



Traditional cone and dome speakers, when placed in large rooms with high ceilings or hard floors, experience excessive reflections causing significant loss of clarity. They also lose sound pressure level quickly, creating loss of accurate image and reduced seating options.

This Tech sheet explains the choice between cone and dome speakers and Line Source Arrays in creating excellent sound in an acoustically difficult room, without artificial EQ.

> The Great Room

Custom A/V installers everywhere have had to deal with the classic Great Room, with 20' high ceilings and hardwood floors. Your first thought, "This room is going to sound terrible regardless of what I do electronically or with speaker placement." The customer wants quality sound with good intelligibility in a variety of different seating positions.

> The Challenge

Large rooms with high ceilings, hard floors, or long and wide seating distances present a difficult acoustic space. The installer needs to reduce or eliminate reflections from a high ceiling without obtrusive acoustic treatments. Hardwood or stone floors are also acoustically reflective. The seating areas are often placed at a significant distance from the audio source, and they also may be separated laterally from the midpoint. How does the custom installer create sound which is intelligible, has a wide stereo image, and carries SPL a reasonable distance without excessively high volume near the source?



R-500 shown without grille



The Acoustically Challenged Room

> Design Criteria

The recent advances in EQ (e.g. Audyssey & Trinnov) have given custom installers a false perception that room acoustics and seating positions are not important to overall sound quality. EQ can be an effective tool once basic room acoustics have been reviewed and appropriate speaker choice and placement have been decided. Selecting the right speaker and reviewing the seating positions with the homeowner can go a long way in improving overall sound quality. In order to create believable stereo and surround imaging, the most important factor is similar sound pressure level and matching tonal balance from all speakers, regardless of seating position. In the “real world” we all know that ideal speaker placement is not always possible, especially in multi-purpose rooms.

> Solution

It's time to think about Line Source Array speakers. Vertical arrays of planar midranges and tweeters propagate sound waves forward in a cylindrical pattern, as compared with *cone and dome* speakers, which propagate sound waves in a spherical pattern. This has the effect of reducing reflections off the ceilings and floors, improving clarity. Just as important, these line source arrays have less SPL loss over distance – actually only half as much. With line source arrays, seating positions that are off center and at different distances can still enjoy quality soundstage imaging at much more even volume levels. This is why line source arrays are the speaker of choice in churches, auditoriums, concert halls, and in the touring systems used in large arenas.

> Results

BG Radia Line Source Arrays deliver homeowners clarity, intelligibility, and a wide soundstage in difficult rooms.

For More Information

To find out more about BG Radia products and solutions, visit www.BGRadia.com.