

# How to optimise levels in an analogue processing chain Part IV

Last issue **BOB KATZ** told us we'd be discussing those pesky balanced and unbalanced analogue interfaces, but he's postponing that to tell you the story of an album he just mastered for, Irish singer, Karen Egan, which used (and abused) some of the techniques he described last issue.



**TRY TO MASTER** an acoustic album so that it sounds open, clear, transparent and natural, but these days even the pristine acoustic jazz idiom has fallen victim to the loudness race. I wish that mastering engineers would try not to raise the level of the average, but to fit within the average, so as to slow down or even reverse this terrible loudness race. But the average keeps on moving up from year to year, for clients often ask us to match or exceed the level of their favourite CDs. It takes a lot of discipline to come in a bit lower than 'the competition' but we should all do it, or suffer the consequences. And since 'loud' is the way to impress clients, we all have been known to sin, even by a quarter dB at a time. Remember that my use of the term 'loud' is facetious at best because we have no control over the user's volume control. They are going to turn it up or down until they like the sound.

Diana Krahl's superb 5.1 DVD live album sounds fantastically natural and not overcompressed ... as far as I'm concerned, there's every reason (except fear) for acoustic jazz CDs to be produced in the same way as this lovely DVD. You can find examples of dynamic CDs by artists such as Shirley Horn and Lyle Lovett in the Honour Roll at [www.digido.com](http://www.digido.com).

Anyway, back to my Irish lassie. After I created her CD reference that is about at a K-12 level, as 'hot' as I could make her jazz CD without compromising the loudest song, and certainly at 1990-1995-era levels, I received this letter.

Dear Bob: Listening to 'the 2005 competition' at 15 on my stereo, I would have to put myself up to 25. If I listen to myself at 15, my voice sounds muffled and indistinct but as soon as I raise it to 25 or even 28, it sings out. So, I have no problem with my album once I put the volume way up. So what I'm saying is that reference CD of a jazz vocal artist isn't too loud for me and to my ears — she's not too compromised. I know you really think her 2nd album (which I don't have) is compromised but do you feel the same about the first one? My main concern is that my voice sounds pretty low, indistinct and muffled unless I turn the volume up considerably and I'm not sure that many people will do that so I want it to sing out even at a lower volume. Given the above, do you think it would be possible to achieve a similar if not higher level? Obviously, you will be the better judge of how that affects my album in terms of any potential damage.

Given that fair (yet also unfair) challenge, I sought out ways to make a louder record (in front of the volume control), and, as much as possible, retain Karen's open sound, mixed by Dave McCune, a Dublin-based engineer with a wonderful studio and piano. By the way, Karen produced 300 quick promo copies of the lower level CD, so if you catch one of those, you might compare it with the louder one that is about to be released.

Normally, peak limiting is a tool to control momentary instantaneous peaks such as the initial attack of percussive instruments, but by 2006, engineers have begun using it as a mastering tool even for laid-back acoustic material. It's very easy for a mastering engineer to raise the level of an album consisting of vocals, strings, woodwinds and nylon-stringed guitar just by doing a bit of peak limiting, because there are no short-duration transients to damage. Ironically, we can raise the RMS level of a song that has no percussion until it is nearly as loud as Snoop Dogg or Motley Crue! But it's very hard to obtain year-2006 acoustic jazz levels without causing the sound to get closed in, or getting clamping effects from excessive dynamics processing. To match the competition, I would have to raise Karen's album by another 2 or 3dB, and there was already about 2dB of (unnecessary) peak limiting on the loudest song just to get it to 1995 levels. So, either I would have to succumb to the spongy sound that would result if I resorted to heavy compression, live with clamping effects from excessive peak limiting, or find another way.

**ANALOGUE CLIPPING ON AN ACOUSTIC ALBUM?** And that way was to leave the digital domain, where I had been transparently processing Karen's record using Weiss and TC gear. To obtain more level without the harshness that comes from overdriving a digital chain, I had to resort to analogue clipping. I patched in my Cranesong HEDD as a D-A-D processing loop and inserted my Cranesong Trakker as an analogue linear amplifier with no compression (threshold turned off). Since the highest digital peak prior to the analogue point was -2dBFS, I adjusted the

## The Mastering Engineer's Dart Game



I present to you Exhibit A, a work of art titled, **The Volume Control As an English Dartboard**. What target are you aiming for today?

Trakker for 3dB gain in front of the Cranesong A-D, which resulted in 1dB of inaudible A-D clipping on the peak of the loudest passage of the loudest song. This saved me from having to push the digital limiter too hard, which can result in clamping or dynamic reversal. But imagine, we have reached the point where we have to apply analogue clipping on an acoustic album.

I also had to juggle the issue of Karen's loudest song, the only one that employed a trap set to drive the rhythm, and a Dixieland band takes it to a big climax. To my ears, the force of the climax has been clamped a bit by the peak limiter and the A-D clipping but the average listener will probably not notice it. Without mix engineer Dave McCune I could not have mastered such a warm-sounding and dynamic record loud because Dave engineered an open, clear, undistorted sound to begin with. That's part of the trick of how to make a recording sound loud; don't overcompress in the tracking and mix stages, or the distortion multiplies. ■

### Information



Resolution recommends Bob Katz's book *Mastering Audio — The Art and the Science* as an essential source of information for every pro audio enthusiast who cares about sound. You can buy it on line at [www.digido.com](http://www.digido.com)