

Ready for radio

When we last met Becky and Fred they were working on a new mix, and now they're convinced they've got a hit on their hands. Things have been moving fast and they've lined up the local radio DJ to debut the new hip-hop tune. Mastering engineer BOB KATZ listens in on progress.

HHEY,' SAYS FRED, 'we've got a great mix, and all the mastering tools from that super Rubidium plug-in bundle — let's master this tune ourselves. All we gotta do is pump up the level, right?' 'Yeah, let's pump it up!' replies Becky.

'Fred, the first thing I hear we gotta do is put on this multiband compressor. Set it to that preset called Hot Master. Listen to that baby — wow, it's hot already!'

'But Beck, I think the top end got dull now that it's compressed. Let's throw in the Rubidium Sparkler EQ. Oh look, a preset called "turn up the lights and dance", can't lose with that. Yay, it's really got a sheen — I see the dust shaking off the tweeter! But wait a minute, now it needs some bass. It's gotta kick like Fat Boy's last hit, everyone's playing that in the clubs. Put on that Fat Boy CD and see if we can match that. OK, hit that "Earthquake" preset; listen to that kick drum now!'

'The next thing Rubidium says we need is to plug in the limiter. They say we can get another 6dB of level. Let's try for 7! OK, kick up the threshold; it keeps on getting louder and louder. Boy, this thing is fat and juicy and loud now. And not an over on the meter. But wait, how come Fat Boy's CD still sounds louder than ours? It's got a certain edge.'

'That's from clipping, Beck; you know, positively everyone is clipping now. Forget the overs on the meter. The trick is to back off the limiter a little and add some gain from another module post the limiter until it lights up the red lights. All right, there it goes. Now we've got the edge and I swear, our CD sounds hotter and grittier than even Fat Boy's. I wanna dance... can't wait to hear this on the radio.'

Anticipation mounts. The night of the radio debut, they call all their friends. Some are listening in their cars, some on the hi-fi at home, and Becky and Fred at their respective project studios. They are expecting dozens of phone calls of congratulation, but the only ring of the night is Fred calling Becky with his tail between his legs. 'Becky, did you hear the radio? It sounds awful. Fuzzy, distorted, wimpy. The music is not even as loud as the announcer's voice, and the bass, that bass is so unclear. It's gotta be that creaky radio station 'cause it sure was kicking when it left here!'

'I dunno, Fred. Maybe it was our mastering, I told you we should have sent out for mastering.'

'No you didn't, I was the one who told you that!'

'Oh, I don't want to argue, I just want to fix this



mess. Let's book a session with Bob as soon as he can get us in.'

Bob the mastering engineer was very patient with his friends since he's already seen many other instances of well-meaning mix engineers attempting to master their own product and falling flat on their faces.

'OK guys,' says Bob, 'first let's hear your original mix before you pumped it up... Hmm, your mix doesn't sound half bad. It's got dynamics and clarity and transients and pretty good stereo width and depth. Those are prime ingredients for a mix that will translate well everywhere. The tonal balance needs a bit of minor tweaking, but it looks like these tweaks will preserve and enhance your mix. Now let's hear your mastering...'

In the cold light of day, the calibrated system and acoustics at the mastering studio reveal that Becky and Fred had leached all the dynamics out of their product. Instead of sounding punchy, it was decidedly wimpy, and of course that didn't help on the radio. Bob demonstrates that by using that Earthquake plug-in, they had made the kick drum so heavy that the beater could not be heard at all; all that was left was a lump with no dynamics or definition. On the other side of the spectrum, the high end was so screechy that it could not be played loudly without tearing the eilia out of anyone's eardrums. And that HF rise had taken all the midrange punch out of the vocalist until his voice sounded like it was coming out of a 3-inch speaker.

'How could we have gone so wrong?' whimpers Becky.

'It's a matter of perspective,' replies Bob. 'After you've made hundreds and hundreds of masters and auditioned them on an accurate system, you know

what "far enough" means, and you also know what problems excessive EQ can cause down the road. Do you know that your Earthquake preset boosted the bass drum 6dB at 32Hz when in your case, even 1dB would have overloaded the woofers at the club down the road? Your mixing speakers don't reproduce 32Hz so how would you have known? Now it's true that Fat Boy's CD has hot bass, but it obtains its punch and clarity from other frequencies than just 32Hz. When it comes to your high boost, the problem is that your mix reproduction system self-compresses, so you could not hear how ugly and sibilant you were making the voice, nor how much midrange suck-out it was causing. This system is so revealing I usually can make EQ decisions in less than 0.5dB steps.

'I don't know where you got your ideas about clipping, Fred,' continues Bob. 'Contrary to what you may have heard, clipping is a very dangerous thing to do. You have to know all the possible consequences, and where and how to use it if at all in the mastering stage. The clipping you performed was so excessive, it caused serious "tearing" distortion when it reached radio, or MP3 for that matter. I'm not a big fan of clipping on outputs; if you can get a clean, loud recording and mix happening without clipping. It's a bad thing to perform clipping in the mastering because subsequent generations multiply the distortion. As for your levels, your master was so hot that the limiter took away all the transients and the RMS level probably overloaded the radio station's processors by several dB. Plus, a lower RMS level would have sounded better at home! Let the listeners turn up their volume controls and stop trying to beat the laws of physics.'

'Anyway, I suggest we take a completely different approach in the mastering to get a great-sounding record. I would pick a completely different compressor, one that will fatten the sound and clarify it at the same time, but requires great skill to set up at this end. But first, I think your bass drum is lying a bit flat because the samples you chose just don't hit the mark. I can improve it tremendously in the mastering, but if you want an A+ grade, I suggest you go back and work a bit more on the drum tracking and mixing. Go for a clear sound; do you see that your current bass drum sounds lumpy and undefined when you hear it on an accurate system? Don't hesitate to bring your work mix over here for a listen before you commit, since your speakers are not telling you what you need to know. And finally, here are a couple of other mix suggestions I can make if you have the time...' ■

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