

KALI AUDIO



System Commissioning

What is System Commissioning?

System commissioning is the process of correcting in-room variables in your loudspeaker system so that the loudspeakers are delivering neutral sound at reference level at the listening position. This process involves the intentional placement of loudspeakers and subwoofers, installation of appropriate acoustic material, and tuning the loudspeakers using digital signal processing (DSP.)

This process is especially important in immersive applications, as the use of multiple loudspeakers in multiple positions in a room will compound problems of speaker-to-room and speaker-to-speaker interactions.

Where does Kali come in?

Whether you're building a room from the ground up, or adapting a professionally designed studio for immersive mixing, Kali can assist in many steps of the process to ensure that the room and the speakers will sound the way they should. This involves assessment of the space for suitability as an immersive mixing environment, assistance with loudspeaker placement, and advice on the selection and placement of acoustic materials.

The core part of Kali's system commissioning service is the measurement and tuning of the loudspeakers. Once the system is installed and ready to be used, Kali will visit the space and conduct measurements using a mix of static and moving microphones. The moving microphone measurements give the most complete possible picture of what you the listener will hear in the listening position, and they will allow Kali to correct any frequency response issues in your system with great accuracy. As an added bonus, the moving microphone measurement method is fast, reliable, and repeatable.

Once we have finished measuring the system, we will provide per-loudspeaker EQ, delay, and trim parameters for you to load. We will then re-measure to ensure that everything is working as intended. This entire measuring and tuning process can usually happen during the course of one working day.

While our system commissioning process is thorough, it is not necessarily comprehensive. There are some factors, such as the selection of gear in your signal path, that are best worked out between you and your dealer. Additionally, you may want to consult with an acoustician, architect, and/or contractor for many of the more technical questions that come up as you're building out your space. A detailed overview of what Kali can and cannot offer can be found on page 4.

System commissioning may take place over as many as five phases, depending on your level of need. Once we've had an initial conversation, Kali will provide a proposed scope of work and we can proceed at your discretion.

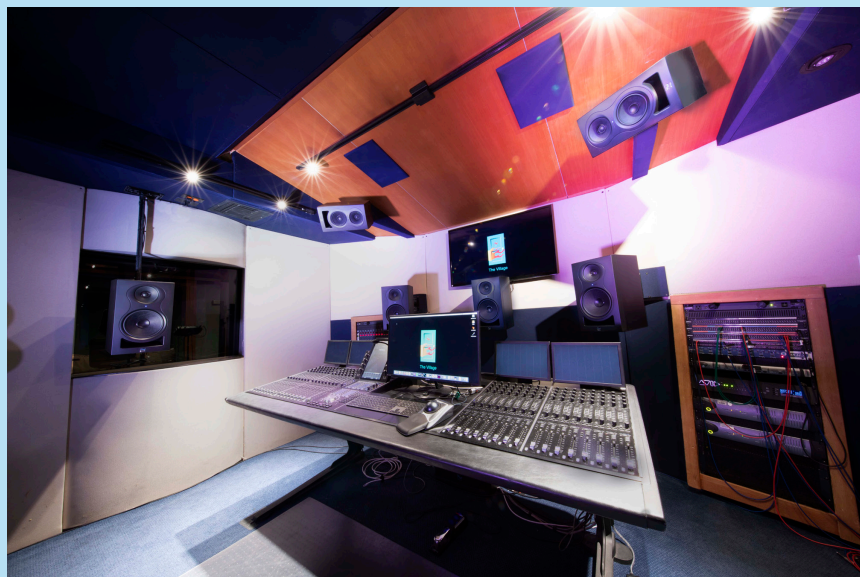
However you ultimately decide to build an immersive mixing room, Kali is ready to provide whatever help we can. We will work with you on an appropriate scope of work that addresses your needs and gets you mixing as soon as possible.

What Kali Will Do

- Advise on the location and configuration of the studio monitors, and suitable mounting solutions.
- Advise on the location and type of acoustic treatment, including bass traps.
- Advise on the placement and configuration of subwoofers for bass management, LFE, and room mode mitigation.
- Share any knowledge we have about peripheral gear that may be needed.
- Confirm suitability of items in signal path for system tuning.
- Measure the frequency response of the loudspeakers from the listening position and provide:
 - Per loudspeaker trims.
 - Per loudspeaker delay for time alignment.
 - Per loudspeaker parametric EQs.

What Kali Will Not Do

- Consult on any architectural, electrical, or construction questions.
- Procure, build, or install acoustic treatment.
- Specify any component for the system other than Kali Audio products, with the exception of suitable mounting solutions from partner organizations like Triad-Orbit.
- Assist in the preparation of the room for tuning. Activities that we will not do include, but are not limited to:
 - Deploying acoustic treatment
 - Installing mounting hardware onto the speakers, or installing the speakers themselves
 - Running signal and/or power cables to the speakers
 - Configuring I/O and DSP
 - Program the DSP with our measurements.



Process Overview

Phase 1: Initial Consultation

Phase 1 can occur over the phone or virtual meeting. In this phase, the user will describe their intended space for Kali. Kali will assess whether the space is suitable for use as an immersive mixing room, and specify Kali loudspeakers to be used based on the user's needs.

- **Kali Deliverable: Scope of Work, loudspeaker system configuration.**

Phase 2: Pre-Design

Phase 2 can occur via phone and email correspondence, with a kick-off and wrap-up meeting as needed. In this phase, the user will provide detailed documentation of their room and signal flow, and Kali will respond with marked-up drawings showing the necessary placement, in 3 dimensions, of all loudspeakers. Kali may also suggest acoustic treatment, and will sign off on signal path to ensure that DSP can be implemented.

- **User Deliverables:**
 - Dimension-accurate drawings of the space, showing:
 - Intended mix position
 - Potential alternate mix positions
 - Location and type of any pre-existing acoustic treatment
 - Any known impediments to speaker placement, including windows or doors, etc.
 - Signal flow diagram.
- **Kali Deliverables:**
 - Marked-up drawings showing suggested locations for loudspeakers and acoustic treatment.
 - Approval of signal flow diagram.

Phase 3: Build

Kali isn't involved, but we're available for customer support relating either to the performance of our products or the specifications of our marked-up drawings over the phone should the need arise. Once the system is built, we will have a phone call to ensure:

- **All elements of the space are in position; the space will not be substantially altered before it is used for mixing.**
- **Signal is flowing through the permanent signal path to each speaker.**

Phase 4: System commissioning

This is the day where a Kali staff member will visit the space to perform measurement. The user is responsible for paying this staff member's travel expenses, which will be detailed in the Scope of Work. A whole day should be set aside for a responsible party on the user's side to interface with Kali's staff member to ensure a successful commissioning.

- **Kali deliverables:**
 - Measurement and experimentation to determine appropriate positioning for subwoofers.
 - Measurement of loudspeakers.
 - Parameters for trim, delay, and EQ based on our measurements.
 - Remeasurement after DSP implementation to ensure correct function of the system.

Phase 5: Check-in

Once the system is up-and-running, we are available for a phone call to discuss how the system is functioning and make sure you're happy with the results of our commissioning!