

PRO AUDIO REVIEW

SECTION
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equipment
review

Tannoy System 600A Two-Way Powered Closefield Monitor by Bruce Bartlett

On The Bench

It's all here: flat response, deep bass, small size, simple setup, sharp imaging, high volume, low listening fatigue... How does Tannoy pack all that into one monitor? I am impressed.

Features

The Tannoy 600A powered closefield (\$1,595) uses Tannoy's Dual Concentric design, in which the woofer and tweeter are mounted on the same axis. The 6.5" polypropylene woofer crosses over at 1.6 kHz to the tweeter centered in the woofer cone.

This design forms a point source, which results in sharp stereo imaging. It also prevents the lobing often seen with staggered drivers. If you sit anywhere off-axis — up, down, left or right — the response should stay fairly consistent. The speakers can be placed horizontally or vertically with the same response. The shape of the woofer cone acts as a hyperbolic waveguide for the tweeter sound waves, producing a spherical wavefront. Another plus: the crossover design of a coaxial speaker can be simpler. Because the low- and high-frequency signals are aligned in time, the phase response is uniform and the transient response is tight.

The System 600A includes a 70-W continuous-power amp for the woofer and another for the tweeter. This self-contained powering offers many advantages. The response of the active crossover can compensate for the speaker drivers, giving a flatter response. The amplifiers are ideally matched to the drivers. Distortion is lower at the same volume level compared to passive speakers.

Ferrofluid cooling in the tweeter lets it

handle high power. Its diaphragm is made of aluminum/magnesium for stiffness and low mass. Around the diaphragm is a nitrile rubber surround with a narrow roll that is claimed to eliminate resonances below 25 kHz, and cannot be destroyed by fatigue.

Two EQ switches on the back control the bass and treble response (LF and HF contour). The LF settings are free-field and half-space. If your speakers are placed relatively far from nearby surfaces, use the free-field setting. If the speakers are near a wall or console, use the half-space setting. The HF adjustments are +2, 0, and -2 dB shelving. An input-level switch chooses between -10 dBV and +4 dBu.

Signal input is via a Neutrik combiconnector, which combines a three-pin XLR-type with a TRS locking 1/4" phone jack. Also on the back is the power amp on/off switch, AC power connector and voltage selector. To check the cabinet for resonances, I knocked on it, and it was quite dead. Tannoy made it

of 36mm thick, rigid MDF, damped to prevent breakup. The cabinet is covered in black vinyl wrap, while the front baffle is painted midnight blue. It is shaped like an elongated octagon, with beveled edges that reduce diffraction. Two panels in the cabinet are fitted with magnetic shielding plates.

Each speaker weighs 23.1 lb. and measures a compact 9"x14"x11" (HWD). On the front of the cabinet are two bass-reflex ports and a power-on LED. This LED is a very classy blue, but it shines a bit too brightly.

The user manual is clear and thorough. It covers connections, installation, controls and indicators, use near video monitors, design details and service.



At a Glance

Applications:

Recording studio, multimedia, broadcast production

Key Features:

70-W continuous power amp; ferrofluid cooling; two bass-reflex ports

Price:

\$1,595/pair

In use

I placed the 600As where they sounded right, about two feet from a damped wall behind them, three feet apart on stands behind my mixer, ear height and toed in. I set the LF switch to free-field and the HF switch to flat. After listening to several CDs and some of my mixes, I had these impressions:

- Bass guitar: Fairly deep, full, non-boomy, very tight, uniform loudness of notes.
- Kick drum: Strong impact. Good bottom considering the small speaker size. A deep bass drum roll has some weight.
- Cymbals: Crisp and detailed. Extended highs.
- Vocals: Not boomy or chesty. Natural, uncolored. Not overly sibilant.
- Drums: Lots of snap, strong impact.
- Percussion: Sweet and delicate.

Product Points

Tannoy System 600A

Plus

- Mostly neutral, accurate sound
- Good bass for size
- Tight bass and transients
- Powerful dynamics
- Really sharp imaging
- Low fatigue

Minus

- Off-axis, the highs roll off
- Slight midbass emphasis

The Score

The Tannoy System 600A puts out loud, clean, accurate sound from a small box.

- Sax: Good balance between warmth and edge.
- Acoustic guitar: Light and clear, articulate, well-defined but not "tizzy."
- Electric guitar: Lots of bite, gutsy.
- Piano: Natural, nonresonant, and uncolored. Detailed — you can hear the materials the piano is made of!
- Strings: Smooth, natural timbres.

My mixes translated well to the Tannoys, revealed more reverb and detail than the monitors I used. It helped me improve my mixes.

Overall, the tonal balance of the 600As is smooth and even, with a slight weighting toward the midbass. Setting the LF switch for "half space" (slight bass cut) reduces the deep bass but not the midbass.

Many small monitors tend to blur instruments together in complex mixes. Not so with the System 600A. Each instrument stays distinct. Dynamics are exciting and listening fatigue is low. Transients retain their sharp impact. Stereo imaging is quite impressive. You'll hear pinpoint images and fine rendition of hall acoustics.

Summary

The Tannoy System 600A puts out a lot of loud, clean, accurate sound from a small box. Definitely worth a listen.

Bruce Bartlett, a thirty year recording engineer/producer, has written more than 600 audio-related articles and six books. Bartlett is a regular contributor to Pro Audio Review.



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On The Bench

Tannoy specs the frequency response (with the free-field LF setting) as 44 Hz to 20 kHz \pm 3 dB. Maximum SPL (peak at 1 m) is rated at 107 dB, and distortion is $<$ 0.5% (no SPL given). As we'll see, the speaker met its specifications.

Figure 1 reveals an impressively flat response: 50 Hz to 18 kHz \pm 3 dB. The LF contour was set to "free-field" and the HF contour was set to flat. Setting the LF switch to "half-space" drops the lows about 3 dB below 150 Hz. The HF switch introduces a \pm 2 dB shelf above 3 kHz (not shown). There's a gentle rise around 200 Hz that lends a slight midbass emphasis on some recordings.

Off-axis response at 30 degrees (not shown) is pretty much the same

up to 2 kHz. It's down 4.5 dB at 4 kHz and down 10 dB at 15 kHz. If a producer listens off-axis, he or she will hear a bit weaker cymbals than the engineer will hear on axis. In Figure 2, the Energy Time Curve shows a sharp transient response.

Finally, Figure 3 shows THD vs. frequency at 90 dB SPL/1 meter. The results are typical for a small speaker: fairly high distortion at frequencies below 50 Hz, but very low distortion (below audibility) above that (except for some buzzes at 100 Hz and 160 Hz). I could hear a little buzzing or rattling with 90 dB sine waves at those frequencies.

— Bruce Bartlett

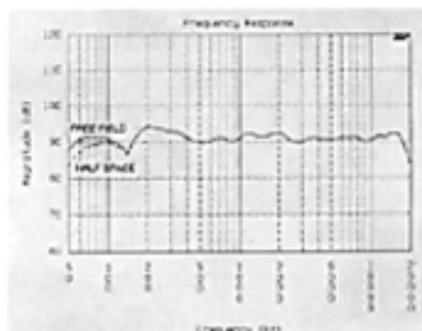


Figure 1: Anechoic frequency response (1/3 octave smoothed).

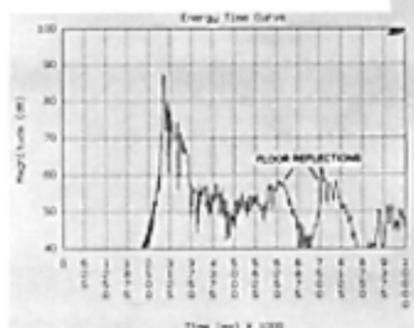


Figure 2: Energy timecurve (transient response).

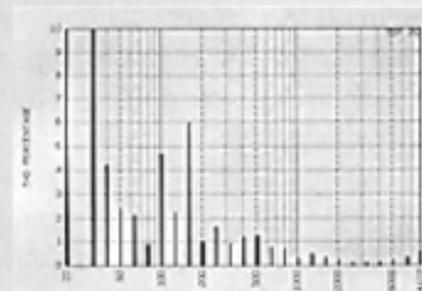


Figure 3: THD vs. frequency at 90 dB SPL/1 meter