Atlantic TECHNOLOGY

TECH TIPS

3-08

Tip #31 'Local' Delivery

There is one audio term that is thrown around pretty often with the assumption that everyone knows what it means. Not everyone does, so let's take the time here to clarify it.

The term is "localize." This refers to the ability of a person to identify the location of a sound source by ear. For example, if someone was standing behind you and shouted, "Hey Joe!" you'd turn around because you could identify–or localize–the position of their voice just by ear, without having to actually see the person. (Assuming, of course, that your name is Joe.)

The ability to localize on a sound source is either good or bad, depending on the nature of the sound and the situation in which that sound is produced. First, some basic Acoustics 101: The human ear can hear tones from about 20 Hertz (abbreviated "Hz") in the bass up to about 20 thousand Hz (20 kHz) in the treble (see Tech Tips 25 and 28). Because of the nature of bass tones, low bass (from 20 Hz to about 80-100 Hz) tends to be non-directional. That means the ear can't really tell what direction low bass tones are coming from. They're very difficult to localize.

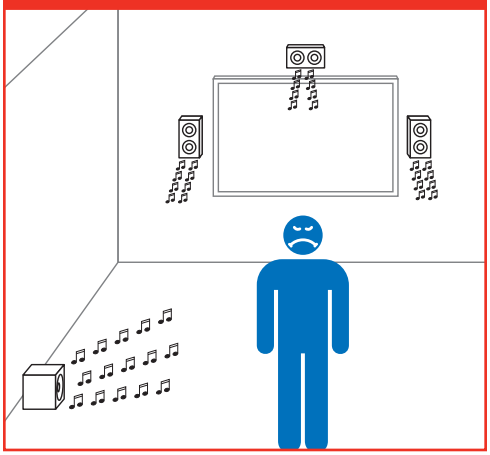
How does this apply to an audio/home theater system? Well, now you can understand that if a subwoofer is physically separated from the front satellites by too great a distance and the crossover to the subwoofer is set above the point of localizability (around 100 Hz or so), you'll actually be able to hear the subwoofer separately from the front satellite speakers (see Tech Tip 27). That's not good, because ideally, you want all the sound–including the bass–to seem as if it's coming from the front satellite speakers. That way, the sound matches the picture on the screen. (see Fig.1)

Another situation where localizability is bad is with surround speakers. Their job is to fill the room with three-dimensional ambient sound effects, like echoes, rustling leaves in the forest, the hustle and bustle of a city street, etc. A good dipole surround speaker will spread out this ambient sound without betraying its specific location, thus preserving a convincing sonic illusion.

In contrast to subwoofers and surround speakers, localizability is a good thing with front channel speakers. When a person is speaking on-screen or a plane flies by from left to right, you want to be able to place the sound exactly with the visual. (see Fig.2)

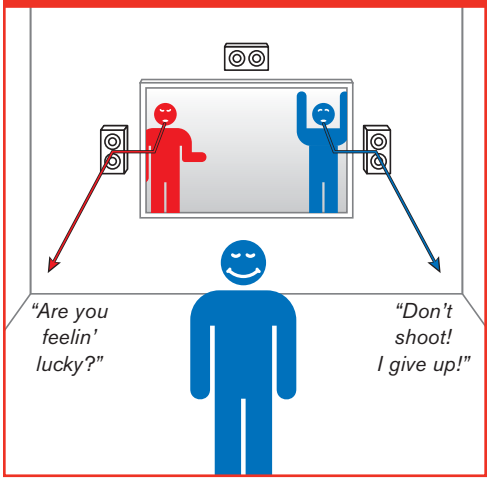
So you can see that the concept of "localizability" is neither good nor bad; you just need to understand when you want it and when you don't.

Figure 1



Localizing on the sub ruins the sonic experience

Figure 2



Sometimes, localizability is a good thing

Other Tech Tips:

Tip 27: IWTS-8 vs. IWTS-8e
Tip 28: Setting your Receiver's Sub X-Over
Tip 29: Spread it Around
Tip 30: All in the Family