PMC AML2

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The PMC AML2 is a 2-way active speaker comprising an unusual 165mm carbon fibre and Nomex flat piston woofer and a 34mm soft dome tweeter. The tweeter radiates through a perforated plate and is coupled to the front baffle via a shallow conical horn. The cabinet is a transmission line design (PMC's ATL technology) which exits via a mesh-covered grille beneath the woofer. The power amplifier, crossover and equalisation electronics are housed within the cabinet and cooled via a set of large heat sink fins on the cabinet rear panel. The logo on the front of the cabinet and the heat sink fins suggest that this speaker is designed to be operated in the vertical (portrait) orientation only.

The electronic controls for input level, LF Roll-off (-3dB @160, 80, 50, 0Hz), LF Tilt (-3, 0, +1.5, +3dB @30Hz) and HF Tilt (-5, -2.5, 0, +2.5dB @10kHz), along with an EQ in/out button are located above the heat sink at the rear of the top of the cabinet. The IEC mains socket and switch along with the XLR input socket are located at the bottom of the rear panel beneath the heat sink. This test was carried out with all of the equalisation switched out. PMC rates the power amplifiers with an output of 100W RMS for the woofer and 80W RMS for the tweeter with 4th-order crossover filters at 1.4kHz. Overall dimensions are 400mm high x 200mm wide x 370mm deep and each speaker weighs 16kg.

Figure 1 shows the on-axis frequency response and harmonic distortion performance for the AML2. The response is less even than that for many comparable speakers and lies between +/-4dB limits from 40Hz to 20kHz except for some narrow-band dips at around 2kHz. The low-frequency response is well extended with -10dB at around 32Hz and a 4th-order roll-off. This is commendable bass extension for a speaker of this size. 2nd and 3rd harmonic distortion is seen to lie just below -40dB (1%) at frequencies above 50Hz which represents good low frequency performance, however, these levels are maintained to just over 1kHz which is higher distortion in the mid-range than many other designs. The horizontal off-axis response, shown in Figure 2, is well controlled with the coverage narrowing steadily with increasing frequency in general and the vertical off-axis response (Figure 3) is fine except for the common characteristic notch at the crossover frequency due to the spacing between the drivers, in this case in the upwards direction.

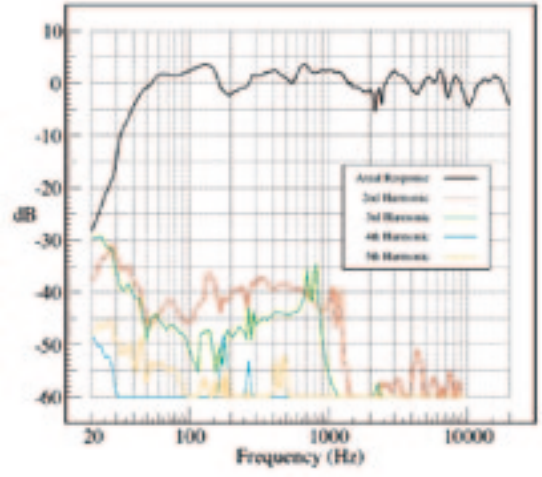

Fig. 1. On-axis frequency response and distortion.

Figure 4 shows the response of the AML2 due to a step input signal. It can be seen that time alignment between the woofer and tweeter is fairly good with evidence of the high frequencies arriving around 0.6 milliseconds before the midrange. The power cepstrum plot (Figure 5), which is designed to expose echo problems, shows that the slightly uneven frequency response noted above is due to some echo activity between 0.1 and 0.5 milliseconds which may be due to cabinet edge diffraction or internal cabinet reflections. Further time-domain information is shown in the acoustic source position and waterfall plots in Figures 6 and 7 respectively. The acoustic source position is seen to move to around 2.5m behind the speaker at low frequencies, which is a good result

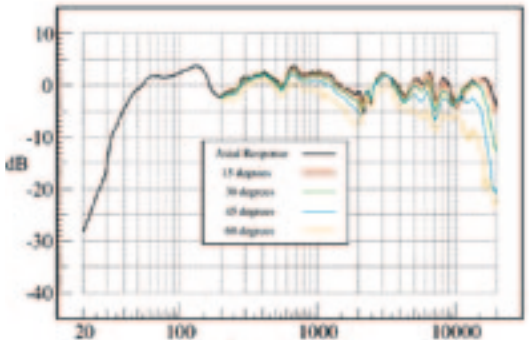

Fig. 2. Horizontal off-axis response.

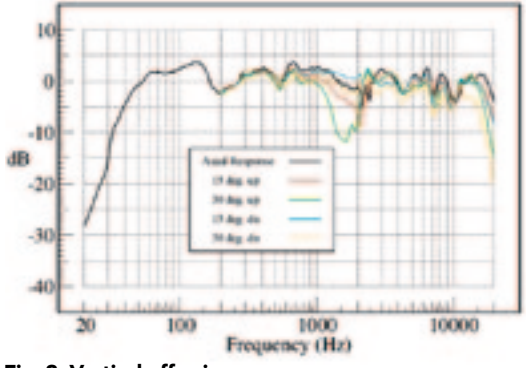

Fig. 3. Vertical off-axis response.

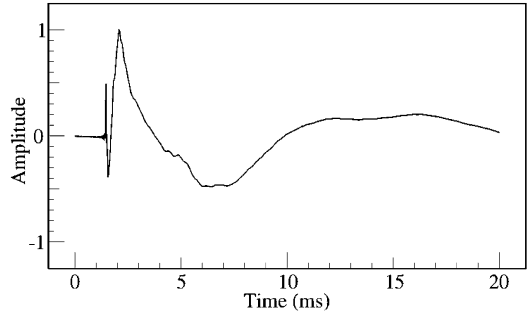

Fig. 4. Step response.

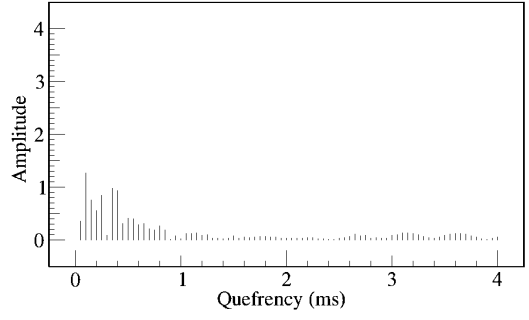

Fig. 5. Power cepstrum.

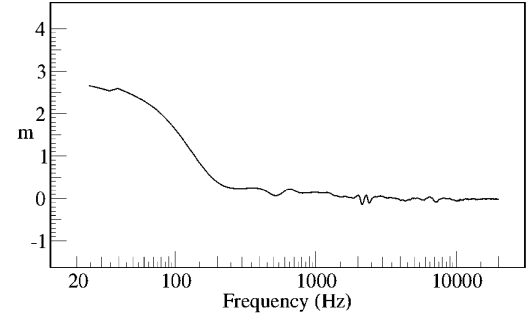

Fig. 6. Acoustic source position.

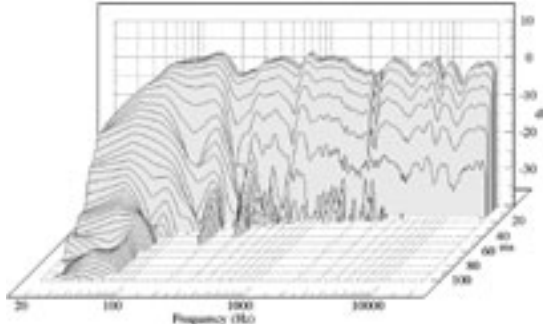

Fig. 7. Waterfall plot.

considering the bass extension and 4th-order roll-off, and further evidence of a fast low-frequency performance can be seen in the waterfall plot where the low frequencies decay rapidly to a low level before flattening out. The waterfall plot shows some resonance activity at 200 and 300Hz, either side of the notch in frequency response, although these are quite low in level.

Drawing conclusions about the performance of the PMC AML2 is quite difficult. The low frequency performance is highly commendable with good extension, low distortion and fast transient response, but the mid frequency range is let down somewhat by an uneven response and relatively high distortion. It is therefore more difficult than usual to predict what these speakers are likely to sound like; a good audition under representative acoustic conditions may reveal which characteristics are more important.

Contact

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