



604E Series II LOUDSPEAKER



DISCUSSION

Great Plains Audio receives more inquiries regarding the 604 than for any other loudspeaker we manufacture. We listened closely to these professionals from around the world, and we understood their needs. Next, we listened ardently to the loudspeaker we were developing, and created what we believe is the best sounding 604 ever, the Great Plains Audio model 604E Series II.

The most famous broadcast studio and recording studio monitors in the world are probably 604-based speaker systems. During the 1970's, 604-based monitor systems were used by more studios than all other monitor systems combined. The 604, known as the original point-source reference standard, approaches transparent sound reproduction, possibly more than any other transducer.

Through the 1980's and 1990's, both playback and performing rooms were increasingly deadened as smaller speaker systems became the aural monitors of choice. Recently, however, many of the veteran artists and producers have returned to a more realistic, live-sound environment. Plus, the newest generation of artists and producers, who happen to experience a recording studio with live rooms and large speaker systems, are now specifying this exciting environment for their newest creative works. Professionals know that there is nothing better than a large, 604-based, speaker system for a live-sound reproduction of an original performance.

The term 'digital-ready', when applied to a loudspeaker, usually implies that the product is able to handle the enhanced dynamics that are now technologically available from digitally processed sound. Our large, high efficiency 604 will manage the dynamics of sound (from any medium), better than any smaller, low efficiency loudspeaker. With our 604E Series II, we are creating an upper echelon of high definition audio that we call true-definition.

GENERAL DESCRIPTION

Our newest 604 is a 15 in. (381 mm), low frequency loudspeaker and a 1 in. (25 mm), high frequency compression driver, both mounted to a single 16 in. (406 mm) diameter frame. Each component is structurally, magnetically, electrically, and mechanically independent of the other. The low frequency loudspeaker cone is attached to a 3.0 in. (76 mm) diameter, edge-wound, copper-ribbon voice-coil and a 4.4 lbs. (2.0 kg) Alnico V magnet (which produces a gap flux density of 1.3 T). The high frequency compression driver features a 1.2 lbs. (0.544 kg) Alnico V magnet (which produces a gap flux density of 1.55 T), and a 1.75 in. (45 mm) diameter, edge-wound, aluminum-ribbon voice-coil. This voice-coil is attached to a high grade aluminum alloy diaphragm. Sound-waves from the high frequency voice-coil and diaphragm assembly are channeled into an exponential throat (actually passing through the center of the low frequency component) with a 1 in. (25 mm) diameter exit, and delivered through our multi-cell horn. This horn is a redesigned and improved version of the original true multi-cell horn, last available on the 604B!

Also recommended is our optional N604-8A dual-section crossover network, which divides the audio bandwidth into two sections, using a minimal-parts-count design. The electro-acoustical division is centered at 1,500 Hz, with this crossover providing 12dB/octave of attenuation for both the low frequency section and the high frequency section. It was designed specifically with our new horn to provide an extremely accurate frequency response.

Each member of our team at Great Plains Audio has over 20 years of experience in building high quality audio products. We employ our combined skills and expertise to make the 604E Series II one of the best two-way loudspeakers in the world.

SPECIFICATIONS

Frequency Response: 30 Hz - 20 kHz (see figure 1.)

Power Rating: 100 watts continuous band limited (40 Hz - 16 kHz) pink noise with a 6 dB crest factor according to AES Standard 2.

Sensitivity: 98 dB SPL from 1 watt input, measured at 1 meter

Maximum Output: 119.5 dB SPL (at 1M, calculated from Sensitivity and Power Rating)

Nominal Impedance: 8 ohms

Crossover (Optional): N604-8A, 1,500 Hz, 12 dB/ Octave, Passive LF and HF

Thiele-Small Parameters

Free Air, Resonance (f_s): 26.24 Hz

Equivalent Volume Compliance (V_{AS}): 14.660 ft³ (415.2 l)

Total Q (Q_{TS}): 0.301

Electrical Q (Q_{ES}): 0.315

Mechanical Q (Q_{MS}): 6.654

Reference Efficiency (η_0): 2.27%

D.C. Resistance (R_E): 7.31 ohms

Peak Linear Displacement (X_{MAX}): 0.15 in. (4 mm)

Effective Piston Diameter: 12.75 in. (324 mm)

Effective Piston Area (S_D): 127.68 in.² (823.7 cm²)

Peak Linear Volume Displacement (V_D): 19.15 in.³ (0.314 l)

M(ms): 84.44 grams

LF & HF Magnet Type: Alnico V

LF Magnet Weight: 4.4 lbs. (2.0 kg)

HF Magnet Weight: 1.2 lbs. (0.544 kg)

Flux Density: LF = 13,000 Gauss
HF = 15,500 Gauss

Transducer Components

Low Frequency: One low frequency woofer - 15-in. (381 mm) diameter cone
3 in. (76 mm) diameter voice-coil

High Frequency: One high frequency driver - 1-in. (25 mm) diameter throat exit
1.75 in. (45 mm) diameter voice-coil

Input Connections: Spring-loaded push terminals

Recommended Enclosure details

Internal Volume: 8.5 ft.³ (240.7 l)

Tuning: 35.4 Hz [1 each 4.6 in. (117 mm) diameter by 0.75 in. (19 mm) long duct for the above Internal Volume]

Finish: Textured Black Powdercoat

Weight

Net: 33 lbs. (14.97 kg)

Shipping: 41 lbs. (18kg)

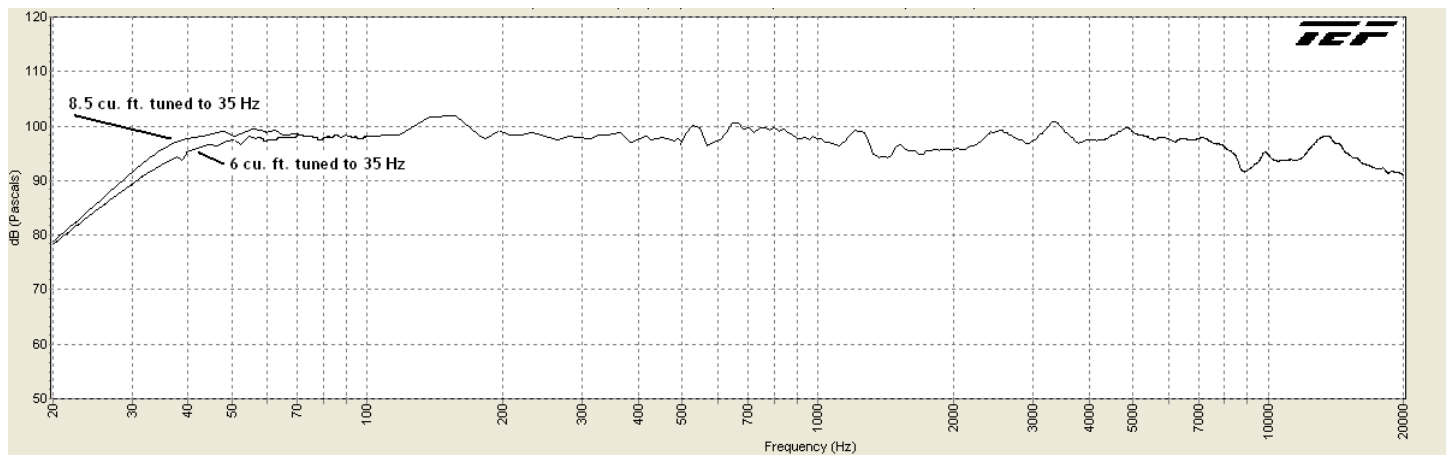
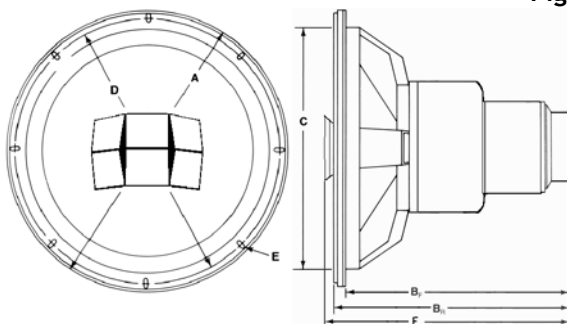


Figure 1. Frequency Response



DIMENSIONS

A.) Outside Diameter: 16 in. (406 mm)

B_F.) Front Mount: 11.375 in. (289 mm)

B_R.) Rear Mount: 10.75 in. (273 mm)

C.) Cut-out Diameter: 14.125 in. (359 mm)

D.) Bolt Circle Diameter: 15 in. (381 mm)

E.) Bolt Hole Dimension: ¼ in. (6 mm) x ¾ in. (19 mm)

F.) Total Depth: 12.375 in. (314 mm)



7127 N.W. 3rd Street
Oklahoma City, OK 73127
405.789.0221

www.greatplainsaudio.com

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Specifications subject to change without notice. Overall performance will maintained or improved

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