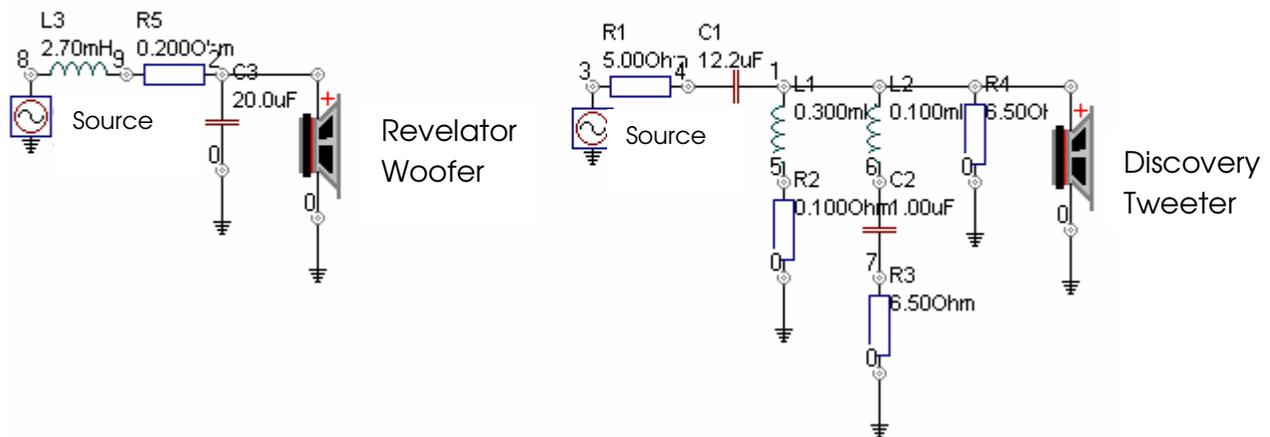


Scanspeak Rediscovery Tower

I wanted to build a loudspeaker to sound like an active 3-way system but I prefer the simplicity and cost effectiveness of a passive 2-way system. For the passive 2-way system one needs a mid-woofer as good as any woofer in terms of low frequency extension and a tweeter with very clean low end to allow low crossover point.

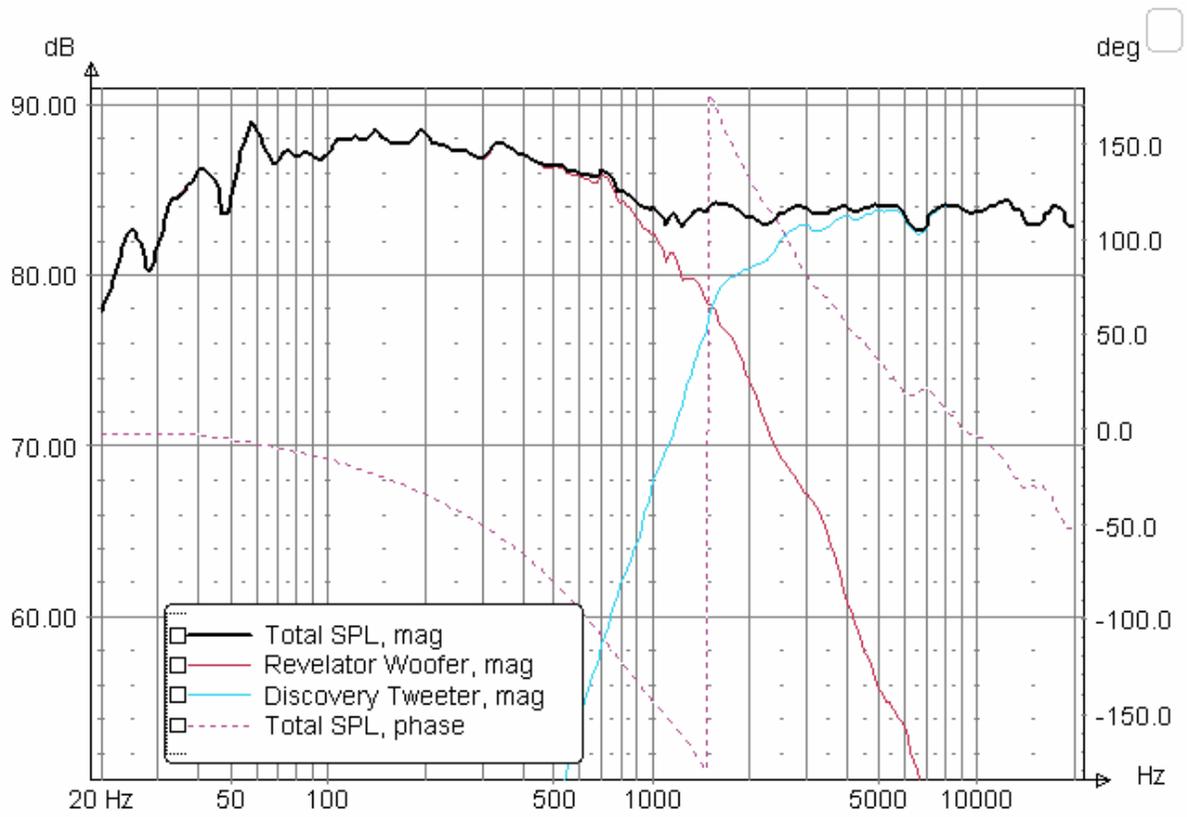
Scanspeak Revelator 18W/8531G is an automatic choice for the above criteria. The Revelator is a champion performer with the cleanest midrange and low frequency extension to 35 Hz (-3db) with a minor inconvenience, impedance blip at 850Hz. I have selected Scanspeak Discovery D2608/9130 tweeter (formerly Peerless HDS 810921) over the 6600 Revelator due to cost and cleaner low end. I named loudspeakers as Scanspeak Rediscovery Tower.

I decided to cross the drivers at 1500 Hz to cover up the Impedance blip of the revelator with acoustic 4th order slope after a lot of listening and tweaking. Let me confess that I do not have the full test setup as John K. or Mark K. has. What I have is a pair of Sennheiser PX-100 headphones, lot of songs and test signals loaded in my laptop, a Cambridge Audio Azur 640A V2 amplifier rated 75 watt rms/ch and an accurate LCR meter. I use manufacturer's impedance data and John's infinite baffle data traced out using *SPL Trace*. For modeling I use *LspCad* and *Baffle Diffraction Simulator*.

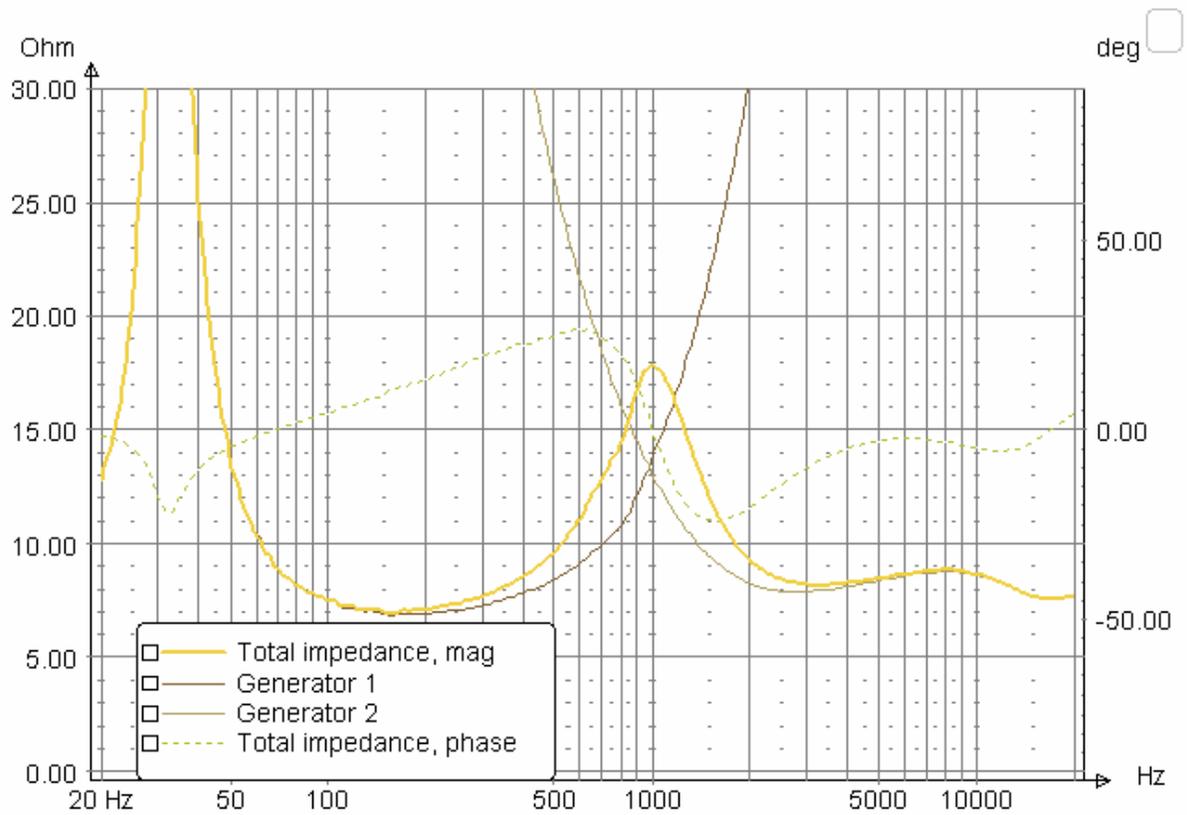


The Crossover

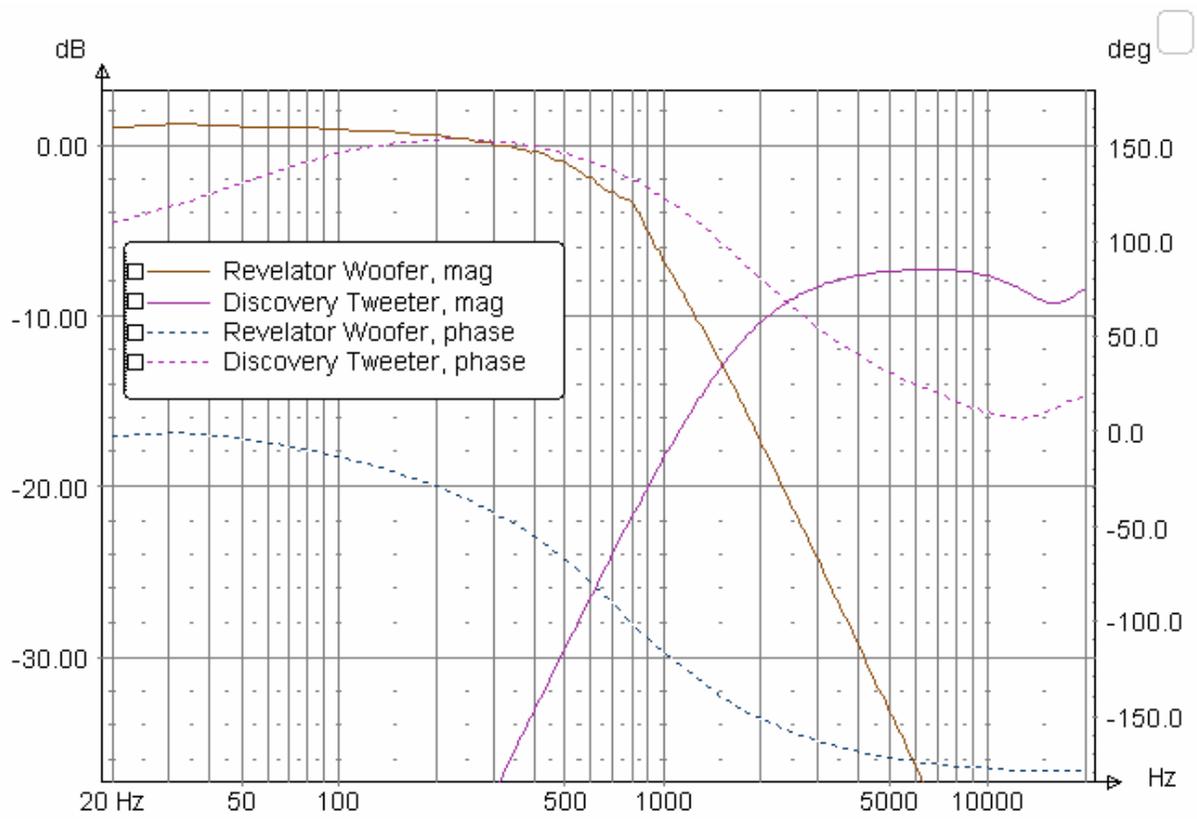
The woofer Inductor is a 16 AWG steel laminate, Tweeter Inductor is 18 AWG air core. All my capacitors are polymer and resistors are metal film. (Note R2 and R5 are part of the inductor).



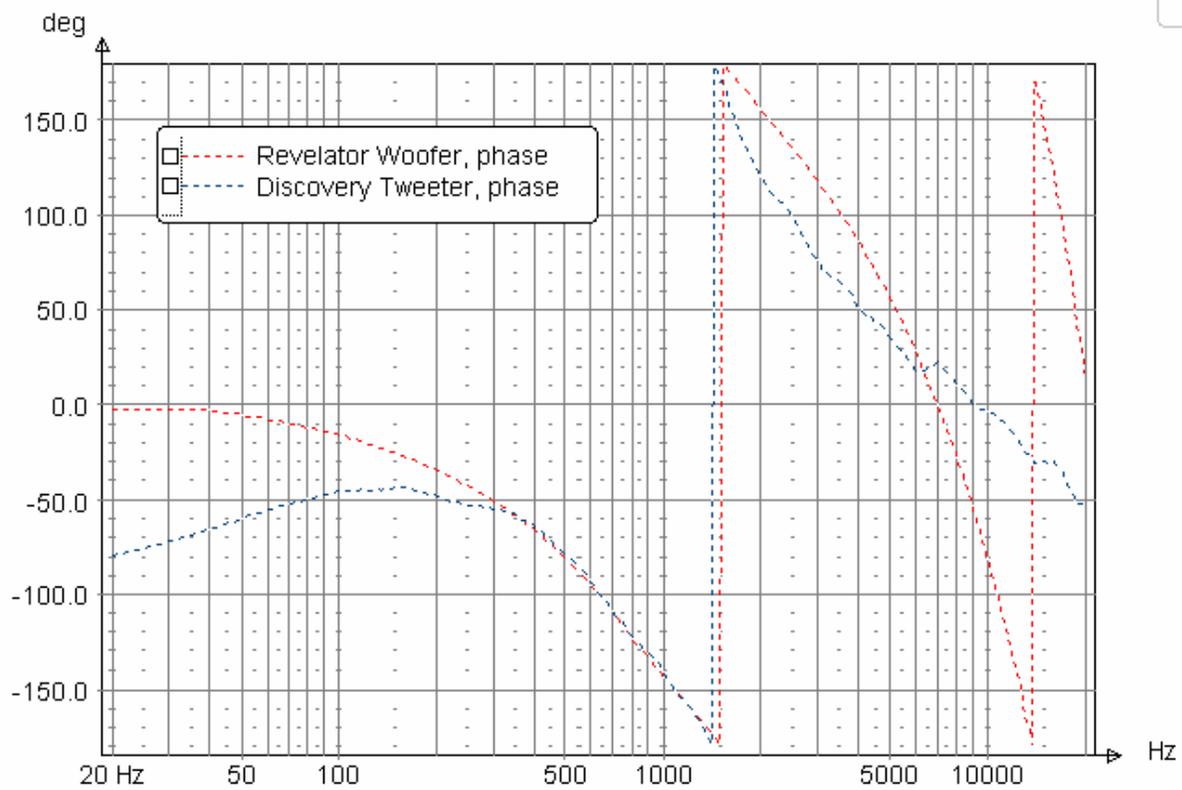
System Frequency Response (Infinite Baffle)



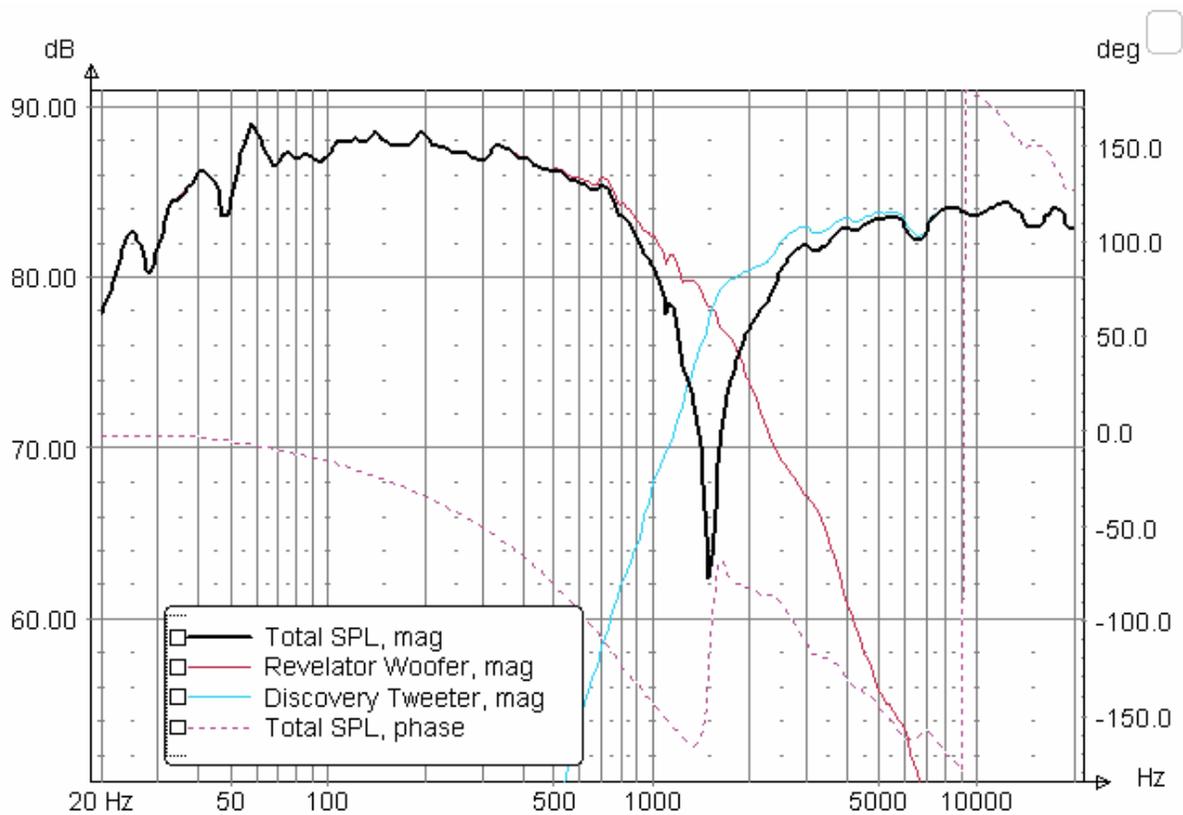
System Impedance Profile (Infinite Baffle)



Filter Transfer Functions



Driver Phase vs. Frequency



Reverse Null

The system sensitivity is kept at 84 db with baffle step compensation of 4.5 db. With a baffle of 8.5" to 9" wide the FR flattens to +/- 0.5 db in the midrange.

I used 40 litre cabinet measuring 8.5"(w) x 12"(d) x 41"(h) with 1/2" round over at the edges and tweeter offset is 3/4". Walls of the cabinet including the baffle is made with 1" thick MDF. The cabinet is lined with 1/4" thick rubberized foam and braced with 4 internal ventilated shelves. They are also heavily stuffed in the bottom and moderately stuffed behind the woofers. One can also use Madisound 38T cabinet 3/4" offset for the tweeter. The port is tuned at 32 Hz with 2" flared ports with 2 flares connected together without the connecting pipe.

Conclusion

It is very difficult to find the difference between my PX-100 and this Scanspeak Rediscovery Tower. The midrange being nearly equal the speakers excels in the treble. What about the bass? In terms of low frequency response the Revelators are the winners but in terms of impulse response PX-100 is a clear winner. Hence it is a tie.

The loudspeakers do have an excellent midrange, great low frequency extension and very low nonlinear distortion. One can enjoy them 24x7 without any listening fatigue.

SUMAN JANA

jana.smn@gmail.com, hhotech@gmail.com