

Hide Away TL SUB – A Quarter Wave with ScanSpeak 26W/455800

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My Quarter Wave (Transmission Line) sub has been published in audioXpress twice.

Following the publication of the original Hideaway TL Sub project in audioXpress July 2006, Bjørn Johannesen submitted a follow-up of its “invisible” subwoofer project, using a new updated driver - a Peerless 10” SLS 830668 woofer - and a slimmer profile to fit under its new couch, with only 15cm of free space. The article was originally published in audioXpress, October 2007.

<http://www.audioxpress.com/article/hideaway-tl-sub-revisited>

Hideaway TL Sub Revisited

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After I built the first Hideaway ([aX, July 2006](#)), I learned much more about quarter-wave design. In fact, the process occurred in the wrong order. First I built it from an instinctive gut level. Afterwards, I learned from Martin J. King what quarter-wave is all about. If you are not familiar with quarter wave (transmission line) design, I recommend some useful sites (see References).

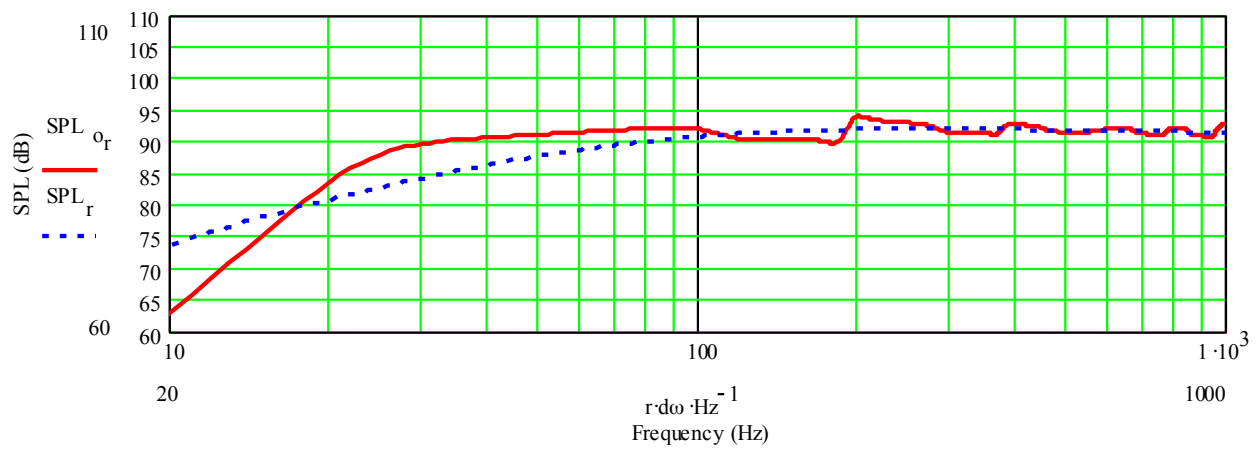


Later I upgraded the driver to ScanSpeak 26W/4558T00. The amp is now Hypex 1.2 and the result is nothing but amazing, especially when you take the building cost into consideration.

The design was done with models from Martin. J. King.



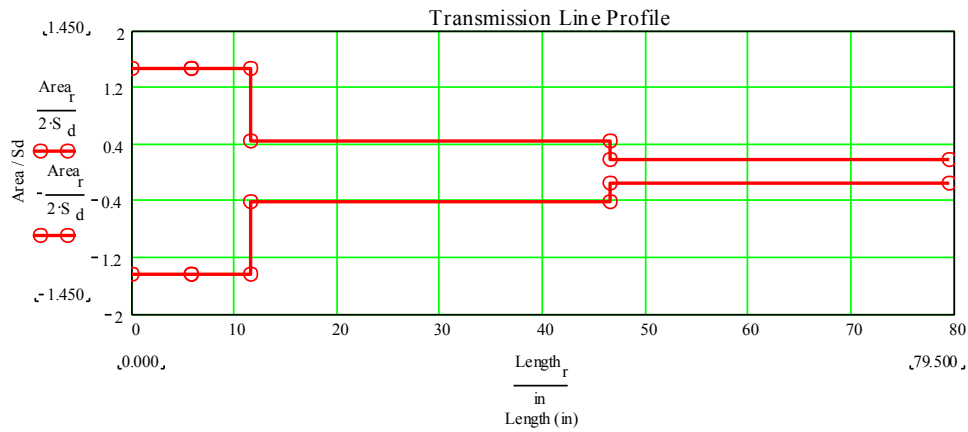
Summed SPL using ScanSpeak 26W/4558T00:



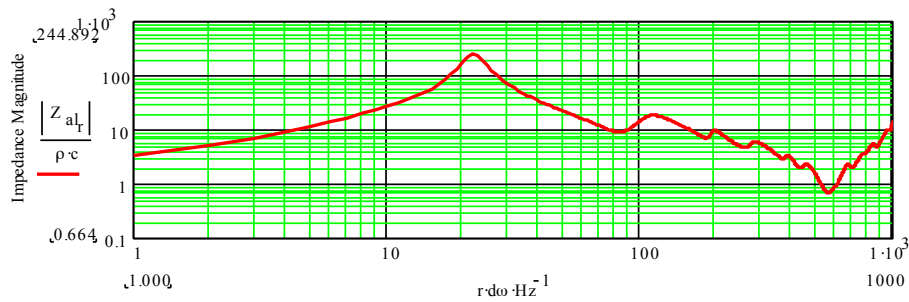
The frequency is dropping perfectly. A flat response is not desirable due to room gain, which has a huge impact on the lowest frequencies. The blue dotted line is SPL in infinitive baffle. The red solid line is the summed SPL from driver and opening.

SCANSPEAK 26W/4558T00 – Plots from MJK's models

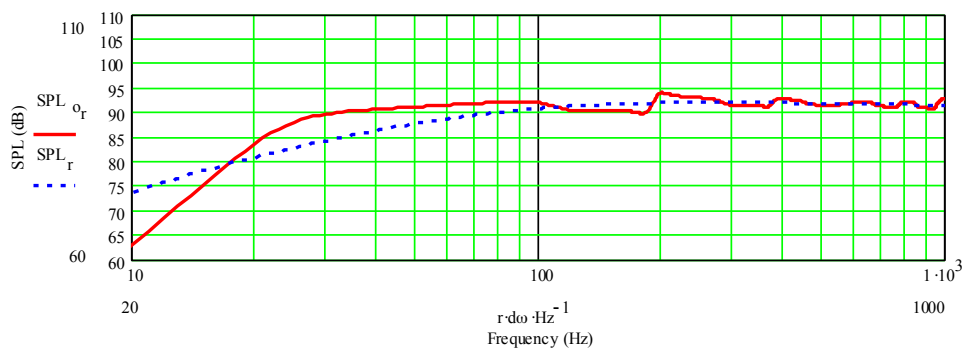
Layout enclosure:



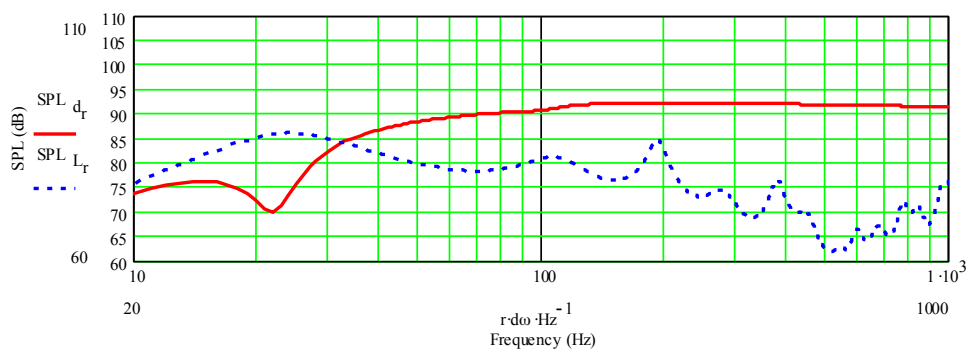
Tuning of cabinet is about 23 Hz:



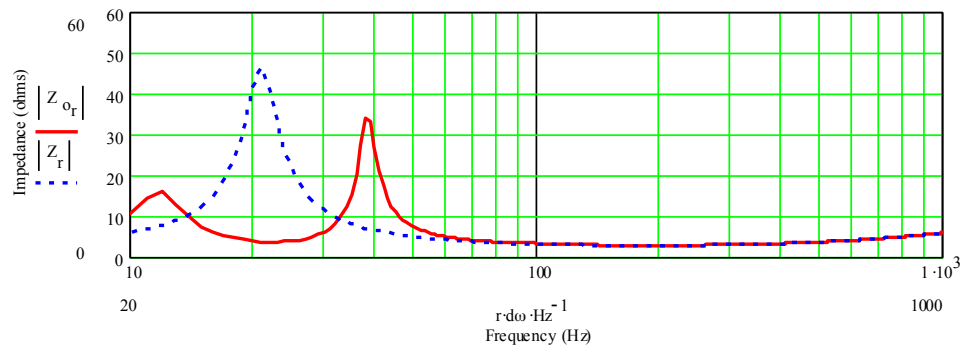
Summed SPL:



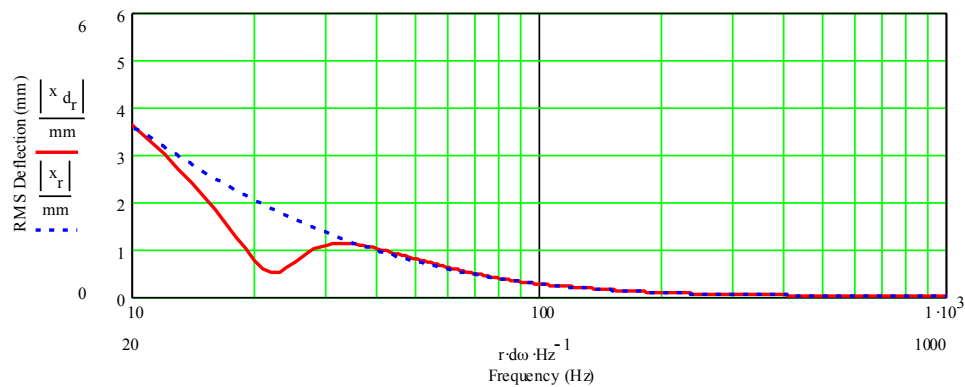
Driver and port:



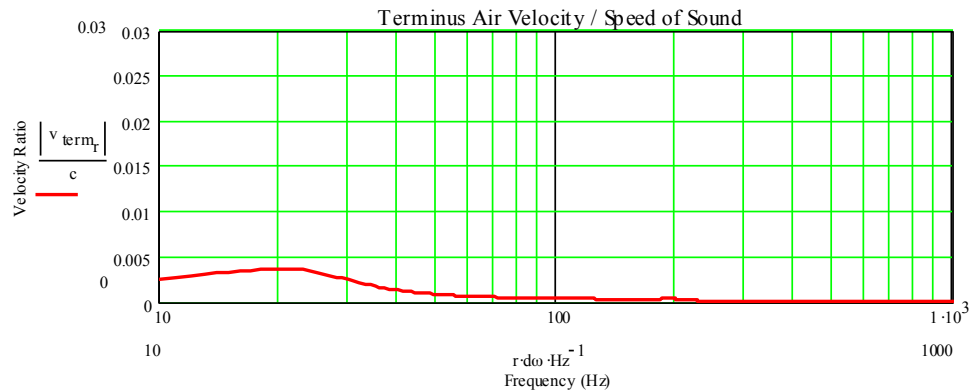
Impedance:



Displacement:



Speed of sound in the opening:



Opposite Bass reflex, a Quarter Wave has stuffing between the driver and the opening. This reduces the displacement (movement of the cone) as seen above. Furthermore, the speed of air in the opening can be controlled, reducing the risk of noise caused by turbulence.

Overall a TL (Quarter Wave) delivers a controlled and extended bass.