



Front Speaker Placement

Left & Right Front

The left and right front speakers are located on either side of the screen with enough separation to get an adequate stereo effect. The width between the speakers is determined by the distance to the primary seat (also called "the money seat", for obvious reasons). These speakers are mounted at about ear level. The left and right front speakers are the most critical speakers for music and providing a "wide stage feel", as they blend a wide pattern of sound across the screen's visual panorama. When the correct speakers are chosen and mounted correctly, the sound seems to come from the entire screen and follow the action wherever it moves.

Center Front

The Front Center speaker provides the sound for most of the dialog and much of the music heard in a movie. Have you ever watched a movie and strained to hear the dialog? When that happens, the wrong center speaker was chosen, or not set up correctly. In a correctly designed and installed theater, even in the softest scenes, you should be able to listen to the dialog without effort. With such an important role, the Front Center speaker should be best quality speaker a customer can afford with a good frequency range and bass response.

LCR Placement

The following are industry best practices in the positioning of the front left, right, and center speakers.

- » The left, center, and right speakers (LCR) located in the front of the room are seated at ear height, or within 15 degrees of the plane cut by the seated ear height. If the speakers cannot be placed within this cone, then they should be angled in a vertical plane to cover the entire listening position.
- » It is best to have identical speaker models that are tonally matched so as to reproduce sound as identically as possible.
- » Orientate the LCR speakers according to manufacturer's specifications (typically vertical). The center channel speaker is located centered on the screen and each of the LCR speakers should have a clear line-of-sight from all listening locations.
- » The LCR speakers should be placed to provide an identical sound path distance to the primary listening position. However to accomplish this, the center channel will need to be recessed into the wall slightly farther than the left and right. In cases where this cannot be done, the delay time is adjusted for the center channel to match the left and right.
- » The LCR speakers should be placed in similar boundary conditions for best low-frequency match. This is accomplished by placing them at identical distances to walls, ceiling, and floor. Each speaker should be mounted in a similar fashion. For example, if the speakers are placed behind the screen inside a stud wall then the cavities that hold each speaker should be identical. Additionally, the speakers should be firmly attached to a stable or mechanically well-damped structure in order to minimize any rattles as a result of speaker vibrations.
- » In order to minimize unwanted reflections, the sound path of the LCR speakers should be unobstructed and clear of furnishings or other objects within 180 degrees of speaker face to a distance of 4 feet from speaker face.
- » In-wall loudspeakers should be mounted flush in the front wall with minimal obstructions or cavities in their vicinity, and mechanically isolated from the wall. This can be accomplished by using back box style speakers and acoustic isolation padding around the boxes.
- » Ideally, conventional box loudspeakers should be located either in a baffle wall or more than 3.5 feet (1m) in front of the wall to the center-line of the box. If box loudspeakers are placed inside cabinets, resonances from the cabinet cavities can be eliminated by a combination of front baffling, internal damping, and perforation of the sides and rear of the cabinets.

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