

4645C Single 460 mm (18 in) Subwoofer System

Professional Series

Key Features:

- ▶ 800 Watts Continuous Pink Noise, 1600 Watts Continuous Program Power Handling
- ▶ Usable response to 22 Hz (-10 dB, no EQ), flat to 22 Hz (-3 dB) with External EQ
- ▶ 2242H SVG™ Super Vented Gap Cooled Driver
 - High Sensitivity
 - Minimal Power Compression
 - Highest Maximum-SPL Capability
 - Extremely Low 2nd and 3rd Harmonic Distortion
 - Symmetrical Field Geometry SFG™ Magnet Structure
 - Extended Excursion Capability
- ▶ Approved by Lucasfilm, Ltd. for THX® installations

The JBL Model 4645C is a high quality subwoofer system, featuring an advanced technology 460 mm (18 in), low frequency transducer mounted in a direct radiator, bass-reflex enclosure for smooth response to the lowest audible frequencies. The 4645C is ideal for low-frequency augmentation of either analog or digital soundtracks in motion picture theaters and for general sound reinforcement applications.

Transducer:

The 2242H 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.

The 2242H utilizes a rugged 100 mm (4 in) diameter voice coil and incorporates a large motor structure with a pole piece that extends both above and below the top plate to improve gap flux symmetry and increase thermal conductivity. This magnet structure and the use of a voice coil with one-third more exposed area than in former designs, provides the 2242H with very effective heat sinking, enabling the system to carry an 800 watt continuous AES pink noise power rating.

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



Specifications:

TRANSDUCER:	JBL Model 2242H 460 mm (18 in) Low Frequency Transducer			
SYSTEM:				
Rated Impedance:	8 ohms			
Minimum Impedance:	7.2 ohms			
POWER HANDLING CAPABILITY:				
Continuous Pink Noise ¹ :	800 watts			
Continuous Program ² :	1600 watts			
Peak Power ³ :	3200 watts			
OUTPUT CAPABILITY:				
Axial Sensitivity ⁴ :	50 Hz to 500 Hz; 99 dB, 1W @ 1m 40 Hz to 100 Hz; 97 dB, 1W @ 1m			
Power Compression ⁵ :				
At -10 dB power (80 W):	0.6 dB			
At -3 dB power (400 W):	2.0 dB			
At rated power (800 W):	3.3 dB			
Half-Space Reference Efficiency ⁶ :	Single Module	Two Modules	Four Modules	Eight Modules
Max. Continuous Acoustical Power Output:	32 W	128 W	384 W	1024 W
Maximum Continuous SPL @ 1 meter ⁷ :	126 dB	132 dB	137 dB	141 dB
Maximum Peak SPL @ 1 meter ⁷ :	132 dB	138 dB	143 dB	147 dB
FREQUENCY RESPONSE⁸:	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 ⁹ :				
2nd harmonic:	<0.6%			
3rd harmonic:	<0.8%			
System Polarity:	EIA Standard. Positive voltage to RED terminal produces forward cone motion.			
Input Connectors:	Color-coded push terminals			
Net Weight:	63 kg (138 lbs.)			
Shipping Weight:	69 kg (151 lbs.)			
ENCLOSURE:				
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:	225 liters (8 cu. ft)			
Dimensions:	1010 mm x 674 mm x 450 mm			
H x W x D:	39¾ in x 26½ in x 17¾ in			

▶ 4645C Single 460 mm (18 in) Subwoofer System

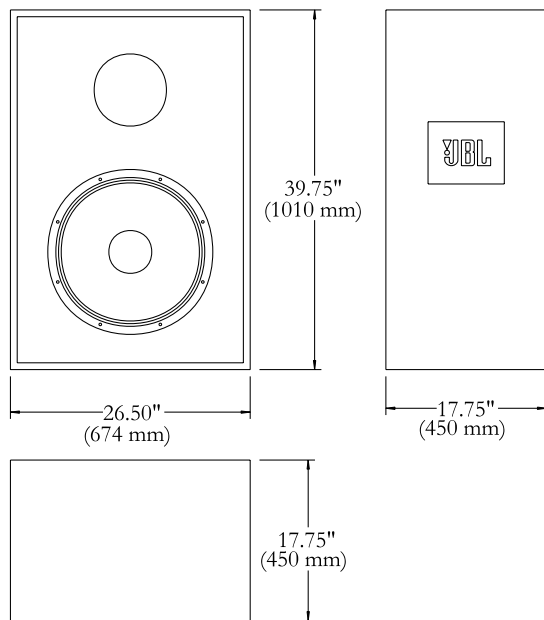
The magnet structure and compliance allow for long peak-to-peak excursions without damage to the speaker. The pole piece incorporates a shorted copper ring while functioning as a shorted secondary turn, with the voice coil acting as the primary winding. The benefits are a reduction of third harmonic distortion from magnetic flux modulation and a reduced inductive component of the voice coil impedance, for improved transient response. 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 225 liters (8 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 4645C 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.

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

²Continuous 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.

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

⁴Averaged half-space (2π). Quarter-space (1π , wall/floor junction placement) is 6 dB higher.

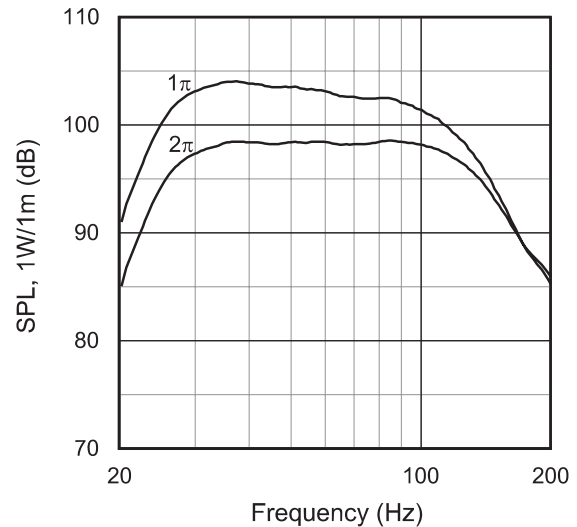
⁵Power compression is the sensitivity loss at the specified power, measured from 50 Hz to 500 Hz, after a 5 minute AES standard (50 to 500 Hz) signal at the specified power.

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

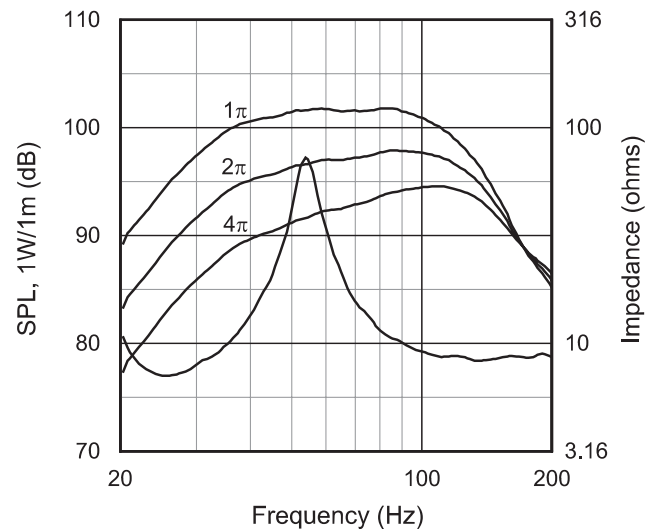
⁷Per industry practice, maximum long-term SPL is a calculation that references half-space 1W/1m sensitivity, scaled by the long-term continuous power rating.

⁸Based upon specified sensitivity, 40 Hz to 100 Hz.

⁹100 watt sine wave input, averaged from 40 Hz to 100 Hz.



4645C 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 $Q=2$. 1π (upper curve) and 2π (lower curve) conditions.



4645C frequency response and impedance (bottom curve), 1 watt at 1 meter, with 150 Hz Linkwitz-Riley 4th order low-pass filter measured under 4π ground plane conditions. 1π (upper curve) and 2π (center curve) loading condition predictions also shown.

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