Event ASP8

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The Event Electronics Studio Precision ASP8 is a two-way active loudspeaker consisting of an 8-inch (200mm) mid-bass driver with a mineral-filled polypropylene cone, and a 1-inch (25mm) soft-dome tweeter that radiates through a shallow, elliptical horn-type waveguide. Both drivers have neodymium magnets and are magnetically-shielded. The drivers are mounted in a vertical orientation on the front baffle of a cabinet with external dimensions of 410mm high by 320mm wide by 300mm deep, which has two ports in the front.

The rear of the cabinet contains the controls for the built-in electronics. Event specifies amplifier power outputs of 200W (programme) for the woofer and 80W (programme) for the tweeter with a forth-order asymmetrical crossover at 2.6kHz. The rear panel has continuously-variable controls for input sensitivity, high-frequency trim (+/-3dB above 2.6kHz) and low-frequency trim (+/-3dB at 100Hz) along with 1/4-inch jack and XLR-type input connectors, both of which can be connected for balanced or unbalanced operation, and an IEC standard mains connector and power switch.

Also included is a button for switching in a 80Hz second-order high-pass filter designed for use in some surround sound applications. This review was conducted with the low- and high-frequency trims set to 0dB and with the high-pass filter switched out.

Figure 1 shows the on-axis frequency response and harmonic distortion for the ASP8. The response is seen to lie between +/-5dB from 40Hz to 20kHz and exhibits some irregularity in the mid-frequency range. However, the raised response at around 600Hz to 1kHz may be considered a desirable feature in some circumstances, for example, when the loudspeakers are mounted on the meterbridge of a mixing console. The low-frequency roll-off is seen to be very steep having a sixth-order slope with -10dB at about 35Hz. A sixth-order slope is characteristic of the use of an electronic high-pass filter and a ported cabinet to gain maximum output at low frequencies with the minimum driver displacement. Partly as a consequence of this design philosophy, the harmonic distortion is commendably good at very low frequencies lying below -35dB

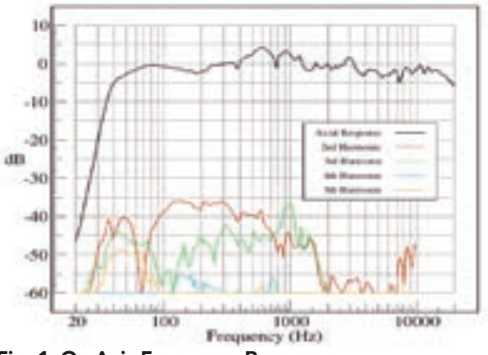

Fig. 1. On-Axis Frequency Response and Harmonic Distortion.

(1.8%) at all frequencies (measured with an output level of 90dB SPL at 1m distance).

The horizontal off-axis response is shown in Figure 2. There is some narrowing of the directivity at the upper end of the woofer frequency range between 500Hz and 3kHz that broadens out again between 3kHz and 8kHz where the tweeter takes over, although this is only really a problem at angles beyond 30 degrees. The vertical off-axis response (Figure 3) shows the characteristic notch around the crossover frequency due to the physical spacing of the two drivers; this occurring about equally in the up- and down-directions.

The time-related response of the ASP8 is shown in Figures 4 to 7 which show plots of the step response, power cepstrum, acoustic source position and the waterfall. The step response shows the high-frequency rise arriving around 0.5ms before the lower frequencies which is typical of many two-way systems.

The power cepstrum shows some evidence of an echo after about 0.5ms, which may be due to

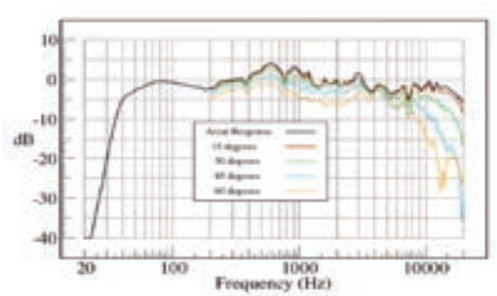

Fig. 2. Horizontal Off-Axis Response.

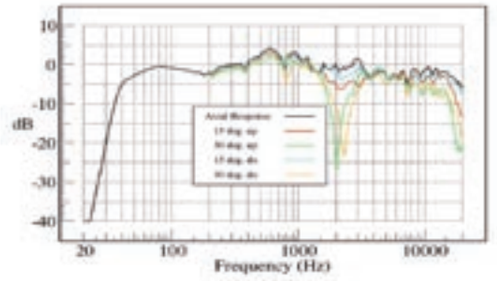

Fig. 3. Vertical off-Axis Response.

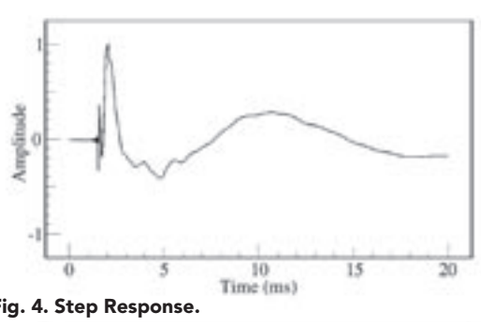

Fig. 4. Step Response.

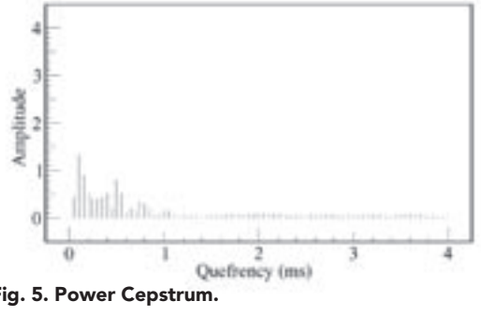

Fig. 5. Power Cepstrum.

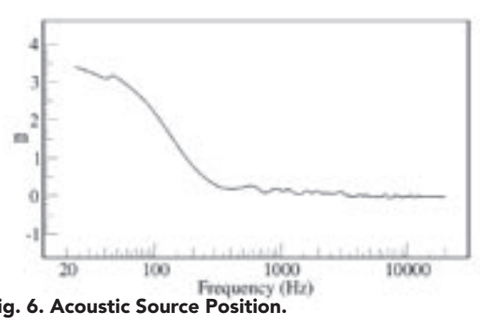

Fig. 6. Acoustic Source Position.

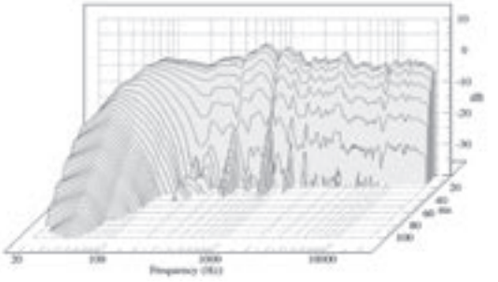

Fig. 7. Waterfall Plot.

diffraction from the side edges of the front baffle of the cabinet. This may explain some of the frequency response irregularities noted above, as a closer look at the horizontal off-axis response curves reveals a smoother response off-axis than that on the axis (due to diffracted wave path length differences).

The acoustic source position and water fall plots demonstrate some of the compromises involved in the adoption of the rapid low-frequency roll-off described above. The acoustic source position is seen to be over 3m behind the loudspeaker at low frequencies and the waterfall plot shows a much more gradual decay of low frequencies than the mid- and high-frequencies. However, although this decay is slow compared to many systems with more gentle roll-off slopes, such a those with non-ported cabinets, it is more rapid than many comparable systems, indicating that the inevitable compromise between low-frequency distortion and transient response has been managed with care. The waterfall plot also shows up some resonance behaviour at 400Hz and 900Hz that corresponds to dips in the on-axis frequency response.

Overall the Studio Precision ASP8 (UK£510 + VAT) is a good performer. The adoption of a ported cabinet with an electronic high-pass protection filter has resulted in commendably low distortion figures without too much compromise in the low-frequency transient behaviour. The frequency response is uneven, but current thinking indicates that the non-flat 'inverted V' shape of the response may be desirable for some applications. ■

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