

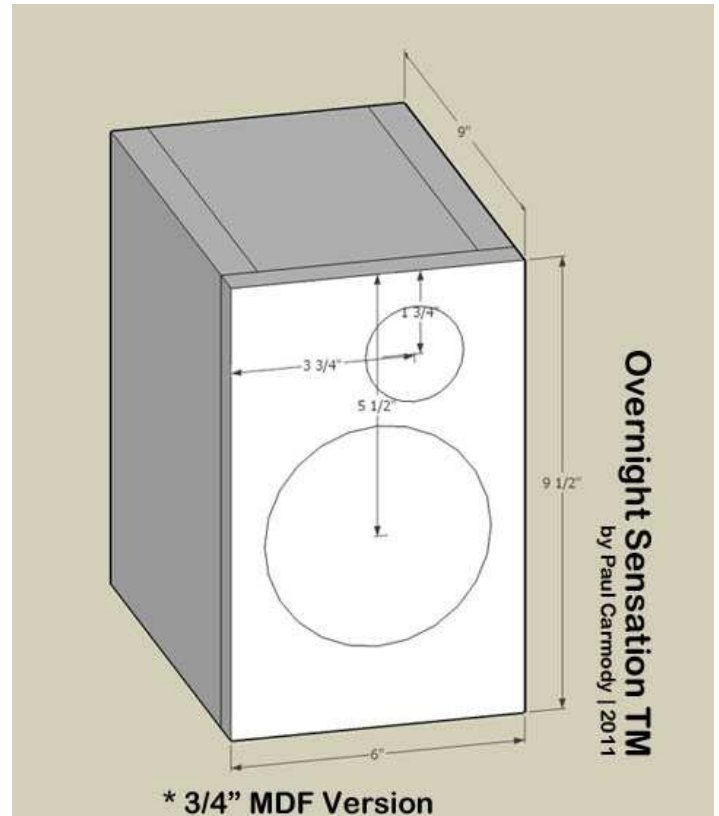
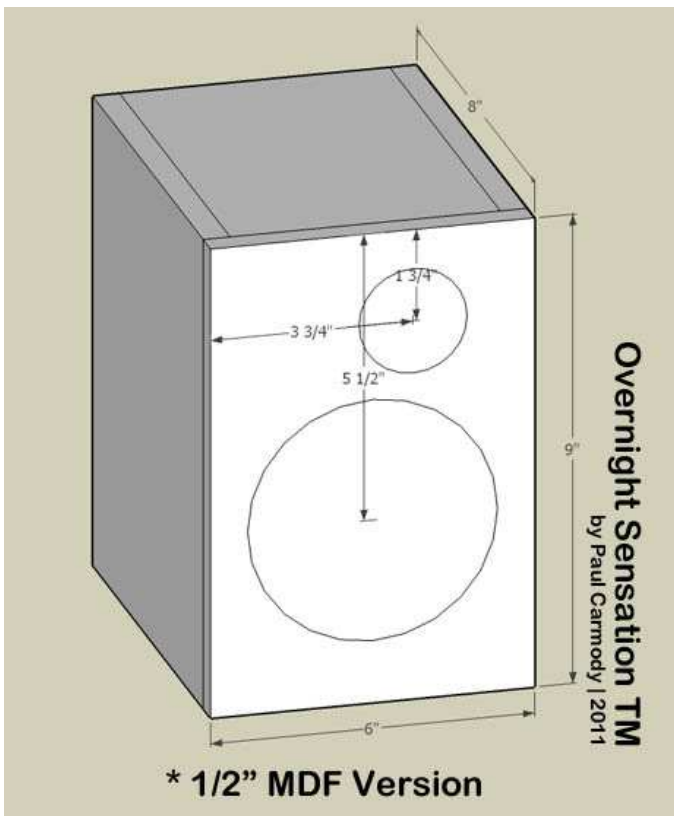
# Overnight Sensations



I wish I had a time machine. I would go back to my bedroom when I was in Jr. High or High School and give these to myself. These are the little bookshelf speakers I imagined I had: huge soundstage, deep bass, tiny box. In reality, back then all I had were some impish Minimus-7s. Sure, they had a "tiny-but-mighty" quality about them, but come on, who was I kidding?

The "Overnight Sensations" were designed to be just that: a quick, economical build that could put out a surprisingly-big sound in a small box. Could be a weekender project for an addict, a gift for a teenager (see above), or--in my case--a set of small, full-bodied monitors that I could listen to while I graded papers. (Ironically, I have found that if the music sounds too good while I am trying to concentrate, I get distracted and get no work done.)

## Cabinet Design



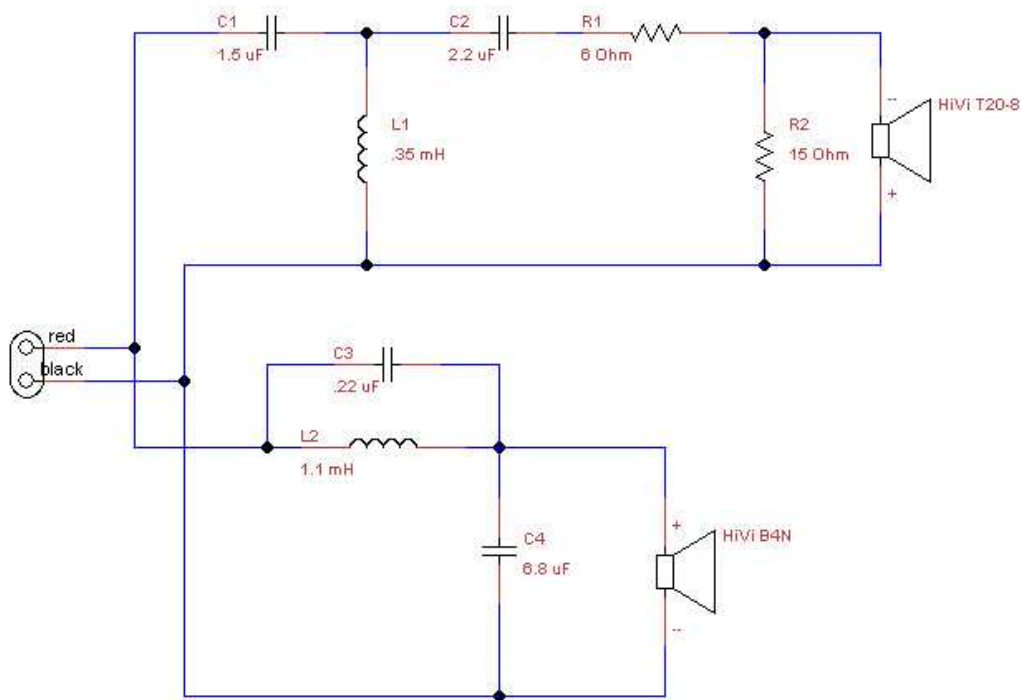
The cabinet for the Overnight Sensations can be built with  $\frac{1}{2}$ " or  $\frac{3}{4}$ " MDF or plywood. The advantage of using thinner stock is that the cabinet is smaller and lighter. However, some prefer the added rigidity of thicker stock. If you use  $\frac{3}{4}$ " material, you should chamfer the woofer hole on the backside of the baffle using a router or file to give the cone some breathing room; this is not necessary with  $\frac{1}{2}$ " material

One should be able to build a pair of these using only one 24"x48" "handypanel" of MDF or plywood available at your local home improvement store. You could probably also get away with doing something this small out of hardwood--and it would look really excellent--but please be mindful that hardwood does shrink and expand with the weather, so detachable baffles would probably be smart.

For this project, I decided to keep things simple, and did not countersink the drivers. The HiVi drivers both have attractive, unobtrusive frames, so I just cut a simple  $3\frac{5}{8}$ " hole for the woofer and a  $1\frac{1}{2}$ " hole for the tweeter. The first one could possibly be done with a hole saw or jigsaw, should one not have access to a router. The tweeter hole can be done with a  $1\frac{1}{2}$ " forstner or spade drill bit. Then again, if you want to properly countersink the drivers like a good cabinetmaker (and you have the tools), please do so.

The interior volume of the box is about 4.5 Liters. It is vented, and tuned to 53 Hz, which gives a -3 dB point in the mid 40 Hz range. The vent should be mounted on the back baffle, located somewhere behind the tweeter. Its exact location isn't critical, as long as the vent openings are at least 1" away from any other surface inside or outside the cabinet.

## Crossover Design

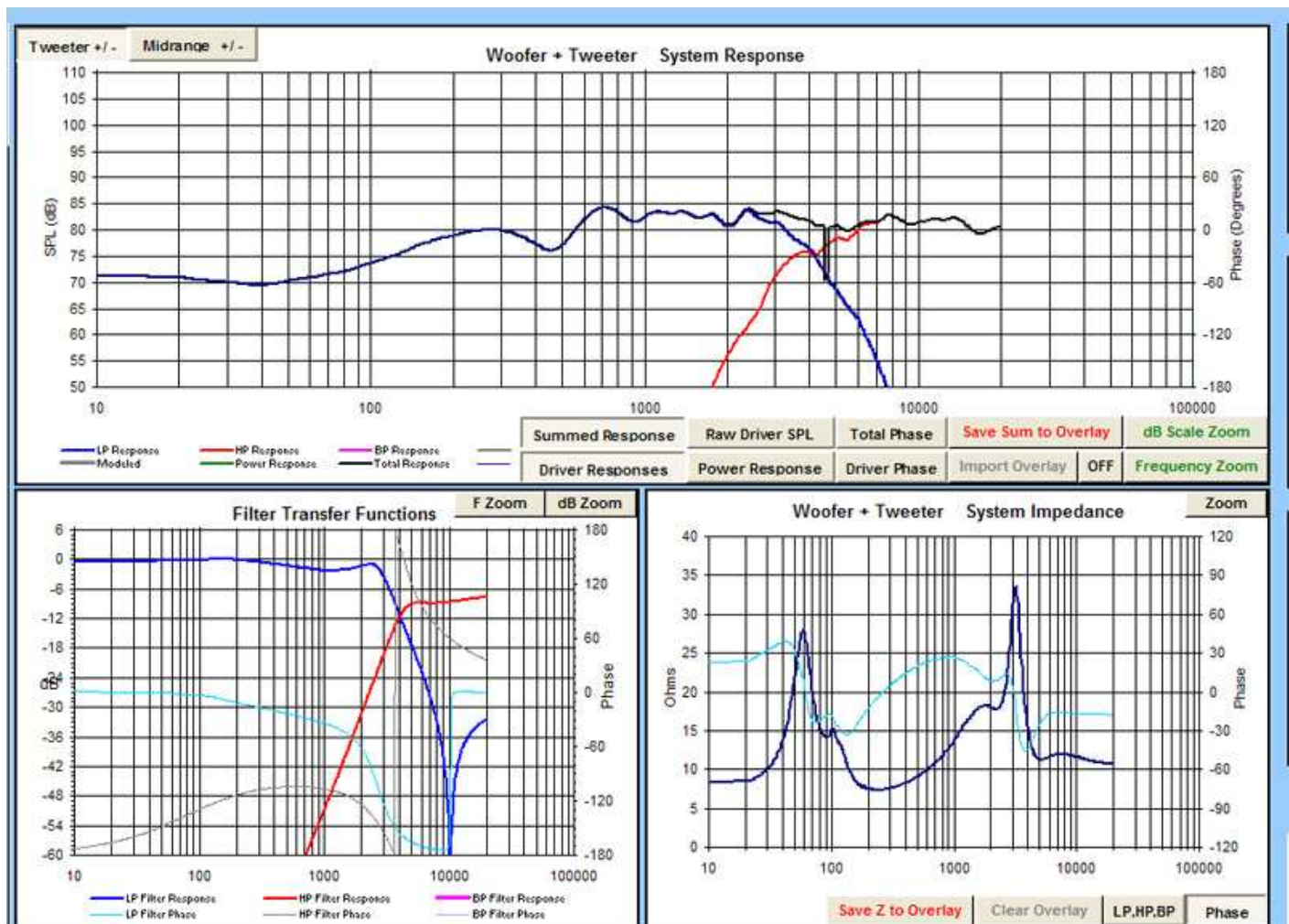


**Overnight Sensation Rev.2**  
**HiVi B4N + HiVi T20-8**  
**by Paul Carmody | June 2011**

The crossover for the Overnight Sensations uses a 3rd order electrical filter with an L-pad on the tweeter. The woofer uses a 2<sup>nd</sup> order electrical filter with C3 acting as an Elliptic notch filter. The acoustic slopes are fairly standard 4LR, and cross around 4000 Hz.

## Listening Impressions

In a word: "big." The bass these little HiVi drivers can put out is tremendous. They throw out a very large soundstage and can actually fill a medium-sized room very well. I originally built these to sit on my desk, but since they have very full bass (or as some might say "full BSC"), I thought they sounded best put up on a little stand or riser. Once I did that, I absolutely fell in love with listening to them in the near field. They image very well not only from left to right, but also in front of, and far behind the speakers. Although the frequency response looks pretty flat, the midrange is voiced with a very subtle droop; I did this out of concern that the metal-cone driver might get fatiguing or annoying after a while. The end result is a speaker that sounds good on most styles of music. Really bad recordings will be evident, but overall it's a pretty forgiving speaker.



One of my favorite uses for this speaker has been for those "wee hours" listening sessions, where it's not feasible to listen at full volume. What I mean is that, at softer listening levels (75 dB or less), large speakers tend to sound sort of unbalanced across the spectrum and thin in the bass--whereas small speakers seem to sound their best at quieter volumes. At these quiet listening levels, the wide and deep soundstage of the Overnight Sensations was still there in full form, letting me enjoy my music while my wife and neighbors slept.

*Tweeter update – Authors note on HiVi Reseach, T-20 tweeter version: “The HiVi tweeter worked great! It sounds at least as good--if not better--than the Dayton version. Personally, I think I like the sound of this HiVi a bit more. It doesn't measure very flat (neither does the Dayton), but it has the right bumps and dips in the right places. Best \$8 tweeter I've ever heard ;-)”*