

Genelec 8040A

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The Genelec 8040A is a small 2-way active speaker consisting of a 165mm woofer and 19mm metal dome tweeter housed in a cast metal box. The tweeter is mounted above the woofer and, in common with many Genelec designs, radiates through a shallow horn-like waveguide. The box contains all of the crossover, amplifier and protection circuitry. At the rear is a flared rear-facing reflex port and a control panel with sensitivity and equalisation controls along with a recessed IEC mains input socket and on/off switch. The sensitivity control is variable from +6dBu to -6dBu (for 100dB SPL @ 1m) and the equalisation switches are Treble Tilt (+2dB to -4dB at 15kHz), Bass Roll-off (0dB to -6dB at 45Hz), Bass Tilt (0dB to -6dB at 100Hz), all with 2dB steps, and a 'desktop low frequency control' that puts a -4dB notch at 160Hz. This review was conducted with all equalisation controls set to Off.



Genelec specifies a crossover frequency of 3kHz and amplifier short-term power capabilities of 90W each, endowing each loudspeaker with a maximum short-term acoustic output of 105dB SPL at 1m (half-space, 100Hz to 3kHz) or 115dB SPL peak for a pair mounted on a console at 1m distance with music input. The walls of the cabinet are all curved — including the bottom — so the speaker is supplied with an Iso-Pod, which is like four rubber balls and gives vibration isolation from the surface on which it is mounted and stability as well as adjustment of vertical tilt for correct alignment. Each speaker has overall dimensions of 350mm high by 240mm wide by 225mm deep and weighs 8.6kg.

Figure 1 shows the on-axis frequency response and harmonic distortion performance

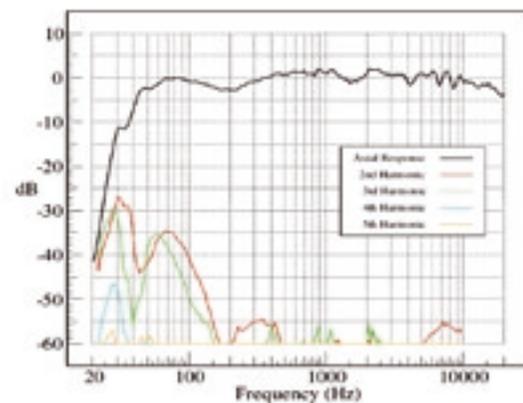


Fig. 1. On-axis frequency response and harmonic distortion.

of the 8040A. The response is seen to lie within +/-3dB from 42Hz to 20kHz and is commendably flat and smooth. The low-frequency response is very extended for a speaker of this size rolling off with a rapid 6th-order slope through -10dB at about 36Hz, indicating the use of a high-pass electronic protection filter and ported cabinet. The harmonic distortion, measured when the speaker is radiating an output of 90dB SPL at 1m, is also very good for a small speaker, with both second and third harmonics lying below -35dB (1.8%) at all frequencies above 45Hz. The horizontal off-axis performance (Figure 2) is well controlled with only slight mid-range narrowing between 1500 and 4000Hz and no side-lobes, but deep notches are seen in the vertical plots (Figure 3) at the crossover frequency due to interference between the vertically-spaced drivers. This suggests that this speaker should be used with upright, portrait orientation (*As Genelec recommends. Ed*).

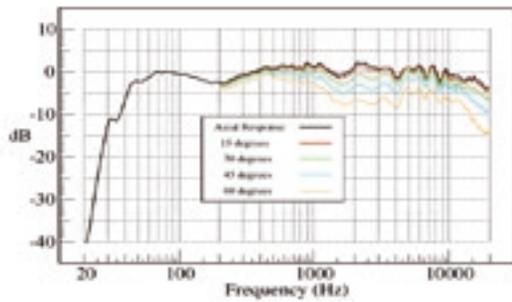


Fig. 2. Horizontal off-axis response.

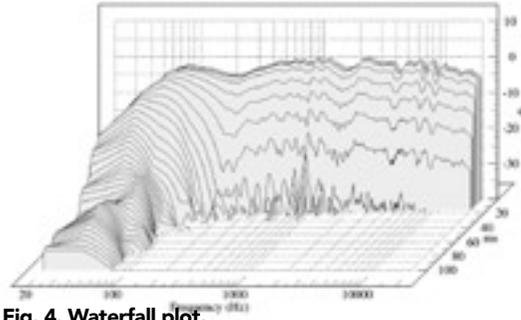


Fig. 4. Waterfall plot.

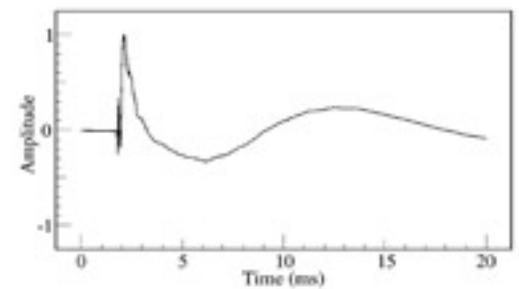


Fig. 6. Step response.

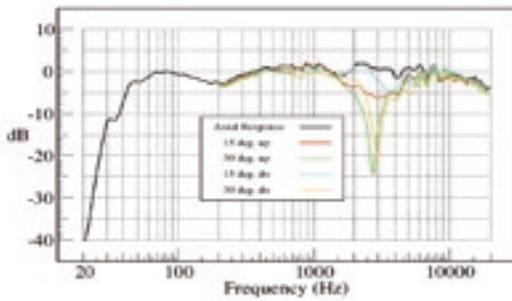


Fig. 3. Vertical off-axis response.

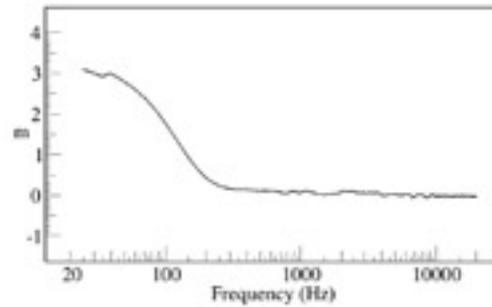


Fig. 5. Acoustic source position.

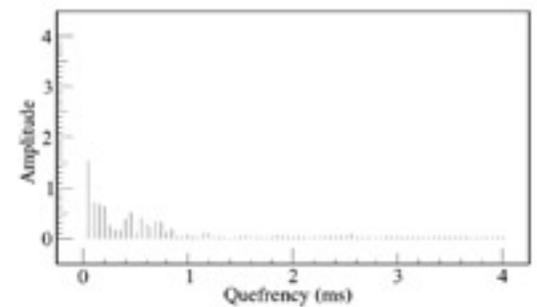


Fig. 7. Power cepstrum.

The waterfall plot (Figure 4) demonstrates the penalty that is often paid for having an extended, low-distortion low-frequency output from a small box. The decay at low frequencies is slow and somewhat lumpy which may compromise the reproduction of the low-frequency components of transient signals. However, the rest of the waterfall is very clean with only very minor mid-range resonances. The acoustic source position shown in Figure 5 further demonstrates the low-frequency alignment compromise with the

low-frequencies effectively emanating from a position 3m behind that of the mid and high frequencies. One very good aspect of the transient performance of the 8040A is shown in the step response of Figure 6. This plot shows a very rapid rise, steady decay and accurate driver time alignment.

Overall, the Genelec 8040A is a very good small loudspeaker. If an extended, low-distortion low-frequency performance is required from a small box then this is the speaker for the job. However, it

should be noted that the bass extension is achieved through compromise of the handling of low-frequency transients. The smooth, flat frequency response and accurate mid- and high-frequency transient response should ensure faithful reproduction of most programme material. ■

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