

DRC Calibration Service Terms and Conditions

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General Agreement

The Terms and Conditions set out which items each party is responsible for and the parameters around each item as relating to the DRC calibration service.

Accurate Sound Reproduction Services = Accurate Sound.

Client = You.

DRC Calibration Service = Service.

FIR convolution correction filter = Filter.

Prerequisites:

The DRC calibration service is designed for computer-based audio systems. For taking acoustic measurements, the computer requires measurement software to be installed and a calibrated measurement microphone to be connected via USB or an audio interface. For playing back audio, the computer requires a convolver to be installed in the audio signal path. There are several ways to achieve convolution. These include: music players with built in convolvers, plugin convolvers, and standalone convolvers.

If unsure about the prerequisites, please ask.

Important Note: the service involves steps using computer software that outputs audio test signals through amplified loudspeakers. Please protect your hearing and equipment (e.g. tweeters) from excessive signal levels. Always double check signal levels before performing a measurement and be able to quickly abort the measurement if levels are excessive. If you feel like covering your ears, it is too loud. While best efforts have been made in providing guidance, Accurate Sound makes no representations or warranties and assumes no liabilities with respect to any equipment and/or hearing damage incurred during the service window.

The service window starts on the date that the service was purchased and ends after 90 days and is nonrefundable.

The service technically starts when Accurate Sound has received repeatable and consistent acoustic measurements approved by Accurate Sound. "Repeatable" means taking 3 sets of measurement back-to-back where both the frequency response and timing response can be compared for any differences in consistency.

In addition to the service starting, Accurate Sound requires the following details about your system:

1. Two sets of pictures: one from the listening position facing your system, the other from the system facing your listening position.
 - ideally a third picture of where the measurement microphone is setup.
 - any existing measurements e.g. from REW.
2. The dimensions of your room.
3. Mac? Windows? Music player(s)? Convolver(s)? DAC? Preamp? Amplifier(s)? Speakers? Measurement mic?

Important Note: while it is possible to use a calibrated USB measurement microphone for taking stereo measurements, Accurate Sound will no longer accept multichannel measurements if using a USB microphone. [Here is why.](#)

Once the measurements have been approved and rest of the details provided, Accurate Sound will take your information and develop a filter specifically designed for your system and room. The filter will be generated for the format required for your convolver. The filter is loaded into your convolver and you play a range of your music library to determine if there is too much/little bass and/or treble. Over the course of a listening session(s) you are listening for anything that is consistently tonally off. For example, each song played has too much bass. Or each song played sounds too bright. For a detailed description of what to listen for can be found here: [Subjective description of listening to accurate sound.](#)

Based on your listening feedback, a new filter is designed and delivered to be evaluated. Rinse and repeat until your desired tonal response is achieved while retaining the technical accuracy of the target filter design. Typically, it takes 3 or 4 iterations to get dialed in, with up to 6 filters maximum. There are no filter

carryovers after the 90-day service window.

With the DRC software purchased, a video walk through using your measurement is produced. All design artifacts are delivered with the video along with the step-by-step process to generate your own filters. This allows you to recreate your correction and verify it compared to the filter delivered by Accurate Sound. The video also discusses tips and tricks at all stages of the process for further experimentation. The video is for your own personal and private non-commercial use. The contents are not to be shared with anyone as it contains proprietary intellectual property.

With the delivery of the filters, design artifacts and video, signals the end of the DRC calibration service.

Technical Support

Accurate Sound offers 15 minutes of free trouble shooting upon the start of the service window to assist in taking quality acoustic measurements. Technically, the DRC calibration service starts after 3 successful measurements are taken that are within tolerances. Anything outside of that is considered technical support.

Technical Support rate = USD \$150/hr. The first hour payable up front and then billed in 15-minute increments thereafter.

Items considered technical support:

- anything related to taking or troubleshooting acoustic measurements outside the free 15 minutes of troubleshooting.
- troubleshooting setups where acoustic measurements have revealed issues like inverted polarity or a rise of distortion in one speaker or anything outside of a normal measurement.
- assisting or troubleshooting convolution issues as it relates to the filters.

Items not considered as technical support and where Accurate Sound will not engage:

- system design.
- equipment selection.
- software selection.
- HTPC or computer design or builds.

Accurate Sound working hours of operation:
9 to 5 weekdays PST, North America.
Closed on weekends and statutory holidays.

Contact by email only. Due to the volume of emails received, we ask that you stay on one email thread for all communications.

Prescriptive Approach

Important Note: attempting DRC can be fraught with poorly implemented audio drivers along with a myriad of other issues that only come up when taking acoustic measurements, especially when trying to synchronize the audio playback stream with a recording stream. Getting high quality acoustic measurements are often plagued with "timing" issues, which includes not only clock drift, but variable start and stop times of the sweep test tone, per channel. Considering the timing response of one's room and speakers is half of what makes for a great sounding system, particular care must be taken to get a high quality "timing" measurement.

USB mics come with their own ADC, which is a separate clock from the DAC that is playing the sweep. Trying to sync the two audio streams simultaneously for both recording and playback can be problematic. There are two solutions:

1. A USB mic can be used with a two-channel system, but the way that the measurement is taken is what is different. REW is placed in "listen" mode while a sweep .wav file, with embedded start and stop chirps, is played from one's music player over the system. This guarantees that the timing response in the measurement is valid for DRC purposes.
2. An ADC/DAC is used with an analog measurement microphone with a mic preamp (either separate or built into the audio interface which has both an ADC/DAC) so that both the playback and recording streams are under one clock.

Important Note: that the REW file playback approach is intended for stereo only. IF going multichannel, then the analog mic approach is the only way to avoid the frustration of two clocks never being able to sync up over multiple channels. While there are exceptions, generally, the more channels, the worse the timing issues become. It does not matter what DAC is being used in this scenario as the issue is two separate clocks that shall never meet timing wise.

Accurate Sound will not undertake multichannel work if a USB mic is used. For two channel stereo work, a UMIK-1 measurement mic using REW with "play the sweep file" method will work. Avoid UMIK-2 as there are issues with potential polarity reversal on some mics and streaming issues on others.

If multichannel, Accurate Sound recommends the following manufactures that have proven reliability in the repeatability of the acoustic measurement process in the field. Merging Technologies, Lynx Studio, RME and Motu have proven multichannel AD/DA converters with built in mic preamps under one clock that can reliably and repeatedly take consistent acoustic measurement with a calibrated analog measurement microphone.

Accurate Sound recommends any Earthworks calibrated measurement microphone or the iSEMcon EMX 7150 calibrated measurement microphone. Both have a proven track record.

This prescriptive approach guarantees consistent and repeatable multichannel measurements as state of the art. If in doubt, please contact Accurate Sound before purchasing the service.

End of DRC Calibration Terms and Conditions document.