



THE EMPTY ROOM BLUES

Ideas for simulating an audience in soundcheck

By The LAB Lounge Gang

QUESTION POSTED BY RAETOR70

Everyone knows that adding people to a room changes everything, so does anyone have any tricks on simulating or accounting for the audience when doing sound check? I'm just curious to see what can be done.

REPLY BY PER SAMUELSSON

That's an interesting thought that has followed me for years. I guess it would be possible to build a virtual audience for soundcheck purposes. Since acoustic absorbers are a combination of material and air, maybe they could be constructed so that they're "vacuumed" out when transporting and filled with air when being used.

Could be an idea for companies like Auralex, etc. Or is it just a crazy thought?

REPLY BY RICK JOHNSTON

(Rant on) I love the "knob jockeys" who crank the system up in an empty room and re-EQ it while standing at front-of-house (FOH) and talking into a (Shure) SM58. That done, they'll tweak the EQ on the kick drum for 20 minutes, then spend a few minutes tweaking every other source.

All the while, the sound they're hearing is nothing like the sound they'll hear in a few hours. By the time the place fills with people and the two openers have finished, all of that meticulous sound checking is out the window and they're scrambling all over the console for the first couple of songs. But never once re-adjusting their precious EQ settings, which were calibrated for the audience-filled room before they laid mitts on it! (Rant off)

In an ideal world, the best bet would be to take your measurements and calibrate your system for each audience. Problem is, not many audiences will put up with pink noise and test tones for more than a few seconds.

Audiences mostly affect reverb time (RT) and ambient background noise. Providing for crowd noise is a matter of making sure the system is capable of being 10 dB louder than the audience at its song-loving, screaming peak. (This may not be as simple as it seems. Crowds at football stadiums can hit 115 dB or more.)

You can project the RT difference in the empty room versus a packed house by determining the additional absorption the audience will provide. Unfortunately, the absorption coefficients for human bodies have quite a range - from less than .4 to greater than .9, depending upon frequency and clothing. (Don't laugh. Audiences in the northern climates wear close to nothing in the summer and are bundled up like down-filled sleeping bags during the winter!)

Generally, if the system sounds good in an empty room, the audience will make it sound better - to a point. A completely dead room is not the best environment for all situations.

REPLY BY SOUNDREW

(Sarcasm on) I think Auralex has already got something in the pipeline.... It's called the dance floor, a four-foot by four-foot sheet that hangs on a wall and is peppered with little human figurines that act as wide-band attenuators and dif-fusers. (Sarcasm off)

One of the keys to this dilemma is not torching your hearing when a room is empty and then struggling when its full because of temporary threshold loss. I

tend to briefly EQ things to where they sound O.K., knowing that I'll need to do some serious tweaking once the room fills up.

REPLY BY NOISE STUDIOS

Very interesting question that I've given much thought to. A general rule that I follow is that SOMETIMES - not always - a 3 dB boost from empty room level for the first 500 people that will be in the audience, and then a 1 dB to 2 dB boost per extra 500 people. (But if it's an audience of 15,000, don't add 30 dB to the sound. My rule only applies to smaller venues.)

But it also depends on audience volume level, which is never predictable. I toured with a theater troupe once, and on the closing night we used an installed PA that was already in the auditorium. It was the biggest space we'd ever performed in, holding roughly 2,500 folks.

After soundcheck, I did a 3 dB boost, not sure what to expect. It was the first time in the history of all my projects that I had to raise the master. I usually leave the master happy at -10 dB as a general policy and never touch it once it's been set, but I just couldn't raise the level high enough on the lavs (lavalier mics). It was insane.

REPLY BY RICK JOHNSTON

The issue I have with your +3 dB per 500 method is that two of the rooms I regularly work are extremely live when empty. In order for visiting engineers to hear what they want to hear (and overcome the reverberant characteristics of the room), they CRANK the system during soundcheck, to levels that would take people's heads off if the room was full. (Well above 120 dB SPL.)

Both rooms sound best when the system maxes out at 115 dB or so when full of people. (Original rock music clubs.) Any more and the rooms can't take the acoustic power. Acoustic compression becomes a factor.

When I run locals and regionals that don't draw much of an audience, the SPL meter dances around 105 dB or so. So I guess my experience has been the opposite of yours.

REPLY BY JACK BARRY

Some good input here. No sense in tweaking stuff during soundcheck. Sure, get a line check, EQ the monitors and house, do a couple of tunes - whatever. You can usually walk around the empty room, clap your hands, yell "wooo" and get a feel of the room. Do whatever with the drum kit, etc.

Mostly, the bodies will take high frequencies down in the room, depending on all kinds of stuff - er - data about the room. How high is the ceiling, blah, blah, blah.

I love this web site. All topics here are good. I learn, I teach, I say stupid things. It's hard for me to come home from gigs and tell my sleepy wife the monitors had a high ring that I couldn't figure out. You know what I mean?

Anyway, happy knob twisting.

Want to "hang with the gang" in the LAB Lounge on ProSoundWeb? This community forum, moderated by Dave Dermont, is dedicated to both the technical and fun sides of life in sound reinforcement, with several new discussions ongoing daily. Check it out at www.prosoundweb.com/forums/ and click on "LAB Lounge." ■

Editor's Note: This discussion is presented "as written" except for grammar/spelling corrections and deletion of off-topic verbiage.