

DigiDesign RM2

KEITH HOLLAND



The DigiDesign RM2 is an example of a new breed of loudspeaker featuring on-board digital electronics, and is the result of collaboration between DigiDesign and transmission-line loudspeaker experts PMC. It is a two-way design featuring a 170mm doped cone woofer and a 27mm soft dome tweeter. The cabinet is a transmission line design that has external dimensions of 400mm high by 194mm wide by 370mm deep with drivers mounted in a symmetric vertical alignment on the front panel above the transmission line exit.

The rear panel carries the mains power socket and switch, the input sockets, various controls and four threaded anchor points for wall brackets. XLR sockets are provided for analogue (balanced) and digital (AES 3) signal inputs, along with RJ-45 sockets for digital input and Thru connections. There are controls for high-frequency response and low frequency response, both of which are variable from -4dB to +3dB in 0.5dB steps, along with a gain trim (0dB to -15dB), a digital channel assignment switch and a 'bass port emulation' switch that applies equalisation to emulate the response of a ported speaker.

This review was conducted with input via the analogue socket, the tone controls set to 0dB and the bass port emulation switched out. One criticism is that the controls are somewhat flimsy in construction and do not have end stops so that, for example, the gain can be turned down though minimum straight to maximum. The on-board electronics features 24-bit,

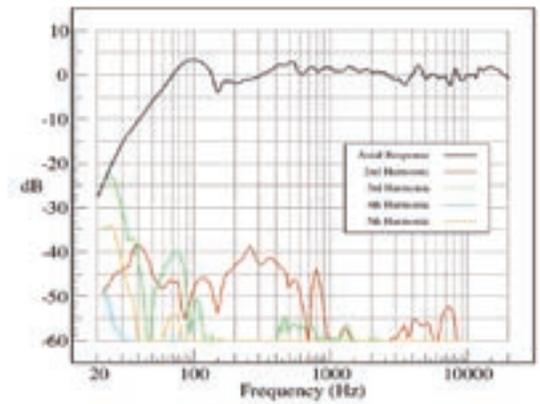


Fig. 1. On-axis frequency response and harmonic distortion.

96kHz A-DCs, digital crossover, digital equalisation (bass port emulation and tone controls) and class D amplifiers rated at 100W for the LF and 50W for the HF driver.

Figure 1 shows the on-axis frequency response and harmonic distortion (at a level of 90dB at 1m) for the RM2. The response is seen to be within ± 3 dB from 160Hz to 20kHz, but is somewhat uneven at lower frequencies with a 4dB dip at about 150Hz followed by a +4dB peak at 100Hz before a 3rd-order roll-off that reaches -10dB at around 40Hz. Harmonic distortion at low frequencies is very good lying below -40dB (1%) at all frequencies from 50Hz upwards. The vertical off-axis response (Figure 2) shows the characteristic crossover dip at 2.5kHz due to the vertical spacing between the drivers, and the horizontal responses (Figure 3) demonstrate good directivity control with only slight mid-range narrowing between 1kHz to 2kHz.

monitor benchtest

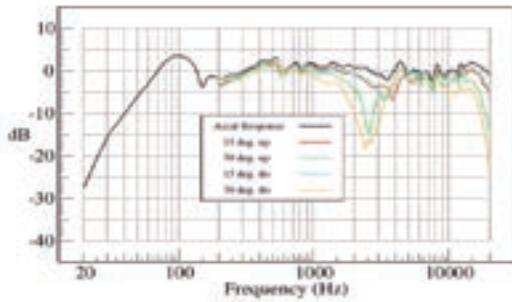


Fig. 2. Vertical off-axis response.

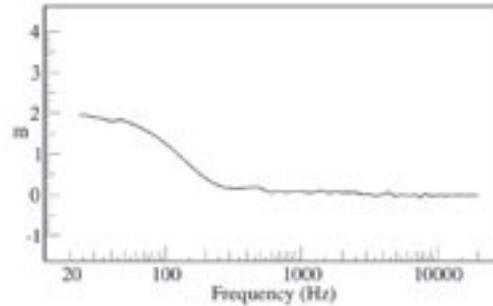


Fig. 4. Acoustic source position.

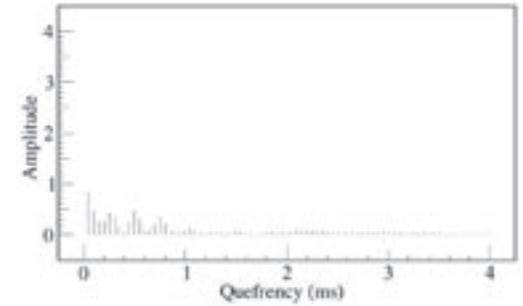


Fig. 6. Power cepstrum.

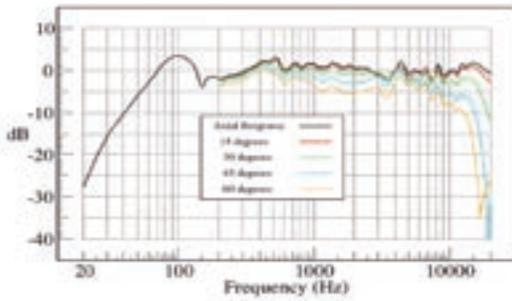


Fig. 3. Horizontal off-axis response.

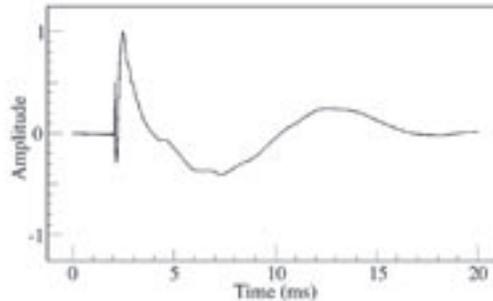


Fig. 5. Step response.

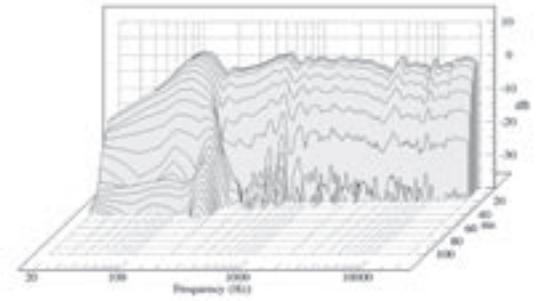


Fig. 7. Waterfall plot.

Figure 4 shows the acoustic source position for the RM2 in which the low frequencies are seen to emanate from a position about 2m behind the mid and high frequencies. This is a good result and is typical for a loudspeaker having a 3rd order low-frequency roll-off. The step response of the RM2 (Figure 5) is commendably accurate, with the tweeter responding only about 250 microseconds before the woofer, and the power cepstrum (Figure

6) shows little evidence of echoes or reflections. The waterfall plot in Figure 7 shows evidence of a resonance at about 160Hz that corresponds with the dip in response noted above, apart from this, the response is seen to decay rapidly and evenly at all frequencies.

Overall the Digidesign RM2 is a fine loudspeaker. Apart from a problem in the response at about 160Hz, there is little to criticise about the measured

performance. Of particular note is the time domain response. The combination of a rapid, even decay, fast step response and reasonably compact acoustic source position should ensure that transient signals are very well reproduced by this loudspeaker. ■

Contact

DIGIDESIGN, US:

Website: www.digidesign.com