

# PRO AUDIO REVIEW

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**equipment**  
review

## Audio Composite Engineering Model 1250 Composite Speaker System

by Michael McCook

**W**ith the steady flow of breakthrough innovations in audio electronics, it's easy to overlook the extraordinary progress that has also been made in loudspeaker technology. The Model 1250 Speaker System from Audio Composite Engineering is guaranteed to change that. The exceptional sound and practical advantages of this new two-way speaker are too good to miss.

Model 1250 loudspeakers (\$2,895 per speaker) have wedge-shaped, carbon fiber technology (CFT) enclosures. The high-frequency section is a JBL 2450 4" diaphragm neodymium compression driver modified to exit at 1.5" and coupled to an Audio Composite Engineering-designed spherical waveguide.

### Features

The woofer is a 12" JBL 2206H with 4" voice coil. The Model 1250 is supplied with a passive crossover network that can be switched into bi-amp mode via a rotary switch under the grille. There is also a Model 1250A (\$2,695) that does not have a crossover. The system has a nominal impedance of 8 ohms and will handle 600 W, full range. Nominal coverage is 75 degrees at 8 kHz.

The enclosures are 12.6"x19.5"x29.5" and come standard with Aeroquip flyware and four permanent 3/8"x16" TPI rigging points. Comfortable handles are integrated with the flyware and various mounting accessories are available through Audio Composite Engineering for wall, ceiling, truss, pipe or stand mounting. Connections are via four standard quadpole Neutrik NL4 Speakons; there are two on each rear angle of the cabinet to facilitate use as stage moni-

tors in pairs.

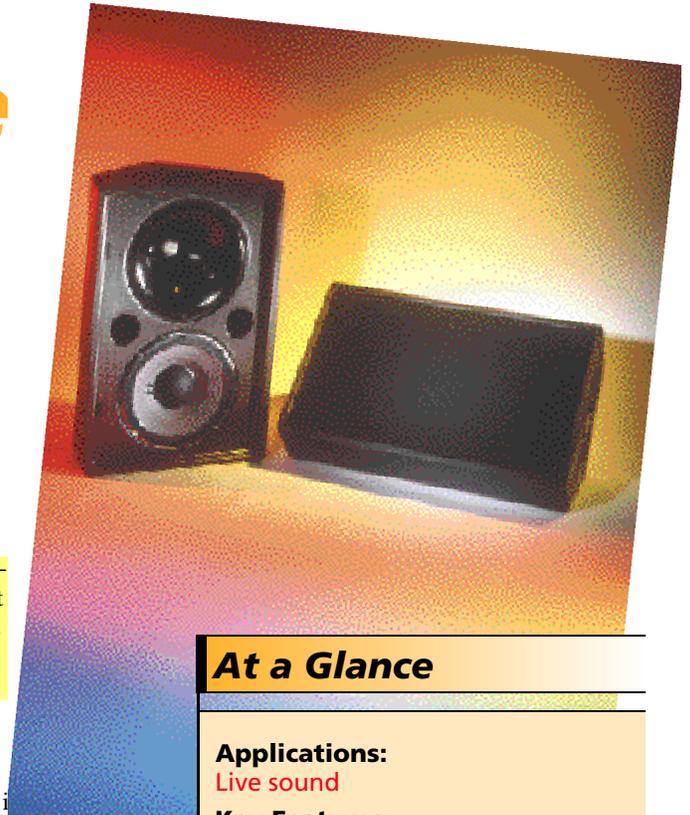
The carbon fiber technology enclosures really set these loudspeakers apart from others with plywood, birch or molded cabinets.

CFT allows for the production of ultrastiff, yet lightweight, materials and products. These days CFT is everything from boats and aircraft to tennis rackets and skis. Audio Composite Engineering, a spinoff from the touring sound company Southern California Sound Image, Inc., adapted the technology for use in speaker enclosures. Benefits include reduced weight, durability and impressive sonic performance. The Model 1250 is an exceptionally light 47 lb, which will please roadies and installers everywhere. At that weight, the speakers are considerably easier to haul and mount, and put far less stress on rigging than other comparable speakers.

The Model 1250 has a charcoal gray finish and the solid appearance of a well-built, high-quality product. The color is actually part of the material — woven carbon fiber cloth cured in epoxy resin — and won't scratch or fade. The standard grille is black fabric.

Grille options include a full steel grille for road applications and a metal woofer grille mounted under the cloth. Either option can be ordered at the time of purchase, or retrofitted in the field.

CFT does more than just provide a light, durable cabinet, however. The material actually consists of two skins — the external one, which I've just described, and an internal skin, separated by a phenolic honeycomb structure. The honeycomb is mostly



### At a Glance

**Applications:**

Live sound

**Key Features:**

Lightweight, carbon fiber technology construction; 75 degrees at 8 kHz nominal coverage.

**Price:**

Model 1250 — \$2,895; Model 1250A — \$2,695; weather-resistant versions of both models \$100 additional

Contact: Audio Composite Engineering at 760-741-3787.

air, which naturally has the effect of creating a dead cavity between the skins. Consequently, the Model 1250 has practically no transmission loss through the walls of the cabinet.

### In use

I used the Model 1250 loudspeaker at an outdoor festival featuring eight electric and acoustic acts. Powered by a Crown CE1000 bridged in mono, the one stand-mounted loudspeaker was more than adequate to cover the large lawn where the event was held. Forward projection from the speaker was noticeably good, as was its clear, accurate sound at all frequencies. Even at the farthest corner of the outdoor venue, bass lines

were distinct and powerful, while high notes were crisp and bright.

Back at our corporate facility, the events staff played their favorite CDs, enjoying the 1250's clarity and power — filling the valley with the sound of our impromptu concert. It sounded so good loud that we half-expected the police to shut us down. It's no exaggeration to say I haven't been as impressed by a speaker in a long time.

### Summary

With its symmetrical wedge shape and flat response, the Model 1250 makes an excellent floor monitor, and multiple connectors make paralleling mixes a snap. The speakers are also well-suited for FOH reinforcement, either singly or in clusters. Array kits are available for two-, three- and four-wide applications. A three-wide array, including hardware, weighs less than 160 lb.

Weather-resistant versions (1250WR and 1250AWR) are available for an additional \$100. The WR versions include a multilayer grille (metal-foam-cloth) and a treated cone. In the case of the standard WR model, the full-range/bi-amp switch is replaced with a field-changeable internal jumper and the crossover network is treated for additional corrosion resistance. There are also ready-to-paint and color options: A choice of more than 100 available stock colors coordinate with any given decorating scheme. These finishes are not recommended for road use, however. With all its options and remarkable performance, the Model 1250 is a great sounding loudspeaker system that can be used in practically every kind of application.

*Michael McCook is founder of MAS Audio, a design/build A/V contracting firm serving the Northeast corridor since 1976 and a frequent contributor to Pro Audio Review.*

## Product Points

### Audio Composite Engineering Model 1250 Speaker System

#### Plus

- Strong, lightweight construction
- Fantastic sound
- Scratch-resistant cabinet

#### Minus

- None

#### The Score

The exceptional sound and practical advantages of this extremely lightweight yet sturdy system make the live sound engineers' choice in systems easy.

The exceptional sound and practical advantages of this new two-way speaker are too good to miss



## On The Bench

### Audio Composite Engineering 1250 Speaker System Bench Measurement

This product measured well for a live sound monitor loudspeaker. For example, **Figure 1** shows the frequency response at 1 meter, 1/3-octave smoothed: 55 Hz to 18 kHz +/- 3 dB. There's a broad rise at 650 Hz that lends a slight chesty quality, and a broad dip at 5 kHz that reduces both clarity and harshness. The low end rolls off below 70 Hz, but the output is still usable at 50 Hz.

At 30 degrees off-axis (not shown), all the highs above 1 kHz are down about 3 dB. The response is smooth but the overall high-frequency level is diminished.

**Figure 2** shows the energy time curve, which relates to the transient response. It is fairly good for such a big speaker. Cabinet-edge diffraction causes some late sound arrivals about 10 dB down from the main spike.

As for distortion, the unit performs quite well. I measured the total harmonic distortion (THD) vs. frequency (not shown). THD is 4% at 40 Hz, 5.4% at 50 Hz, 1.2% at 62 Hz, 1% at 80 Hz, and below 0.4% above 100 Hz. So the distortion is very low over the range this speaker is intended to reproduce.

With its combination of soft upper-mids and clean sound, the speaker should have very low listening fatigue.

—Bruce Bartlett

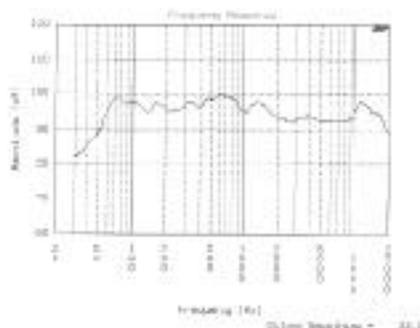


Figure 1: Frequency response

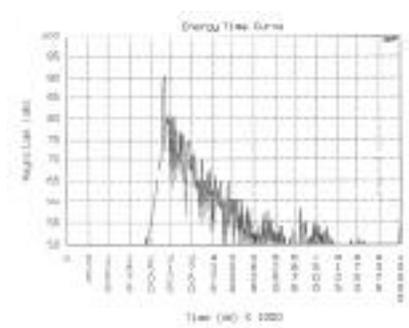


Figure 2: Energy time curve