of the pre-amp should be routed directly to the recorder.



## Auralex® Room Analysis Plus™

6. Play the test file, but do not record it. Set the level on the loudspeaker/amplifier such that the playback signal is not overwhelmingly loud, but is sufficiently high to be recorded without possible noise intrusion. If you have a sound level meter handy, the playback signal should read between 75 and 85 dB(C) at the test microphone location.) Also, the microphone preamp gain should be set such that no overloading (clipping) occurs on the recorder.

**The test file is a logarithmically swept sine wave from 20 to 24,000 Hz. Sine waves can severely damage audio equipment and hearing. Auralex cannot be held responsible for damage to either. Please be careful with your gear and wear earplugs!**

7. You are now ready to record the test file. Play it back and simultaneously record it to your preferred recording medium. Remain silent during the recording process. If inadvertent noises interrupt the recording process, you must begin again. While this testing process is fairly immune to constant noises such as HVAC or equipment fan noise, external noise sources should be shut off during the recording process if possible. Phones ringing, coughing, knocking on doors, etc. will contaminate the recorded file. Interruptions such as these require that you start the recording process over. During the test, do not stand or sit near the corners of the room or anywhere that might affect the results of the test. Sitting on the floor away from the microphone is typically advised. If you can trigger the recording from another room so that you are not in the room during the recording is ideal.

8. Information to send to **Auralex** via e-mail ([pluspro@auralex.com](mailto:pluspro@auralex.com)):

- a. Do not manipulate the recorded sound file. Save it with some sort of descriptive file name and send it. (Example: JohnSmith.WAV)
- b. Fill out the Room Analysis Plus Form and send it in along with a diagram outlining room dimensions, furniture placement, etc. The form is located on the **PRAF Plus** web page.
- c. Information that is noted in #4 above. This can be included in your diagram and our **Room Analysis Plus Form** has a box to enter this information into.
- d. Make and model of the speaker used for the test.
- e. Digital photos if available.

9. Within five to seven (5-7) business days, Auralex will contact you with the results of the analysis. The analysis is focused on identifying three main problems:

- a. Excessive decay - e.g., high Reverberation Time (RT) or Early Decay Time (EDT).
- b. Reflective anomalies such as excessive early reflections and flutter echoes.
- c. Low frequency anomalies such as modal build-ups and cancellations.

The information obtained through this testing procedure will assist us in the acoustical analysis of your room thus allowing us to pinpoint specific acoustical issues that are unpredictable with current modeling software.

We look forward to working with you on your room!

Should you have any questions about this process, please contact **Auralex Acoustics** at **1-800-959-3343**.