

# In the Zone

He says he's really not the kind of guy who makes New Year resolutions, but this year

**DENNIS BAXTER** is breaking new ground.



**I**n my travels, presentations and columns, I've been criticised for 'pie in the sky' thinking without offering hard solutions for tough problems. So I've decided to start a new year with a closer look at some of the major problems with television audio and offer a few ideas and, of course, opinions.

Television is full of sound problems from loudness and lip-sync to the use of the Low Frequency Effect (LFE) channel. There is much debate about surround sound for television and there are differing opinions on the use of the channels and most certainly the LFE. The LFE channel is the most misunderstood and abused channel in television.

Multichannel film sound provided an additional channel for low frequency energy where the impact is heard and felt and does not overload the system. The LFE channel is intended for those viewers who have a 'home theatre' environment that can properly reproduce the effect. 5.1 surround sound has been adopted by the broadcast industry and, as previously discussed, the use of LFE does not always convey correctly into the home with television.

Why not? First, speaker placement in viewing-listening areas is generally not positioned to proper reproduction specifications. Second, 'set-top' box down-mixing and up-mixing is far from perfect. Finally, the 'home factor' — the individual characteristics of gear and structure — varies greatly and is not controllable by the content producer.

Additionally, remember that the reproduction of the low frequency content is not tied to the LFE channel (the .1 channel) because the 4.0 channels (left, right, left surround and right surround) are mixed with full frequency. This leads to the question: why do you need a LFE channel for home television? The answer is that in many situations the LFE information is not reproduced but is discarded.

There is a clear increase in home surround sound systems along with greater expectations from the medium. Production of content must lead the market and the sound design must work across many platforms and transmission schemes. A clear plan for the use of the LFE channel opens creative options for the sound mixer to deliver something special to the home theatre viewers who can reproduce the LFE correctly.

How do we get there? The creation of 'surround sound zones' is a clear method to define and properly use the additional surround sound channels including the low frequency effect. The use of surround sound zones defines the parameters and content of the channels and is a boost in the production effect with the use of all surround channels and specific LFE information.

Surround Sound Zones are the complete use of all 4.1 channels\* — front, surround and the LFE channel to momentarily excite the soundfield and enhance the listening experience. (Note — 4.1 channels — I'm omitting discussion of the centre channel because it is dedicated to dialogue.)

Hockey is a great example for the use of surround sound zones. Hockey is a vibrant and violent sport that finds an apex of excitement in the rounded corner. The impact into the corners creates an intense soundfield burst that is ideal for surround sound including the LFE. The group of microphones in this surround sound zone includes a stereo microphone in front of the glass, a stereo microphone on the camera, plus a separate microphone dedicated to capturing the low frequency — a 4.1 microphone array. The LFE microphone will be band-passed in the mixer and assigned exclusively to the LFE channel. This combination of microphones is specifically to create an effect and is intended to pop out when there is impact in this area of the field-of-play.

Surround Sound Zones are a simple plan because the microphones, mixing and assignments are specific and clear. Surround sound zones are mixed as additive layers that make the mix groups manageable to balance and transition with.

The earlier question was: do we really need a LFE channel? The answer is a resounding 'yes' in support of those who lead the curve with adopting the new entertainment technologies and for those who will. Technology and production practices evolve and the soundman will never be content to just leave things alone. Mono, binaural, stereo, quad and surround have been and are viable audio formats — and with each new development we always hear that it will replace the others.

Last I heard, everything from single channel to multichannel delivery is a requirement and probably always will be. As a result, it is common practice for a mixer or sound designer to generate multiple mixes that have to play in a variety of formats including the streaming environment, home theatre and home living room.

If you are a soundman like me, perhaps one of your New Year resolutions should be to get into the sound zone. That's where you can make a difference. ■