

# Hitmakers

I'll never forget the first time I heard a pair of high-quality nearfield studio monitors. I was working for an A&R rep at Verve Records, and we were listening to new singles through some cute, colorful 2-way Tannoys in his office. The experience of listening to music through them was different than any other speakers I'd ever heard before. Instead of just "playing back the song," they were recreating the recording with a sense of depth and accuracy. It wasn't just about detail--although they did have a good level of detail. They were *balanced*. The instruments and voices in the recording were actually "placed" in the space in the room in front of me.

Since then, I've seen the pro audio market become flooded with 2-way nearfield monitors from various companies. Some were actively powered with their own discrete amps, and some were passive and required an external amp. The sound quality was pretty darn good much of the time, too; definitely a huge step up from the sort of makeshift setups most people had hooked up in their home studios. But the one option I never saw was for someone to *build* a studio monitor (Although a friend and I did attempt this, with terrible results, since we had no idea how to design a speaker back then). Most project studio owners are DIYers in their own right; willing to get their hands dirty, trying to do what the big boys do for a fraction of the cost. So why couldn't they have the ability to build their own speakers?

The Hitmakers are here to fill that role. It's a straightforward DIY project that a project studio owner can attempt, and be assured good results.

These will require an external amplifier; I recommend a fanless 2-channel pro audio amp such as the Alesis RA150, Behringer A500, or the like--although even something as simple as a Home Theater receiver set to "direct stereo" mode would work fine, too. Don't plan on running these on some flea-watt tube or mini amp; they're not very sensitive, and really benefit from having some juice behind them. Oh, and in case it's not obvious, the Hitmakers are meant to sit on top of a stand, or they can be placed on a desktop--just be sure to set them far enough back so the sound from the drivers has space to integrate before it hits your ears.

## Cabinet Design

This is a simple 2-way bookshelf speaker, with an internal volume of approximately .5 cu ft. The vent is mounted on the back panel. It is 2" diameter by 6" long (the kit version uses [this](#) port, but ordinary PVC would work just as well). This tunes the box to 48 Hz, and gives an F3 around 42 Hz, with a bit of bass boost near 75 Hz. The interior of the cabinet is lined with convoluted (eggcrate) foam. I used ordinary mattress topper, cut it into pieces with scissors, and hot glued it in place on the sides, top, and back of the enclosure. Don't worry about lining the back of the baffle; and don't bother lining the bottom of the cabinet, since that's where the crossover will most likely sit. And if you can't get a hold of foam, you can get approximately the same effect with a light fill of polyfil. To clarify: the only purpose of the lining/stuffing in this vented speaker is to absorb any high-frequency stuff bouncing around inside the cabinet; it's not going to have any effect on the bass (unless you overdo it, in which case, the bass will start sounding choked or thin).

# Crossover Design

Since these are relatively simple drivers to work with, I tried to keep the crossover as simple and straightforward as possible. The woofer is 2nd order electrical with capacitor C2 acting as a notch filter to remove the breakup from the aluminum cone of the woofer. The tweeter filter is a simple 2nd order electrical filter with an L-Pad. The crossover point occurs around 2000 Hz. The impedance load of this speaker would probably be labeled "8 Ohms nominal" if it were a commercial speaker. Any pro audio amp would have no problem driving these things all day.

# Listening Impressions

These drivers are performing way out of their price class. When handled gracefully in a crossover, they provide a full, balanced, effortless sound. The Hitmakers have just enough detail without becoming fatiguing. Imaging is precise for such a speaker and the soundstage allows for natural placement of sounds. The bass is deeper than what you get from most nearfield studio monitors, which might come in handy for some musicians and producers. (Although if you need true "sub-bass"--that is, the 30 Hz and below stuff--you'll need an active subwoofer. This should come as no surprise.)

Let me close by saying this: I'm really glad to bring this project to the world, and for me it sort of brings things full-circle. See, in my pre-DIY days, I would use some really hacked-up speaker setups work work on and mix with. Seriously, it was shameful, and no one should ever know. So when I finally saved up and bought a good pair of nearfield studio monitors, it was a real turning point for me. I could finally hear the actual tonal balance of what I was trying to do and mix it accordingly. But I spent big bucks on those [brand name omitted]! And if there had only been a DIY option, I would have gladly jumped at it--and not just for the sake of cost savings. It was the principle of the thing. As with most home studio recorders, my whole "studio" consisted of cobbled-together gear of various quality and origin. But at the end of the day, it wasn't about the gear--it was about what it would let me do... which was to create a professional-sounding recording without having access to multi-million dollar studios. It was the ability to hear something done by a professional and be able to go home and make something that sounded just as good, then play it back, listen, and think to myself, "I did that."