Listen

Sequence Note

External Calibration of Reference Speaker

Introduction

The standard way to calibrate a speaker in SoundCheck is to run the Speaker Equalization sequence from Setup > Calibration. This method is flexible, allowing any signal path or calibrated device to be selected. However, it does require the user to manually open the calibration editor, select the appropriate signal path, and follow along with user prompts.

This sequence provides an alternative way to calibrate a speaker directly using a test sequence and automatically iterate until the speaker's response is within a target range.

This method is advantageous as it simply entails running a sequence; detailed instructions for operators on how to use the calibration editor are not required. However, there is a flexibility trade-off. When using this standalone sequence, the Input Signal path used to calibrate cannot be changed on the fly. In addition, the Output Calibrated Device MUST be initially set in the calibration editor. To change the name of the Output Calibrated Device being calibrated, the sequence must be edited to create the appropriate names that match the calibration editor selection.



Final Display showing the calibrated response of the Source Speaker

Hardware Requirements

Reference Microphone – Listen SCM-4 or similar

Reference Speaker to be calibrated

Required Software

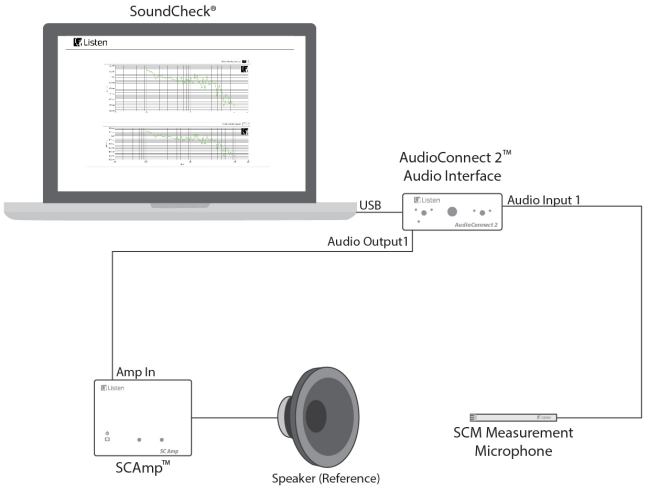
SoundCheck 23 or later

Hardware Setup & Calibration

1. Calibrate the reference microphone as instructed in the SoundCheck manual. This MUST use the Input Signal Path “Reference Mic”
2. In calibration, click Import… and select “Source Speaker.dat”
3. On the Output Signal Path “Source Speaker”, select the Output Calibrated Device “Source Speaker.dat”
4. Select the appropriate Output Hardware Channel on the “Source Speaker” output signal path
5. “Direct Out 1” will also be used in the sequence. Select the same output hardware channel for “Direct Out 1” that is being used for “Source Speaker”

The sequence is ready for use.

System diagram



Further sequence development

This sequence will ONLY work to calibrate the Calibrated Output Device named “Source Speaker.dat” on the signal path “Source Speaker” using the “Reference Mic” signal path. This can be edited, but care must be taken to ensure that all settings are properly changed to the new settings.

To change the input calibrated signal path, the input signal path must be changed in acquisition:

- Change Acquisition Step 14
- Change Acquisition Step 23

To change the output calibrated device, a new calibrated device with units of dBSPL must be added in Setup > Calibration for the Source Speaker signal path. In the sequence, names output from steps must be edited to match the new Output Calibrated Device. For example, switching from the default “Source Speaker.dat” to “Mouth Simulator.dat” would require:

- In Setup > Calibration, set the Output Calibrated Device of Output Signal Path “Source Speaker” to “Mouth Simulator.dat”. Make sure on units dBSPL is selected. Click save.
- Step 3 – Pos – Initialize Cal Data
    - Change the custom name from “Source Speaker sens-out” to “Mouth Simulator sens-out”
- Step 10 – Pos – Rename Cal
    - Change the custom name from “Source Speaker sens-out” to “Mouth Simulator sens-out”
- Step 17 – Pos – Rename cal curve
    - Change the custom name from “Source Speaker eq-out” to “Mouth Simulator eq-out”
- Step 27 – Pos – Rename cal curve
    - Change the custom name from “Source Speaker corr-out” to “Mouth Simulator corr-out”
- Step 32 – Pos – EQ-out tweak
    - Change the custom name from “Source Speaker eq-out” to “Mouth Simulator eq-out”
- Step 33 – Pos – EQ-out tweak
    - Change the custom name from “Source Speaker sens-out” to “Mouth Simulator eq-out”