

# 4642A Dual 460 mm (18 in) Subwoofer System

Professional Series

## Key Features:

- ▶ 1200 Watts Continuous Pink Noise, 2400 Watts Continuous Program Power Handling
- ▶ Usable response to 22 Hz (-10 dB, no EQ), flat to 22 Hz (-3 dB) with External EQ
- ▶ 2241H VGC™ Vented Gap Cooled Drivers
  - High Sensitivity
  - Low Power Compression
  - High Maximum-SPL Capability
  - Low 2nd and 3rd Harmonic Distortion
  - Symmetrical Field Geometry SFG™ Magnet Structure
  - Long Excursion Capability
- ▶ Approved by Lucasfilm, Ltd. for THX® installations

The JBL Model 4642A is a high quality subwoofer system, featuring an advanced technology 460 mm (18 in), low frequency transducers mounted in a direct radiator, bass-reflex enclosure for smooth response to the lowest audible frequencies. The 4642A is ideal for low-frequency augmentation of either analog or digital soundtracks in motion picture theaters and for general sound reinforcement applications.

### Transducer:

The 2241H transducer utilizes the patented Vented Gap Cooling (VGC) process\*, which pumps air through the magnetic gap and directly over and around the voice coil, providing immediate heat transfer and a reduction in operating temperature. This increases power handling while reducing power compression.

Through the use of computer-aided magnet optimization and analysis techniques, JBL engineers were able to optimize magnet weight, flux density and field saturation, resulting in a 2.6 kg (6.5 lb) reduction in overall driver weight and a significant reduction in harmonic distortion. This magnet structure offers much of the weight advantage of rare earth magnet structures without the prohibitive cost, enabling the system to carry a 1200 watt continuous AES pink noise power rating.

\*U.S. Patent #5,042,072. Foreign Patents Pending.



## Specifications:

<b>TRANSDUCERS:</b>	Two JBL Model 2241H 460 mm (18 in) Low Frequency Transducers		
<b>SYSTEM:</b>			
Rated Impedance:	4 ohms		
Minimum Impedance:	3.2 ohms		
<b>POWER HANDLING CAPABILITY:</b>			
Continuous Pink Noise <sup>1</sup> :	1200 Watts		
Continuous Program <sup>2</sup> :	2400 Watts		
Peak Power <sup>3</sup> :	4800 Watts		
<b>OUTPUT CAPABILITY:</b>			
Axial Sensitivity <sup>4</sup> :	50 Hz to 500 Hz; 101 dB, 1W @ 1m 40 Hz to 100 Hz; 100 dB, 1W @ 1m		
Power Compression <sup>5</sup> :			
At -10 dB power (120 W):	0.8 dB		
At -3 dB power (600 W):	2.6 dB		
At rated power (1200 W):	4.3 dB		
Half-Space Reference Efficiency <sup>6</sup> :	Single Module	Two Modules	Four Modules
Max. Continuous Acoustical Power Output:	70 W	209 W	557 W
Maximum Continuous SPL @ 1 meter <sup>7</sup> :	131 dB	136 dB	140 dB
Maximum Peak SPL @ 1 meter <sup>7</sup> :	137 dB	142 dB	146 dB
<b>FREQUENCY RESPONSE<sup>8</sup>:</b>	Lower Frequency Limits (no EQ):		
-10 dB:	22 Hz		
-3 dB:	35 Hz		
Lower Frequency Limits (with EQ):			
-10 dB:	20 Hz		
-3 dB:	22 Hz		
Recommended Crossover Frequencies:	High-pass: 20 Hz, 12 dB/octave or greater Low-pass: 80 Hz to 150 Hz, 12 dB/octave or greater		
Distortion <sup>9</sup> :			
2nd harmonic:	<2%		
3rd harmonic:	<2%		
System Polarity:	EIA Standard. Positive voltage to RED terminal produces forward cone motion.		
Input Connectors:	Color-coded push terminals		
Net Weight:	98 kg (216 lbs.)		
Shipping Weight:	109 kg (240 lbs.)		
<b>ENCLOSURE:</b>			
Materials and Finish:	19 mm (¾ in) particle board with 25 mm (1 in) baffle and back panel. Extensive bracing on all panels		
Enclosure Tuning Frequency:	25 Hz		
Net Internal Volume:	506 liters (18 cu. ft)		
Dimensions:	762 mm x 1219 mm x 610 mm		
H x W x D	30 in x 48 in x 24 in		

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The 100 mm (4 in) voice coil benefits from a new winding technique which offers greater thermal stability with increased power handling. All elements of the cone, voice coil and suspension system have been carefully optimized and controlled to ensure smooth high frequency response.

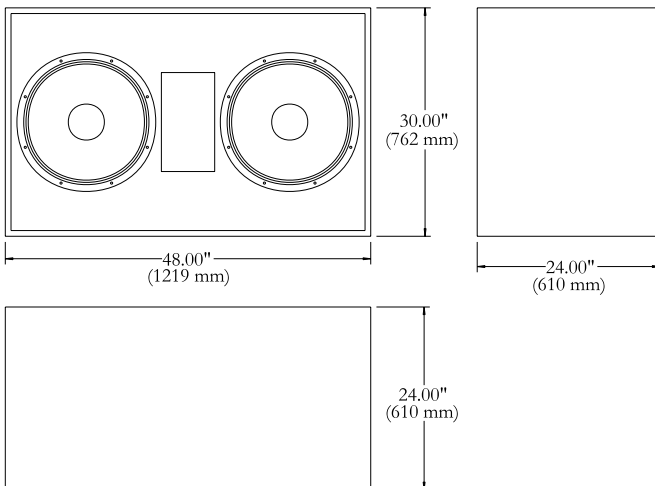
The magnet structure and compliance allow for long peak-to-peak excursions without damage to the speaker. Symmetrical Field Geometry (SFG) minimizes second harmonic distortion.

### Enclosure:

The enclosure is constructed of dense stock and is extensively braced on all panels. It has a net internal volume of 506 liters (18 cu. ft.) and is tuned to 25 Hz with a very large port to minimize port compression and to reduce distortion due to turbulent air flow.

### Frequency Response:

The 4642A features high sensitivity. It is intended for use as a subwoofer with a low-pass filter and appropriate high-pass filtering for protection and equalization.



Note: Drawing not to scale. All dimensions are reference only.

<sup>1</sup>AES continuous pink noise (25 - 250 Hz), 2 hours duration.

<sup>2</sup>Continuous program power is defined as 3 dB greater than AES continuous pink noise and is a conservative expression of the transducer's ability to handle normal music program material.

<sup>3</sup>Peak power is defined as 6 dB greater than AES continuous pink noise, reflecting the 6 dB crest factor contained in the pink noise signal.

<sup>4</sup>Averaged half-space ( $2\pi$ ). Quarter-space ( $1\pi$ , wall/floor junction placement) is 6 dB higher.

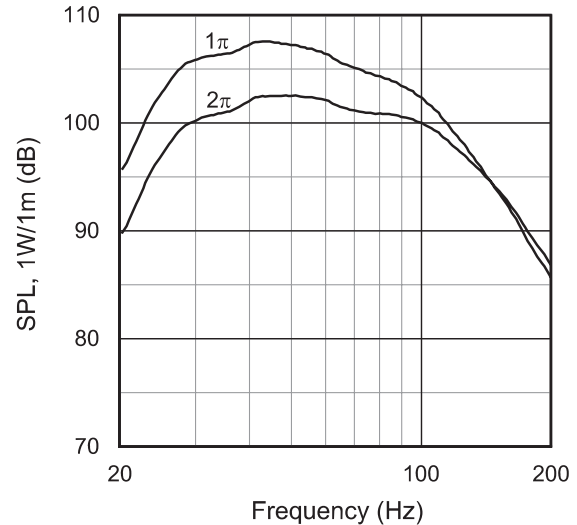
<sup>5</sup>Power compression is the sensitivity loss at the specified power, measured from 50 Hz to 500 Hz, after a 5 minute AES standard (50 to 500 Hz) signal at the specified power.

<sup>6</sup>Based upon specified half-space 40 Hz to 100 Hz sensitivity; 50 Hz to 500 Hz reference efficiency is higher.

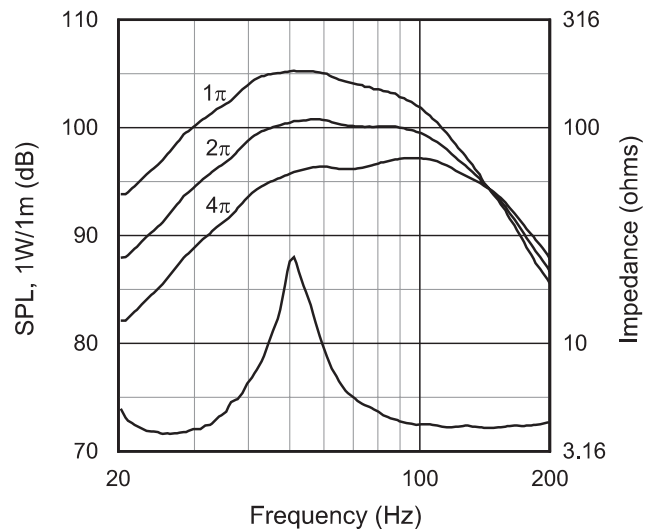
<sup>7</sup>Per industry practice, maximum long-term SPL is a calculation that references half-space 1W/1m sensitivity, scaled by the long-term continuous power rating.

<sup>8</sup>Based upon specified sensitivity, 40 Hz to 100 Hz.

<sup>9</sup>100 watt sine wave input, averaged from 40 Hz to 100 Hz.



4642A frequency response, 1 watt at 1 meter, with 150 Hz Linkwitz-Riley 4th order low-pass filter and 2nd order high-pass filter at 25 Hz with  $Q=2$ .  $1\pi$  (upper curve) and  $2\pi$  (lower curve) conditions.



4642A frequency response and impedance (bottom curve), 1 watt at 1 meter, with 150 Hz Linkwitz-Riley 4th order low-pass filter measured under  $4\pi$  ground plane conditions.  $1\pi$  (upper curve) and  $2\pi$  (center curve) loading condition predictions also shown.

JBL continually engages in research related to product improvement. New materials, production methods, and design refinements are introduced into existing products without notice as a routine expression of that philosophy. For this reason, any current JBL product may differ in some respect from its published description, but will always equal or exceed the original design specifications unless otherwise stated.



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