

VENEQA FOH

Getting Start Guide

1. Simulation Mode

- In **Simulation Mode**, select a venue from **Venue Presets** and load it. If venue data is not available, measure the venue using a laser distance meter or similar device and enter the measurements manually.

Tuning is possible even without venue data. However, when venue data is entered, the simulated reflection characteristics and room modes can be overlaid on the **Transfer Function** graph, making it easier to understand the possible causes of dips and the acoustic characteristics of the venue. In addition, reflection-time guides are displayed in the **ETC** when setting up **Ref TF**.

【IMPORTANT】 In the current version, the reflection simulation calculates **only first-order reflections** and does not account for multiple reflections. It also does not account for differences in speaker characteristics between manufacturers or models.

In real-world environments, walls and ceilings often have beams, irregular surfaces, furniture, musical instruments, and other equipment. Room shapes are also rarely perfect rectangular spaces. Therefore, measurements and simulations will not match perfectly, and there is little benefit in adding more input parameters simply to pursue a physically perfect simulation.

In addition, even a slight change in the measurement position can significantly affect the measurement results.

VENEQA was designed to help you understand what is actually happening in the acoustic environment and provide useful hints for analysis.

With this in mind, **always prioritize actual measurement results over the simulation**, and use the simulation as a reference for analysis and as a guide during tuning.

2.Tuning Mode

Input Setup

- From **Setup** in the native menu bar, select your audio interface and configure the **Measurement** and **Reference** channels.
- Send pink noise to the **Reference** channel and adjust the input gain of the audio interface so that the meter reaches approximately the point where it turns yellow (**-18 dBFS**).
- Output the pink noise through the speakers and adjust the input gain of the audio interface for the measurement microphone so that its input level also reaches approximately the point where the meter turns yellow (**-18 dBFS**).

Tuning Methods

- There are two main approaches to speaker tuning: **measuring at a single position**, and **measuring at multiple positions** and averaging the results before applying EQ. Each approach has its own advantages and disadvantages, so choose the method that best suits your preferences and the situation.

VENEQA was designed to help compensate for the weaknesses of both approaches.

- The main advantage of measuring at a single position is speed, since the measurement microphone does not need to be moved.

The disadvantages are that there is less information available, making it more difficult to identify the causes of dips and determine whether EQ should be applied. It is also difficult to understand the acoustic response at

positions other than the measurement position. Achieving consistently good results with this method requires extensive acoustic knowledge and experience.

- The main advantages of measuring at multiple positions are that you can understand the response across the audience area and perform more effective EQ. You also do not need to investigate the underlying causes of dips as deeply.

Dips caused by phenomena such as **SBIR (Speaker Boundary Interference Response)** vary depending on the measurement position. Averaging multiple positions can therefore smooth out these dips, resulting in a more stable response from a physical standpoint.

The disadvantage is that the measurement microphone needs to be moved between positions, which requires additional time and effort.

Single-Position Measurement Procedure

- Place the measurement microphone at the desired position and output pink noise through the speakers. Adjust the input gain on the measurement side, then click the Play button in TF.
- The timing of the reference signal and the measurement microphone input must be aligned. Click the **Delay** button to open **Delay Finder**. Click **Find Delay** to measure the delay time, then click **Insert** to apply the measured delay. Once the measurement is complete, close Delay Finder.
- Click **Floor**, **Ceiling**, and other options in the **Display** section to overlay the reflection simulation and room modes on the TF **Magnitude** graph. If venue information has been entered in Simulation Mode, this can help you identify the possible causes of dips.
- For instructions on using **Ref TF**, please refer to the separate guide.
- Use **the reflection simulation**, **Ref TF**, and **Phase** results as guides for tuning.

【IMPORTANT】 **Auto PEQ** responds only to **averaged traces**. This is because it is difficult to reliably determine whether EQ should be applied from a single-position measurement.

For example, a frequency that appears to be a peak may simply be a peak between two dips. Moving the measurement position slightly may even cause the same frequency to appear as a dip.

Applying aggressive EQ based on a single-position measurement can therefore make it difficult to achieve good results. Consider the possible causes of dips and apply EQ with care.

Even if you have only a single trace, you can capture it and average it. This allows you to view the required PEQ gain and Q values in **EQ Mode**.

Multi-Position Measurement and Averaging Procedure

- Place the measurement microphone at the desired position and output pink noise through the speakers. Adjust the input gain on the measurement side, then click the **Play** button in **Transfer Function (TF)**.
- The timing of the reference signal and the measurement microphone input must be aligned. Click the **Delay** button to open **Delay Finder**. Click **Find Delay** to measure the delay time, then click **Insert** to apply the measured delay. Once the measurement is complete, close Delay Finder.
- Click the **Track** button to enable the delay tracker, so that the delay time automatically follows changes as you move the measurement microphone.
- If you have **VENEQA Mobile Pro**, tether it to your PC and make sure that you can capture traces from Mobile.
- Press the **Spacebar** to capture a trace, then move the measurement microphone to another position and capture a trace at each position. **Mobile Pro** is especially convenient when working alone, as you do not need to return to the PC every time you capture a trace.
- Once you have finished capturing traces at multiple positions, click the **Stop** button in TF to stop the measurement.

- Select the traces you want to average by **Shift-clicking** them, then click the **Average** button. A white **Average Trace** will be generated and displayed.

Next, click the **Off** button below the trace boxes to hide all traces, then select and display only the Average Trace.

- Click the **Target Curve** button to display the target curve. You can set your preferred target curve in advance using **Target Curve Edit** under **Tools** in the native menu bar.

- Lower the target curve to the desired level you want to use as the reference for EQ. Then click **EQ On** to run the Auto PEQ calculation. The **EQ Curve** (yellow), **Required EQ Curve** (blue), and **PEQ Predicted Response curve** (green) will be displayed.

The **Required EQ Curve** shows the EQ curve required to bring the Average Trace closer to the target curve. The **PEQ Predicted Response** curve shows the predicted response after applying the PEQ.

- Click the **EQ Mode** button to open EQ Mode. Check that the selected PEQ model is compatible with your mixer or system.

- Edit the PEQ as desired so that the predicted response approaches the target curve. Once you have finished editing, enter the PEQ parameters into your mixer or other system.

【NOTE】 After editing the PEQ, if you move the target curve up or down, or return to the Tuning Mode page and display another Average Trace, Auto PEQ will run again and generate a new EQ curve. Any edits you made to the EQ curve will be lost.

Final Check and Fine-Tuning

Regardless of which measurement method you use, after completing the measurement and EQ, play your reference audio and walk around the venue to perform a final check and make any necessary fine adjustments.

We know that **your ears are the most reliable tool of all**, regardless of the measurement method.

Add Position

- Use the **Add Position** function when saving a trace to also save its measurement position. When the trace is displayed, the measurement position is shown, and the reflection and room mode simulations are updated based on that measurement position.
- When averaging traces that contain position information, selecting the **Average Trace** also provides a simplified indication of which measurement positions are included.
- Since you need to enter the coordinates of each measurement position, this requires some additional effort. However, it is useful when you want to preserve detailed measurement data or analyze the results in more detail at a later time.

3.Show Mode

Range Adjustment

- Click the **Play** button in **RTA / Spectro** to start the measurement. Move the triangle on the right edge of the spectrogram to adjust the display range.

SPL Meter

- **SPL Meter** requires calibration using an acoustic calibrator before it can be used. Follow the steps below to perform the calibration.

- Click **SPL Calibration** under **Tools** in the native menu bar. The **Amplitude Calibration** window will appear as a pop-up.

- Select your audio interface and set the input channel to the channel connected to the measurement microphone.

- Enter the level of your acoustic calibrator in **Calibrator Level**.

- Click the **Calibrate** button to perform the calibration.

- Save the calibration settings. If you use the same equipment with the same gain settings, you will not need to perform the calibration again.

[NOTE] If you use different equipment or different gain settings from those used for the saved calibration, **SPL Meter will not display accurate levels**. Please use caution.

VENEQA Mobile Pro Integration

- If you have **VENEQA Mobile Pro**, you can move into the audience area during a live show, capture an **Average Trace** with Mobile, and send it to your PC.

If you save Average Traces captured from the audience area during rehearsal, you can also compare the response during the live show with the rehearsal results.

2Mix Recorder

- Set the input channel in the **Audio I/O** tab under **Setup** in the native menu bar.
- Select the recording format in the **Rec** tab under **Setup**.
- Click the **Rec** button once to enter standby mode. The input level will be displayed on the input meter.
- Adjust the input level so that the maximum level on the input meter reaches approximately the point where it turns yellow (**-18 dBFS**).
- Click the **Rec** button again to start recording.
- Click the **Stop** button to stop recording.
- Click the **Wave** button to open **Rec Waveform** in a pop-up window. To remove unwanted sections from the beginning or end of the recording, select the range you want to export and click **Trim Save**. The trimmed recording will be saved as a separate file from the original.
- Click the **Browser** button to open the location where the recorded file is saved.