"The Idunn"

Named after Idunn, a Norse Goddess of youth.
The Idunn consist of an 18 cm long throw woofer with a Curv cone made of woven polypropylene and a 27 mm aluminium/magnesium dome with a DXT® lens

Enclosure and stuffing

The Idunn loudspeaker is based on a standard 20 litre vented cabinet. This cabinet was chosen to give people an easy start to building a loudspeaker. Figure 1 shows the cabinet drawings. Ask your local loudspeaker dealer if he can help you obtain this, if your not thinking of building it yourself. The important thing to remember when you are building this, is to keep the baffle width and internal volume of the original enclosure. Adding braces to stiffen the cabinet is a good tip for the advanced builder to take the loudspeaker just a little bit further.

The amount of stuffing and port tuning is based on measurements and extensive listening. The cabinet is filled with 250 g of Acousto-Q. The stuffing is distributed evenly in the box, but kept away from the port opening to allow free movement of air. This to ensure that the airflow noise stays as low as possible. The port length is 16 cm including the flanged end and the inner diameter is 5 cm. This gives a port tuning of 38 Hz providing a smooth low frequency roll-off.

Drive units

U18RNX/P is bloody great!

27TBCD/GB-DXT is a High Definition aluminium/magnesium alloy dome tweeter with DXT® lens. An optimally shaped dome and a wide SONOMEX

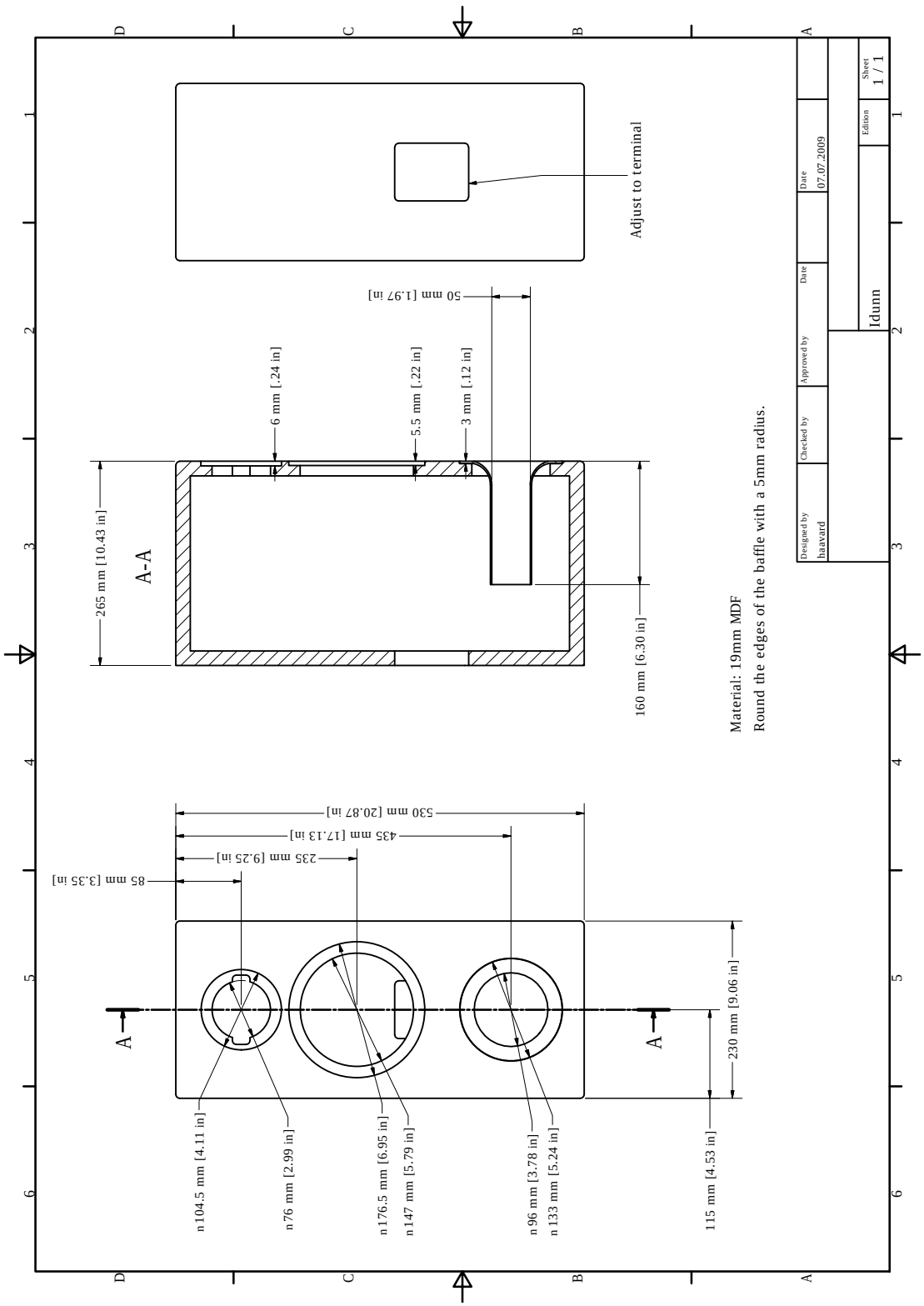

Figure 1: Cabinet drawings

surround, both maufactured by SEAS, ensure excellent performance and consistency. The compensation magnet increases the sensitivity and reduces the magnetic strayfield and allows use in close proximity to CRT screens. A fine mesh grid protects the diaphragm. Stiff and stable rear chamber with optimal acoustic damping allows the tweeter to be used with moderately low crossover frequencies. This revolutionary DXT® tweeter addresses the major issues regarding directivity control in traditional loudspeaker designs. DXT® solves several well-know issues regarding; directivity control, off-axis response, integration with midrange units and baffle diffractions.

For detailed technical parameters on the drive units see the data sheet:

- U18RNX/P - ??
- 27TBCD/GB-DXT - H1499-06

Crossover

The crossover schematics is shown in figure 2.

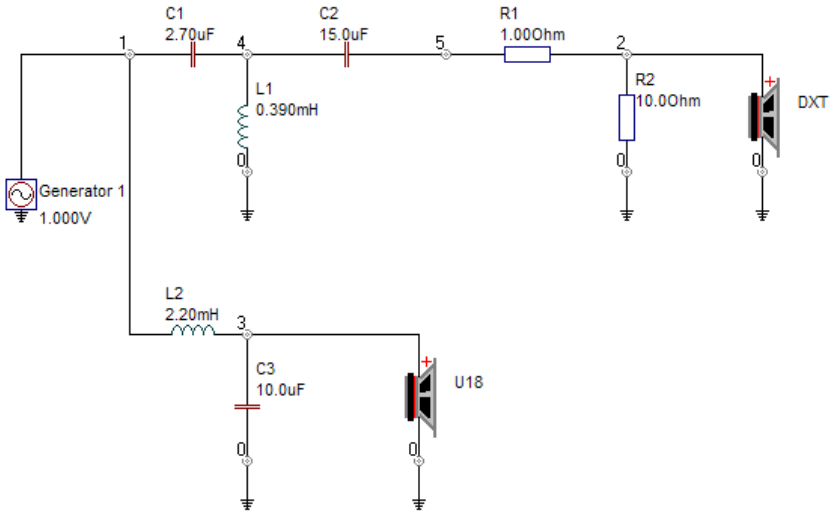

Figure 2: Crossover schematics

Measurements

The measurements are taken in free field at 1 metre on tweeter axis. Figure 3 shows the results of the measurements. As seen in the figure the average sensitivity is 84dB and the response lies within $\pm$ 2dB.

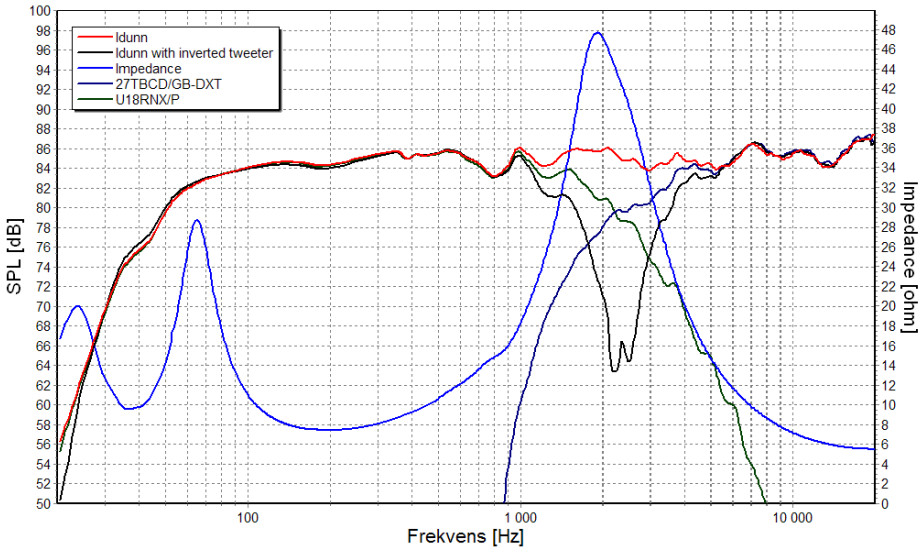

Figure 3: Anechoic free field response at 1m on tweeter axis 2.83V.

The black curve shows the response with the tweeter connected with opposite polarity.

The off-axis respons of the Idunn is shown in figure 4.

Figure 5 shows the 2nd and 3rd order harmonic distortion with an output of 96dB at 1m.

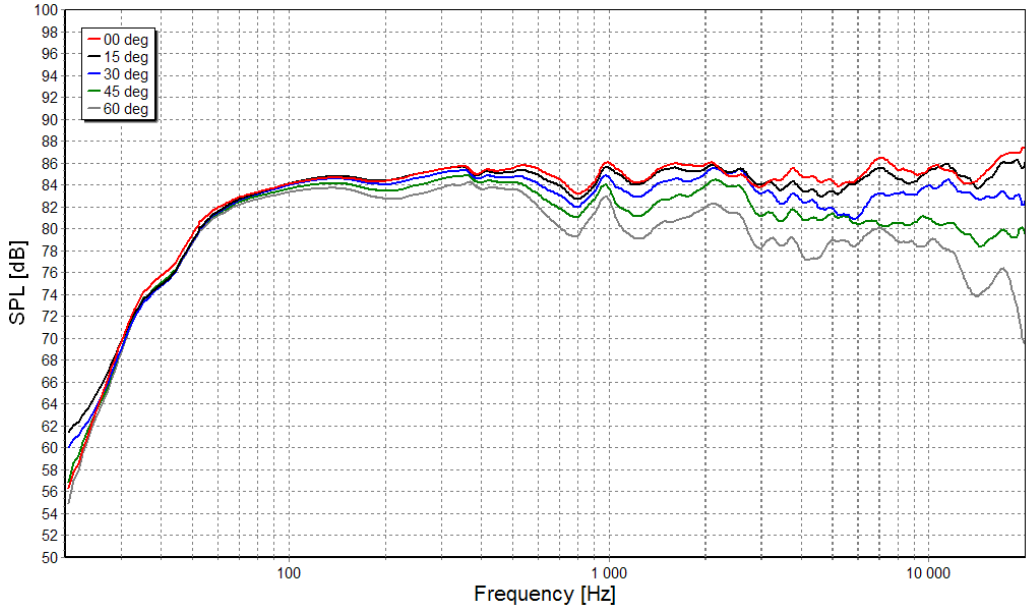

Figure 4: SPL at 1m, 2.83V, on- and off-axis

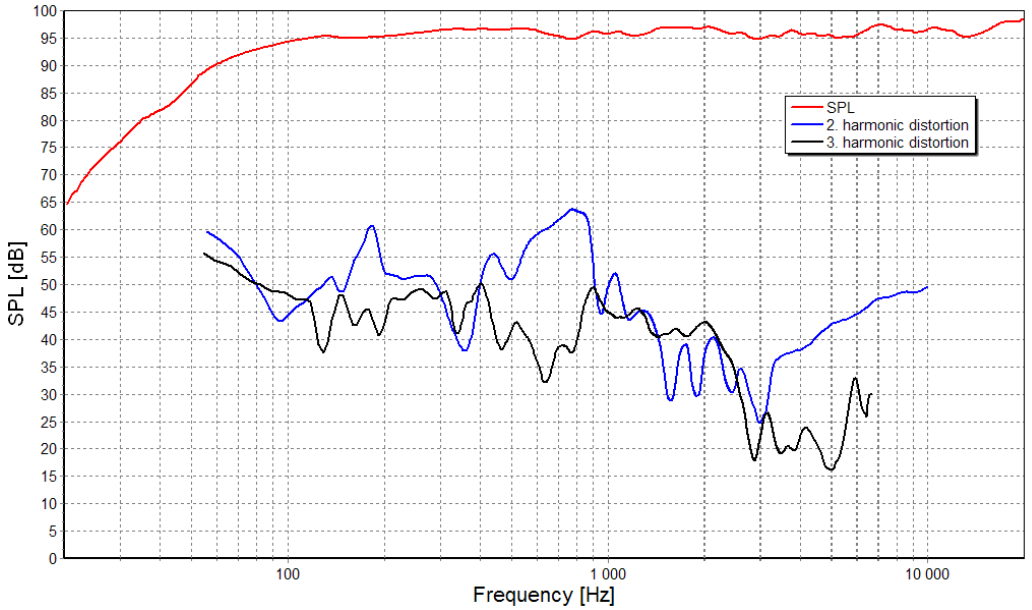

Figure 5: Harmonic distortion at 96dB SPL 1m on-axis