

Why the people in the front can't hear

Common Problems and Solutions



Sometimes there are complaints from the first few rows in the church that they can't hear very well; this is often due to one of two issues. The first and simplest issue is simply that the sound system was either not designed or installed properly to provide coverage to the front rows. The solution for this is to have a proper sound system installed.

However when: a) a system has been designed/installed properly and b) the system provides good coverage to those seats when a CD or test noise is being played and c) you still have problems hearing, other questions need to be asked. Can the people in the front row hear the words or music? Can they understand the words or music? There is a difference between not hearing and not understanding. If someone can't hear seated on the front rows, then politely hand them a hearing assistance system. However if they cannot understand, then that is a different issue.

If the problem now appears to be the inability to understand the words and music in the front rows of the church, very often the reason is due to interference from another source. Often this interference is coming from the stage monitors, instrument amplifiers or even acoustic instruments such as piano and horn section. Even though the monitor speakers are facing the people on the stage, there are low to mid frequencies coming out of the back of the speakers. This "muddy" signal combines with the direct signal from the main sound system. This greatly affects the clarity at the front seats. As you move further back into the room, you get a greater signal/noise ratio. The signal is the sound from the sound system and the "noise" is the sound from the stage. Anything other than the direct sound is considered noise. As with anything in sound systems, noise can be anything from stage monitor volume, HVAC noise, crying babies, chairs moving etc.

Now that we have identified the problem, then what is the solution? The best thing to do is to simply turn down the stage monitor levels. While this is easy to say, it is not so easily done, as the people on the stage often want them loud. You have to convince them that their "comfort" is a detriment to the rest of the congregation's enjoyment. If they are not part of the solution, then they are part of the problem.

If they will not allow the monitor levels to be reduced, then about the only thing to do is to add some small front fill speakers to the lip of the stage. These need to be equalized so that only the upper frequencies come out of them, so they can "cut through" the muddy sound coming from the stage. They must also be signal aligned so the sound from them and the sound from the main system arrive at the listener in the proper time, so as not to cause an echo effect.

The overall purpose of the fill speakers is to raise the level of the main system for the front few rows. However, the problem with this is that now the even sound level coverage you get from a properly designed and installed sound system no longer exists. The front rows are now louder than the rest of the sanctuary -- out of necessity because of the monitor levels. These levels may cause a new round of complaints.

Many times unknowledgeable persons will simply ask if the problem can be equalized out. The problem is that you cannot defy the laws of physics due to wavelengths, directivity, inverse square laws, comb-filtering, etc. You have to find ways to work with them and within their parameters.

As with any component of the sound system, ultimate satisfaction is a compromise on some level. In order to design, install and operate a proper sound system for any space, it is important to understand how all the aspects of the sound system play together to create the total sound field in the room and the problems that could occur.