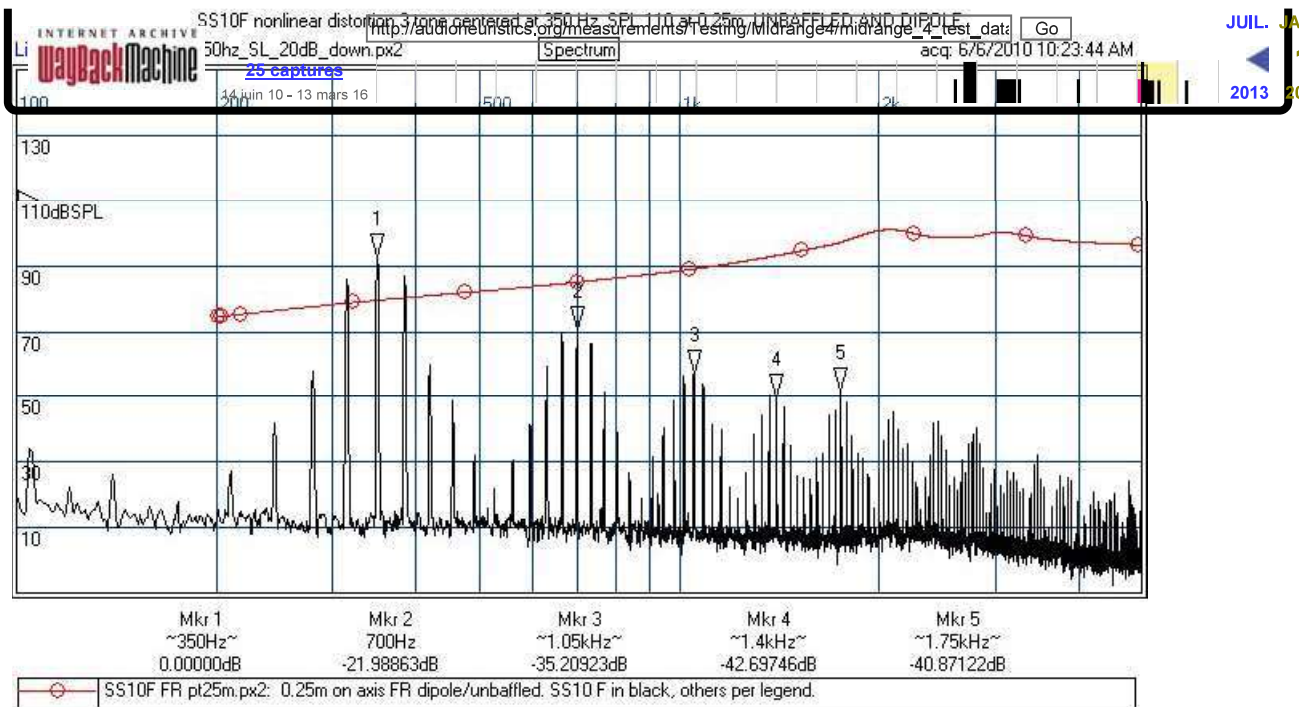
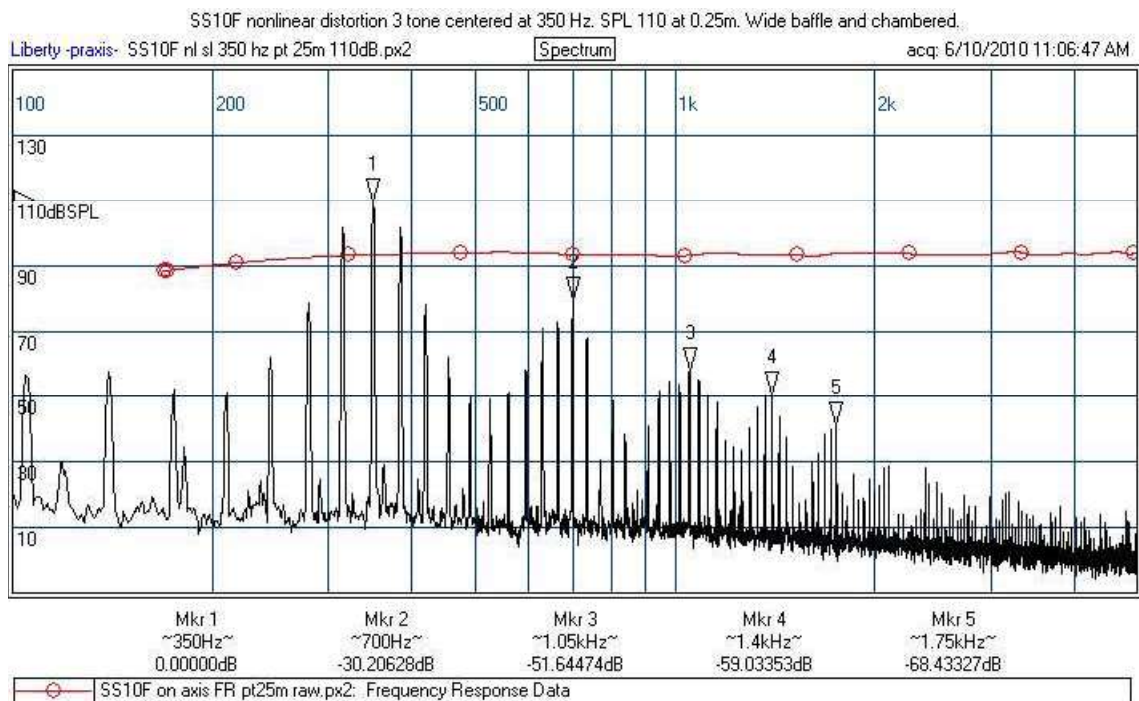


Is your mind numb yet with graphs. Well forget all that stuff.

Look again at the 350 dipole distortion graph, repasted below.



Now, let's do the exact same thing, except the driver is now on my wide baffle and chambered. Again, the frequency response is overlaid so you see what the drive level would be. You can see that, to get the same spl level out of the dipole, you have to drive it 20dB or so harder. That's why you can get 110dB at 0.25m and have a better looking distortion graph than the dipole setup, where the on axis spl is only 92db.



And this leads to the real question, "how low can the 10F be crossed over?" For nonlinear distortion, below a certain threshold, further reductions in nonlinear distortion are not audible. In my opinion, a driver should be able to generate a fairly clean signal, somewhere in the range of 100-105dB at 1m. Which means that the 2nd and third order distortion products should be below ~-30 and -40dB, respectively, and higher order

distortion ~60dB down or below. The reality is that the 10F is remarkably linear, and if the distortion is still below the level of audibility at these spl levels, then that would make it a excellent choice.

As an aside, you might be skeptical thinking that "nonlinear distortion isn't important," Dr. Cordes said so." Well, he's also said that he wouldn't operate a driver anywhere near xmax, to paraphrase. So you might not consider nonlinear distortion important, but you still want to steer clear of -20dB, right. Nonlinear distortion is inaudible, until it's audible. Right? I'm picking reasonably conservative numbers in the preceding paragraph that would steer clear of xmax.

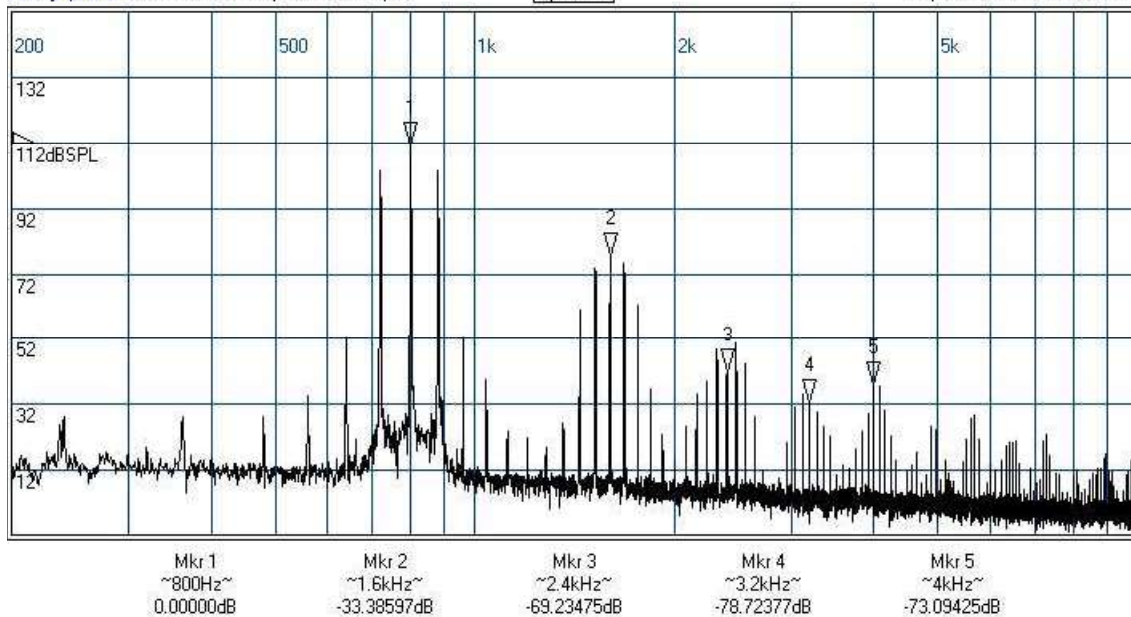
So, since I still didn't have a great idea about the absolute level, I put the 10F on a baffle and in a box, and, well, cranked up the amp. As much as I could...fasten your seatbelts...

SS10F nonlinear distortion 3 tone centered at 800 Hz. SPL 111 at 0.25m. Wide baffle and chambered.

Liberty-praxis- SS10F nl sl 800 hz pt 25m 111dB.px2

Spectrum

acq: 6/10/2010 10:56:34 AM

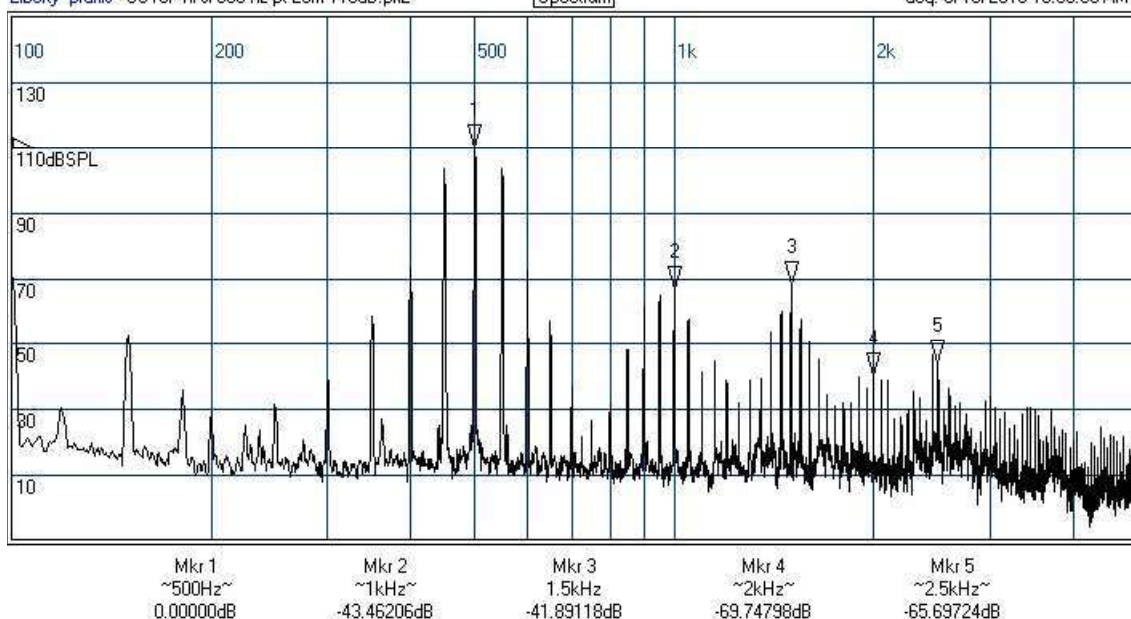


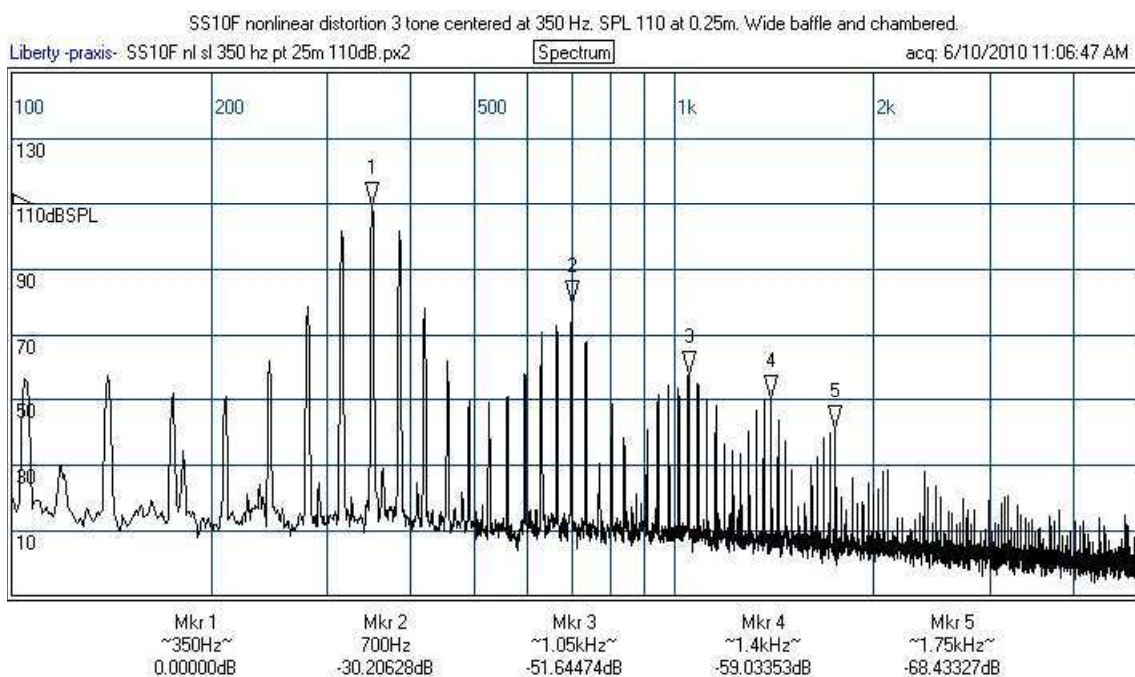
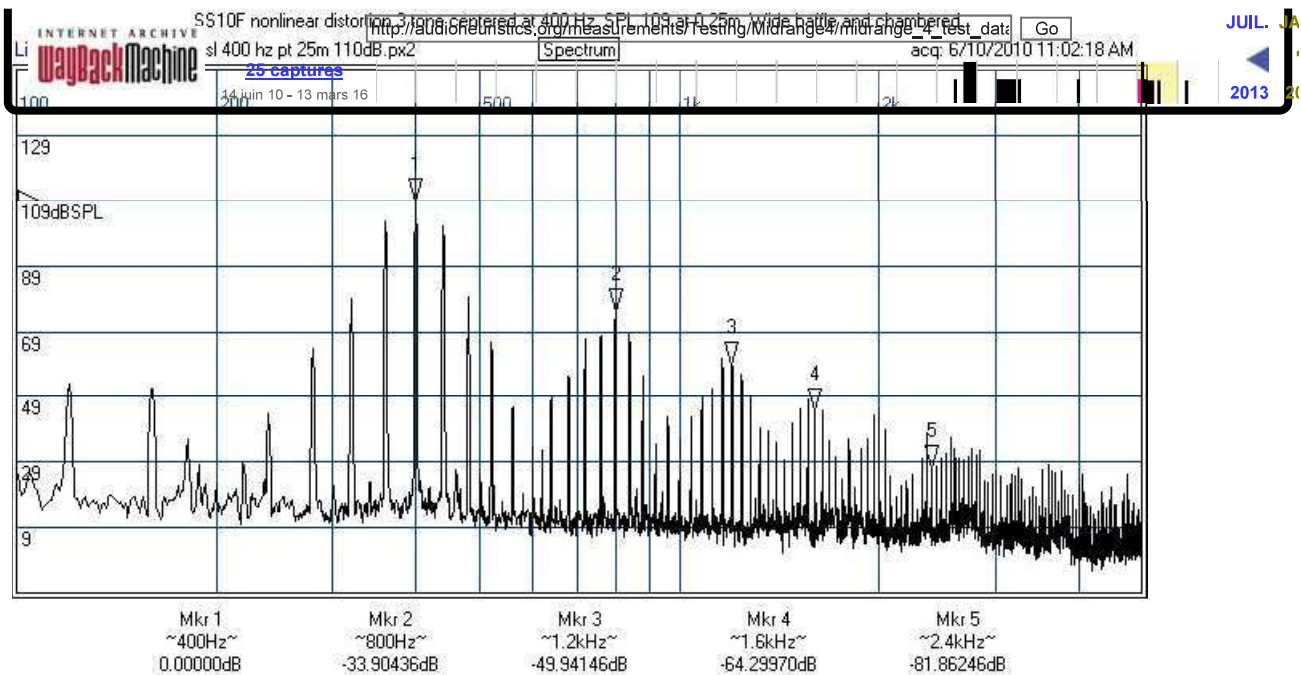
SS10F nonlinear distortion 3 tone centered at 500 Hz. SPL 110 at 0.25m. Wide baffle and chambered.

Liberty-praxis- SS10F nl sl 500 hz pt 25m 110dB.px2

Spectrum

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Still, the driver looks usable to 350, since it gets to 98dB spl at 1m still well under xmax and the profile looks good, if a bit undistinguished. Two drivers crossed at 350 hz LR4 should get you 104-107dB spl without hitting xmax.

Conclusion

The SS10F is a very wideband driver with a very, very flat passband and could be used 350-4k. It's very open in the back and could be used on a wide baffle in an open back configuration, though attention would have to be closely paid to excursion at the lower end. I consider it a better performer overall than the 12m based on the numbers. If you are planning to lowpass lower than 3k, I'm not sure the improvement in linear distortion makes up for the average nonlinear distortion below 800 hz and something like Zaph's ZA14, a w15 or, well, lots of other choices abound. If you plan on using a lower order crossover topology, and plan to cross at 3k or above, this becomes a very viable choice. It also is an outstanding choice for an upper midrange in a dipole configuration due to its very extended FR and open back, extended rear FR.

As a bit of subjectivism, so take this with a grain of salt. I really hammered this driver. Although it seems like of the road" distortion numbers, there were no circumstances where the driver really was never on the verge of falling apart. Many drivers look good and hit a brick wall when doing the nonlinear distortion measurements they just fall apart. So I would rank this slightly better than the actual numbers-which aren't bad, but not class leading. There, end of my "consensus" statement.

Note-sorry I made fun of the waterfall and etc curves. I think that they are actually a bit interesting, but really, the waterfall, FR and ETC are all different sides of the same coin. I tossed them out because they are easy to do and some folks like them.

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