

# Genelec 8260A

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The Genelec 8260A is the latest addition to the 8200 series of DSP-equipped speakers but, unlike the others in that series, it is a three-way design using a novel concentric midrange/tweeter arrangement. The woofer is a fairly conventional 10-inch long-throw unit covered with a concave, non-removable metal grille, and the tweeter is a ¾-inch aluminium dome. The midrange driver is quite radical — a laminated cone with a foam-like suspension/covering extends seamlessly from the outer edge of the tweeter assembly to the inner edge of the cabinet. The sound waves propagating from the tweeter shouldn't, therefore, suffer the diffraction problems due to the presence of suspension/chassis discontinuities that are characteristic of other concentric designs.

The waveguide shape of the midrange diaphragm is continued in the shaped front baffle of the cabinet and this, along with rounded cabinet edges, are designed to minimise diffraction-related problems. The drivers are mounted in vertical orientation in a die-cast aluminium cabinet that also contains the electronics and a rear-facing flared bass reflex port. In common with the rest of the 8200 series, the DSP system is Genelec's own which can be used to control a number of speakers and provides equalisation, room alignment and delay compensation along with also taking care of input signals, protection and crossover functions. The control



and equalisation aspects of the DSP system are beyond the scope of this review, as all of the measurements were taken in an anechoic chamber (a non-room). The rear panel houses the input sockets and a set of dip switches. There are three XLR-type sockets; one for balanced or unbalanced analogue input, one for digital input (AES-EBU) and another for digital through. The two rows of dip switches control the following: bass roll-off, 0, -2, -4 and -6dB; bass tilt, 0, -2, -4 and -6dB; desktop use, 0 and -4dB at 160Hz; treble tilt, +2, 0, -2 and -4dB; stored/manual control; AES-EBU channel; driver mutes; and system level, -10, -20 and -30dB. There are also two RJ45 sockets and a level control. All measurements in this review were taken with the speaker in its unequalised state with all manual controls set to 0dB. The crossover network is handled by the DSP and Genelec specifies crossover frequencies of 490Hz and 2.6kHz with amplifier powers of 150W for the woofer, 120W for the midrange and 120W for the tweeter. These amplifiers endow a single 8260A with a claimed maximum short-term sine wave output of 113dB SPL at 1m distance into half space. Overall dimensions are 570mm high by 357mm wide by 347mm deep and the speaker weighs in at a hefty 27.5kg.

Figure 1 shows the on-axis frequency response and harmonic distortion performance for the 8260A. The response is seen to be extremely flat, smooth and extended, lying within  $\pm 2$ dB limits from 28Hz to 20kHz. This speaker has the widest/flattest response of any tested to date, which suggests that the diffraction control measures above are working. Harmonic distortion levels are generally low with a maximum of -30dB (3.2%) 2nd harmonic at 40Hz and -35dB (1.8%) 3rd harmonic at 35Hz. Distortion levels are below -40dB (1%) at all frequencies above

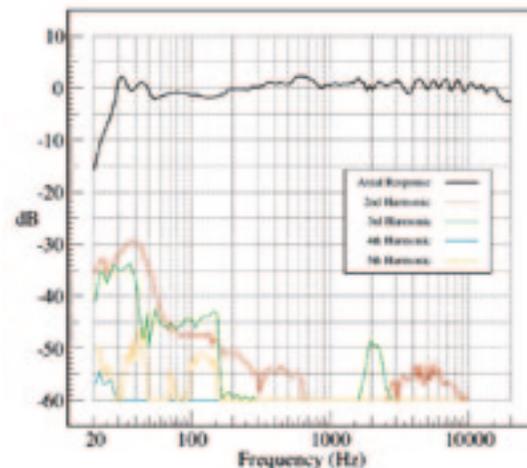


Fig. 1. On-axis frequency response and distortion.

55Hz. These levels are perhaps not surprising as the 10-inch woofer and the cabinet are larger than those found in many comparable monitors. The off-axis responses are shown in Figures 2 and 3 for the horizontal and vertical planes respectively. These figures demonstrate that the concentric drivers and diffraction control measures give rise to extremely well-controlled directivity with a smooth response at all angles, wide dispersion at all frequencies and a complete absence of mid-range narrowing or crossover notches. This is an impressive result.

An extended, flat frequency response usually comes at a cost, and that cost is usually either in the size of the speaker or in the transient response. Figure 4 shows the step response for the 8260A. There is a delay between the onset of the high frequencies and the mid frequencies of about 0.7 milliseconds and a delay to the lower frequencies of about 2.5 milliseconds. The

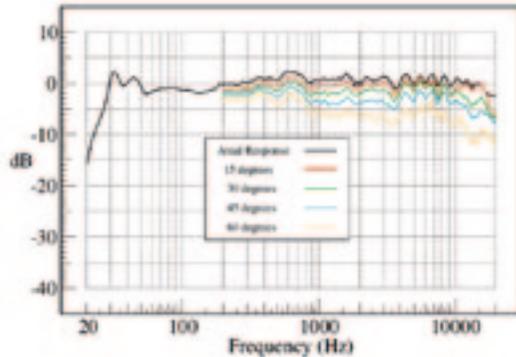


Fig. 2. Horizontal directivity.

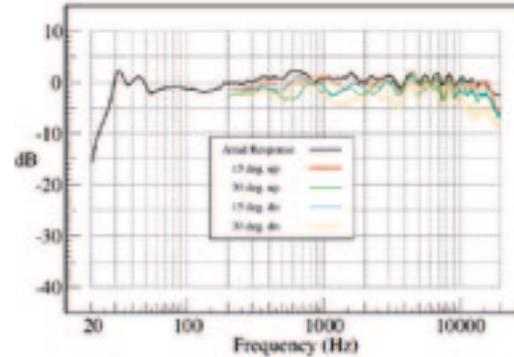


Fig. 3. Vertical directivity.

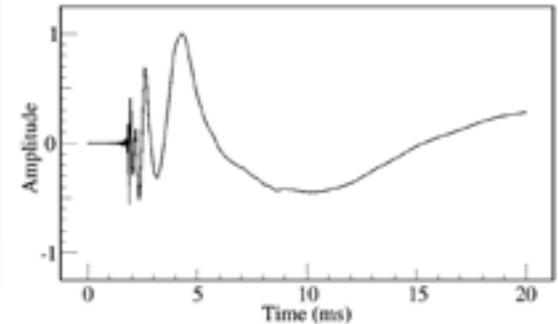


Fig. 4. Step response.

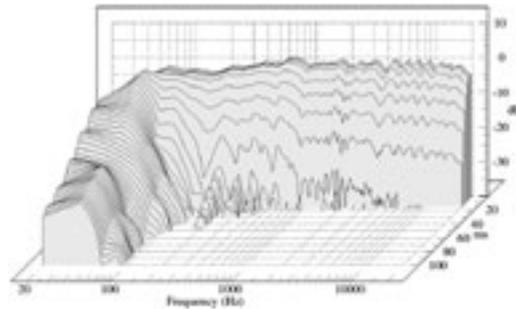


Fig. 5. Waterfall plot.

waterfall plot (Figure 5) shows that the low frequency components of transient signals decay much slower than the mid and high frequencies with a decay to about -30dB in 100 milliseconds. Other aspects of the time domain performance are more encouraging with the acoustic source position (Figure 6) at low frequencies moving to less than 3m further than that of the mid and high frequencies, and the power cepstrum (Figure 7) showing little sign of echoes or diffraction

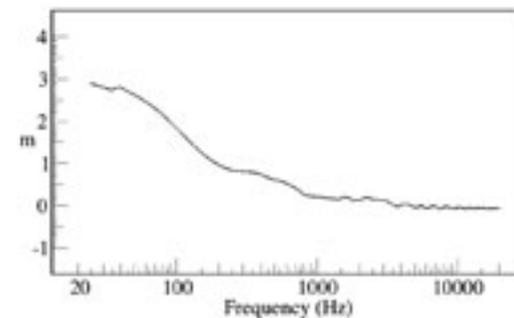


Fig. 6. Acoustic centre.

problems. One point that may be important is the latency due to the digital signal processing. This adds around 4.5 milliseconds of delay to the signal which must be borne in mind only if it's used with non-DSP speakers or subwoofers.

Overall the Genelec 8260A is a very impressive loudspeaker. It has an extremely wide, flat and smooth frequency response, not only on-axis, but at all of the off-axis angles tested. Both the frequency response

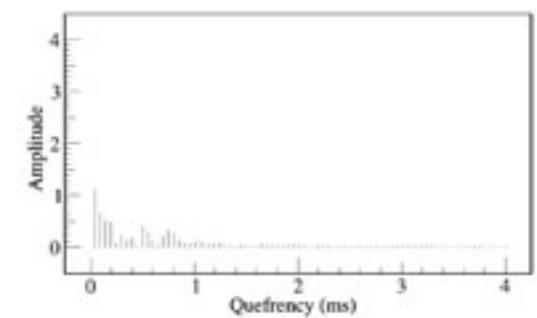


Fig. 7. Power cepstrum.

and the directivity of this speaker are the best of any I have tested to date. There is a price to pay for this performance in some aspects of the response to transient signals but in this case though it is likely that the compromise is worth it. ■

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