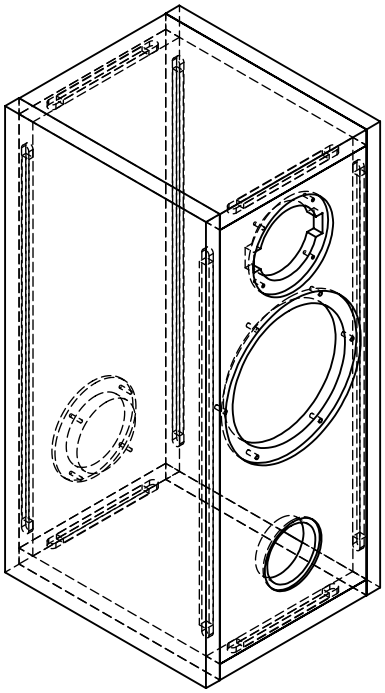
Kit ébénisterie EB-IDUNN-CP18



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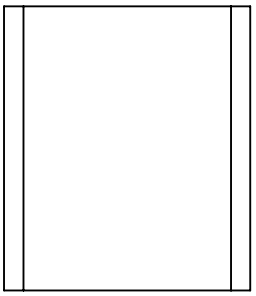

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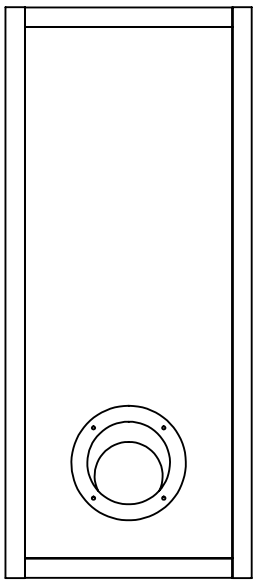

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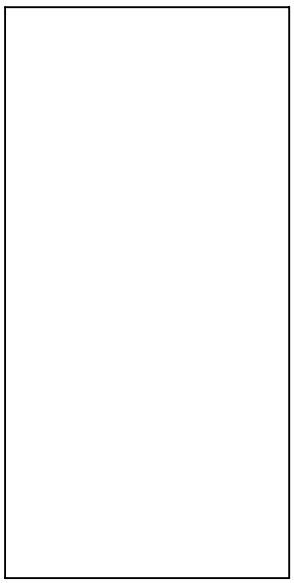

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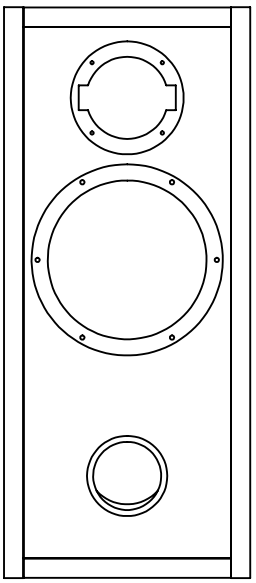

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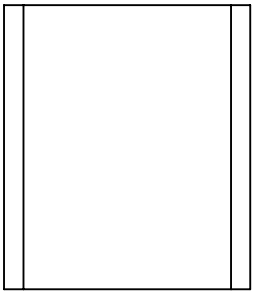

EB-IDUNN-CP18

Cotes en millimètres
Tolérance de fabrication : +/- 0.25 mm
Document format A4

"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 stuffing. 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 a 18cm (6.5″) High Fidelity woofer with an injection moulded metal chassis, intended for bass reflex and transmission line designs. New Curv cone, a woven polypropylene with excellent internal damping together with perfectly matched moving parts gives a smooth, extended fre-

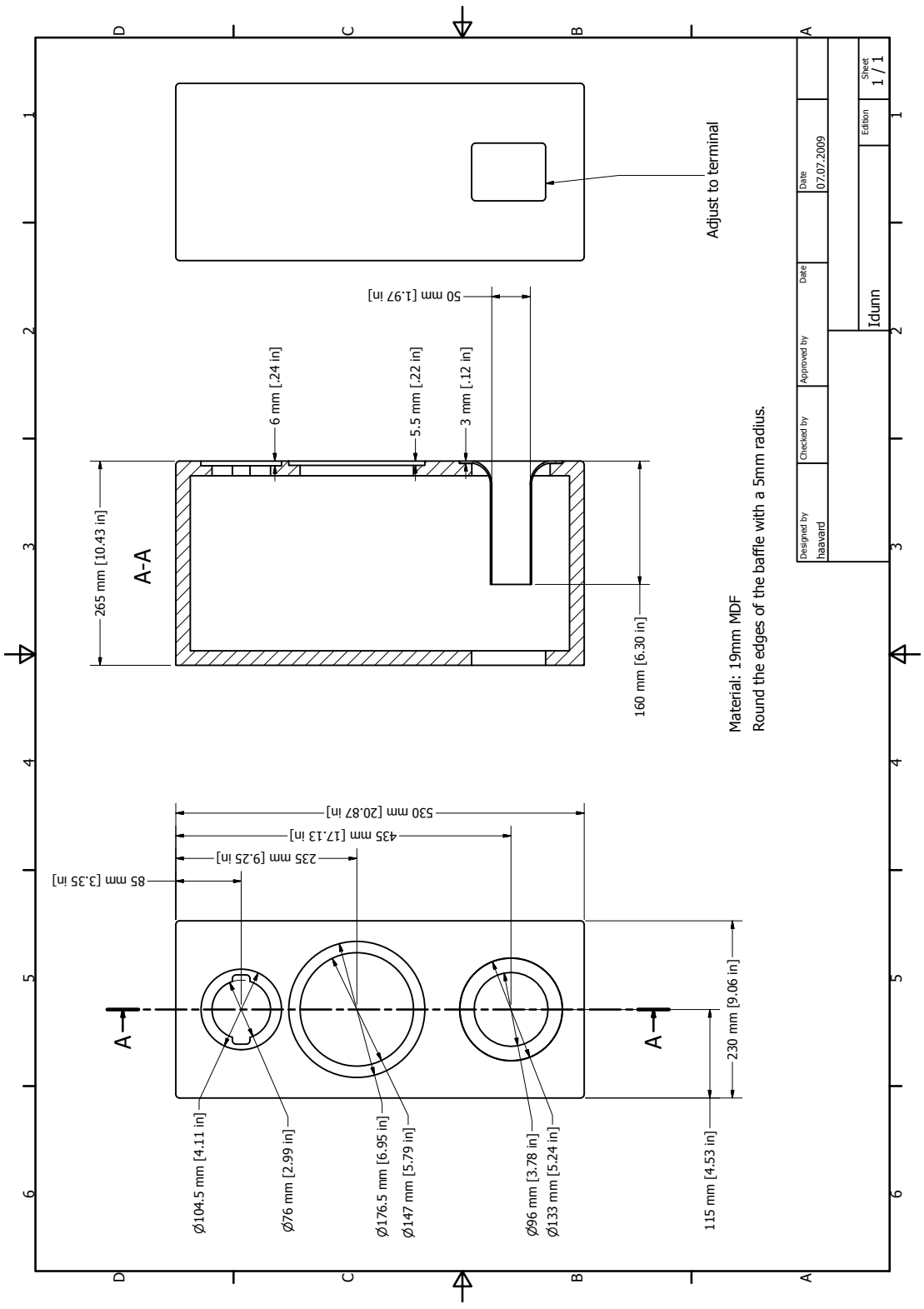

Figure 1: Cabinet drawings

quency response. Large magnet system gives good transient response, and the bumped back plate together with the very long, and light weight copper clad aluminium voice coil allow for extreme coil excursion with low distortion. Bullet shaped phase plug reduces compression due to temperature variations in the voice coil, avoids resonance problems which would occur in the volume between the dust cap and the pole piece and increases the long term power handling capacity. Extremely stiff and stable injection moulded metal basket, keeps the critical components in perfect alignment. Large windows in the basket both above and below the spider reduce sound reflection, air flow noise and cavity resonance to a minimum. This driver uses Seas SpiderRing® technology.

27TBCD/GB-DXT is a High Definition aluminium/magnesium alloy dome tweeter with DXT® lens. An optimally shaped dome and a wide SONOMEX 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 - H1571-08
- 27TBCD/GB-DXT - H1499-06

Crossover

The crossover is symmetrical with a 2.2kHz crossover frequency. The crossover point was chosen so that the directivity of the drivers make the overall power response extremely smooth, as can be seen in the measurements.

Complexity of the crossover was held as low as possible witout sacrifising any of the audible perfomance. This is possible to achieve, because of the drivers very smooth response. On the woofer there is a simple 2nd order

network, and on the tweeter there is a equally simple 3rd order network and an L-pad to trim the tweeter sensitivity. Together they align the phase of the drivers excellent and a gives a smooth interdriver transition.

The rolloff of the drivers is steep enough to alow them to work effortless even at high power levels, thus maintinaing the smooth and detailed sound quality at all levels and allowing them to be as dynamic as possible.

Schematics for the crossover is shown in figure 2.

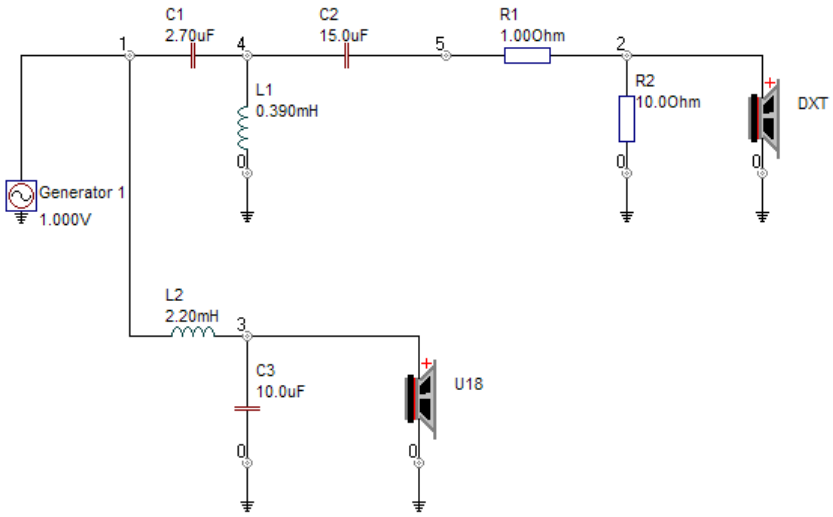

Figure 2: Crossover schematics

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 85dB and the response lies within $\pm$ 1.5dB. The black curve shows the response with the tweeter connected with opposite polarity. The deep and symmetrical notch, when the tweeter is connected with inverse polarity, shows that the drivers are in-phase across the whole crossover region.

The off-axis respons of the Idunn is shown in figure 4. Here we really see the beauty of the DXT tweeter. The power response is perfectly smooth throughout the entire frequency range even at 60° off-axis. This gives a huge sweet spot, while still allowing for pin-point imaging. It also keeps the tonal balance of the loudspeaker all over the listening room.

Figure 5 shows the 2nd and 3rd order harmonic distortion with an output of 96dB at 1m. The overall distortion is very low and makes the reproduced music very clean and without coloration.

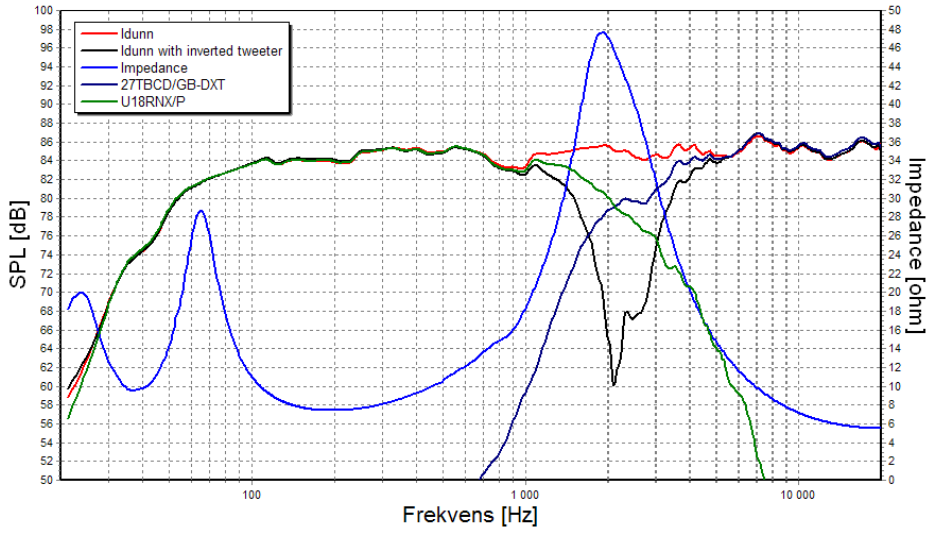

Figure 3: Anechoic free field response at 1m on tweeter axis 2.83V.

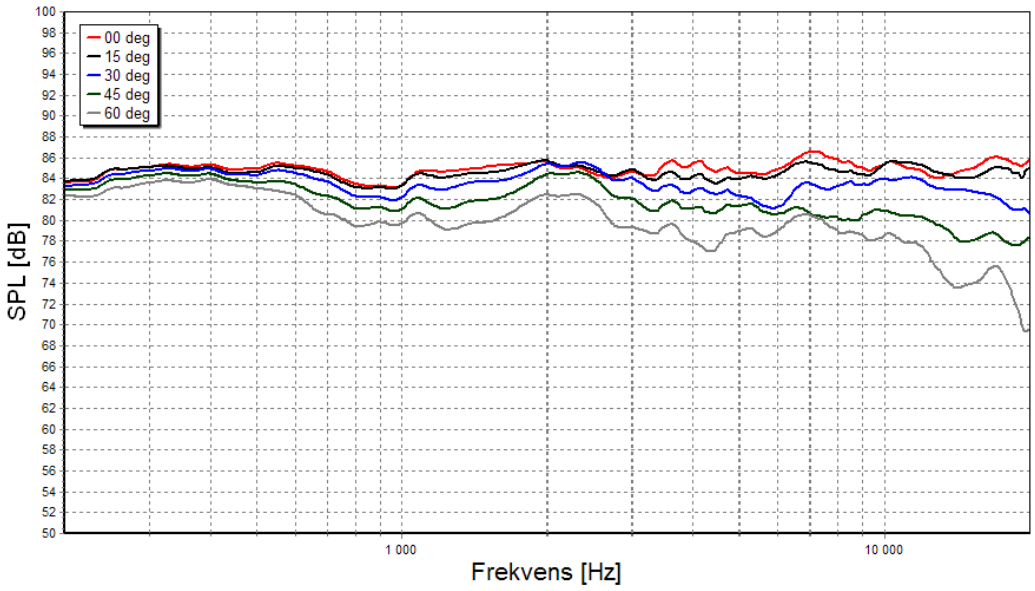

Figure 4: SPL at 1m, 2.83V, on- and off-axis

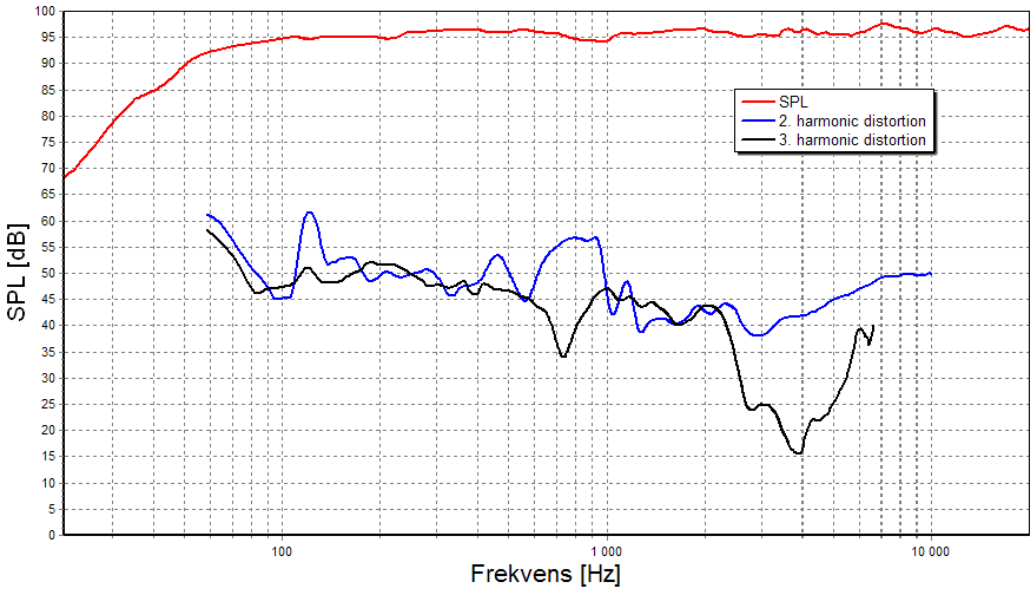

Figure 5: Harmonic distortion at 96dB SPL 1m on-axis