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Control of low-frequency sound to improve spatial uniformity in music production spaces

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Commercial music post-production spaces are often less than 300ft^2 (28m^2) and 2700ft^3 (76.5m^3), and it is not uncommon for them to be one-third to one-half this area. Even with careful room design, creating spatially-uniform sound fields, especially at low-frequencies, can be thwarted by the physical restraints imposed by the room's dimensions, boundary conditions and restraints imposed by other functional requirements and budget. This paper presents successful, and not so successful, approaches to managing these challenges through speaker selection, placement and mounting, as well as room shaping and finishes and furniture design. Results of design analysis, room acoustic testing, and listening tests are compared.