



4638 Low Frequency Systems

Professional Series

Key Features:

- ▶ Usable Response to 30 Hz
- ▶ 100 dB Sensitivity, 1W, 1 m
- ▶ 800 Watts Power Capacity
1600 Watts Continuous Program
- ▶ Two 380 mm (15 in) Low Frequency Transducers with Exceptional Performance
- ▶ Direct Radiator Ported Enclosure

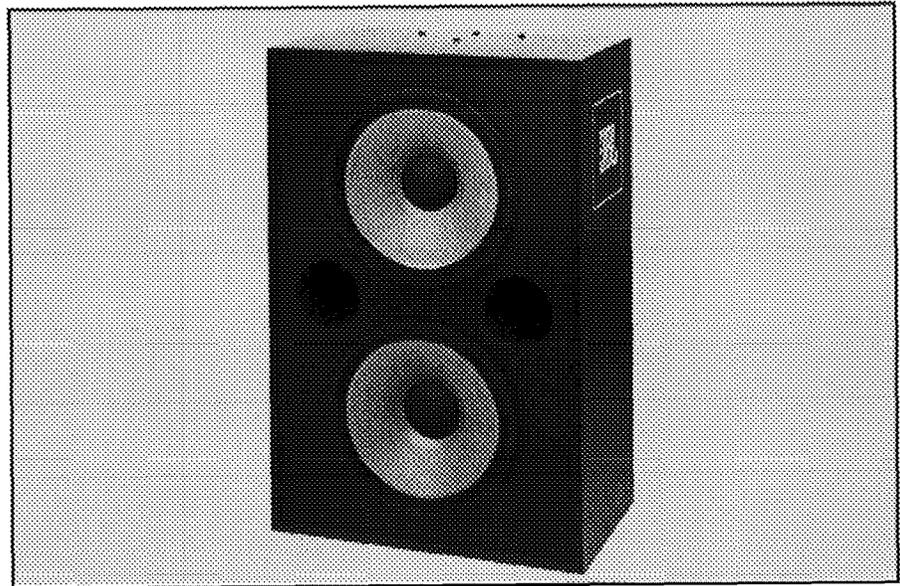
The JBL 4638 low frequency system is designed for cinema use and general reinforcement where smooth power response and accurate reproduction are essential.

The 4638 employs the latest in JBL low frequency transducer technology, offering exceptional performance benefits. The JBL 2035H 380 mm (15 in) transducer employs a copper-sleeved magnetic pole piece which reduces internal flux modulation and provides a more stable magnetic field. This substantially lowers both second and third order harmonic distortion.

The copper-sleeved pole piece design of the 2035H also creates a flatter impedance curve, resulting in a nearly perfect resistive load throughout the operating range of the transducer, and producing a more constant power response characteristic below 1 kHz. This helps maintain a smoother and more natural sounding power response transition between the low and high frequency devices in the crossover region, resulting in, among other benefits, more accurate reproduction of dialog throughout the listening area.

The 2035's voice coil operates in a large Symmetrical Field Geometry (SFG) magnet structure to further reduce harmonic distortion to inconsequential levels. With a sine wave input of 100 watts, third harmonic distortion is no greater than 1.0% and second harmonic distortion is no greater than 0.8% at any frequency between 100 Hz and 500 Hz.

The enclosure is constructed of dense stock and is extensively braced on all panels. Net internal volume is 225 liters (8 cu ft) and the enclosure is tuned to 40 Hz. Port area is large, ensuring minimum turbulence at full input at low frequencies.



Specifications:

COMPONENTS:	
1-JBL 4508A low frequency enclosure	2-JBL 2035 380 mm (15 in) low frequency Transducers
(Note: Components may be ordered separately for field assembly)	
SYSTEM:	
Rated impedance: 4 ohms	
Minimum impedance: 3.5 ohms	
POWER HANDLING CAPACITY:	
AES ¹ :	800 watts
Long Term Average per EIA RS-426A ² :	1000 watts
Continuous Program ³ :	1600 watts
OUTPUT CAPABILITY:	
Axial sensitivity: 100 dB @ 1W, 1 m	
Half-space reference efficiency: 8%	
Maximum acoustical power output ³ : 64 watts	
Power compression:	
at -10 dB power (80 W):	0.6 dB
at -3 dB power (400 W):	1.9 dB
at rated power (800 W):	3.2 dB
FREQUENCY RESPONSE:	
Lower frequency limits -3 dB: 45 Hz	
(No external EQ): -10 dB: 30 Hz	
Recommended crossover frequencies: High-Pass: 40 Hz, 12 dB/octave min.	
Low-pass: 500 or 800 Hz, 12 to 24 dB/octave	
Distortion³:	
2nd Harmonic (typical):	<0.6%
3rd Harmonic (typical):	<0.8%
System Polarity: EIA Standard: Positive voltage to red terminal produces forward cone motion.	
Input connectors: Color coded push terminals	
Net system weight: 62.2 kg (137 lb.)	
Shipping weight: 66.7 kg (147 lb.)	
ENCLOSURE:	
Materials and finish: 19 mm (¾ in) particle board with 25 mm (1 in) baffle; matte black finish	
Enclosure volume: 225 liters (8 cu ft)	
Vent tuning frequency: 40 Hz	
Dimensions: 991 mm x 648 mm x 451 mm	
H x W x D (39 in x 25½ in x 17¾)	
Net Weight: 42.7 kg (94 lb.)	

¹AES continuous pink noise (50 Hz 500 Hz), 2 hours duration.

²EIA RS-426 A/RS-29-A, shaped pink noise with 6 dB crest factor for 8 hour duration.

³Continuous 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 speech and music program material.

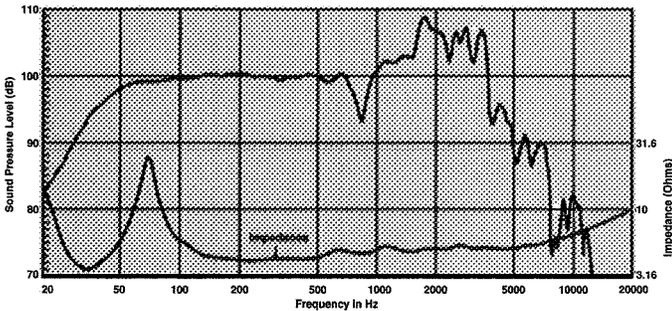
▶ 4638 Low Frequency Systems

Architectural Specifications:

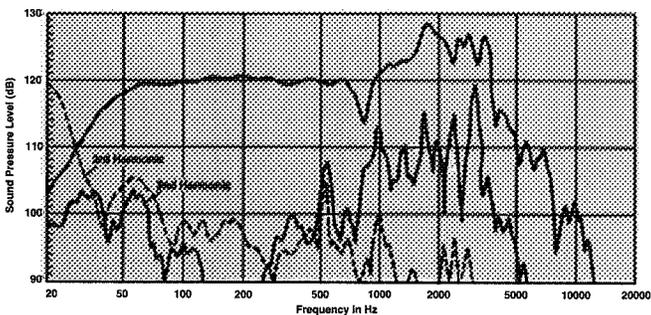
The low frequency system shall consist of two 380 mm (15 in) diameter transducers mounted in a direct radiator ported enclosure. The transducers shall be capable of 10 mm (0.4 in) linear excursion ($2 X_{max}$) and shall be designed to produce a symmetrical magnetic field in the voice coil gap. A flux stabilizing ring shall act to reduce flux modulation. In addition, a copper sleeve encircling the pole piece shall be incorporated to further reduce flux modulation, to create a flattened impedance curve and constant power response below 1 kHz. The transducer frame shall be of cast aluminum to resist deformation, and the voice coil shall be wound of copper ribbon 75 mm (3 in) in diameter. The enclosure shall be 225 liters (8 cu ft) net internal volume, tuned to 40 Hz, and constructed of dense stock extensively braced on all panels.

Performance specification of a typical production unit shall be as follows: Under hemispherical free-field conditions, measured sensitivity (SPL at 1 m (3.3 ft) with 1 W (2.0 V) swept input, 100 - 500 Hz) shall be at least 100 dB. The half-space reference efficiency shall be 8%. Usable low frequency response shall extend from 30 Hz (-10 dB) and be flat at 45 Hz (-3 dB). Nominal impedance shall be 4 ohms. Rated power capacity shall be at least 800 watts by AES standards. The system shall be the JBL Model 4638. Other loudspeaker systems will be considered as equivalent provided that submitted data from a recognized independent test laboratory verify that the above performance specifications are met.

4638 system half-space (2π) response, one watt at one meter on-axis; impedance.



4638 system half-space (2π) response, 10 watts at one meter on-axis; distortion raised 20 dB.



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.

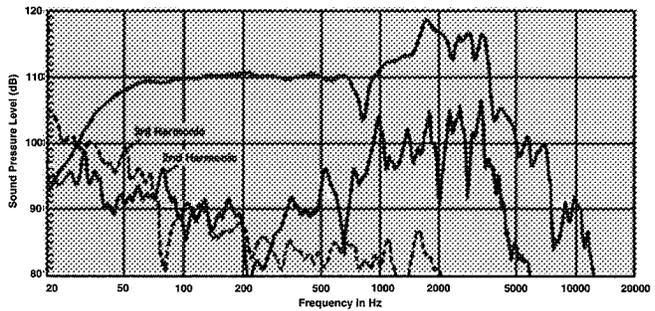
*Based upon a swept 100 Hz to 500 Hz signal, measured in half space, for an input of 2.0 volts @ 4 ohms.

†Sine wave input, not including power compression.

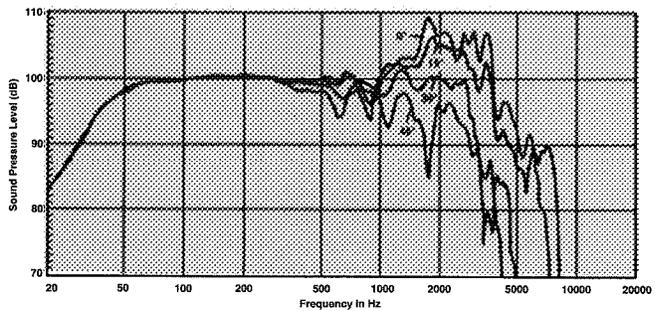
‡Power compression is the sensitivity loss at the specified power, measured from 50 to 500 Hz, after a 5 minute AES standard (50 - 500 Hz) pink noise preconditioning test at the specified power.

§100 watt sine wave input, 100 - 500 Hz, average.

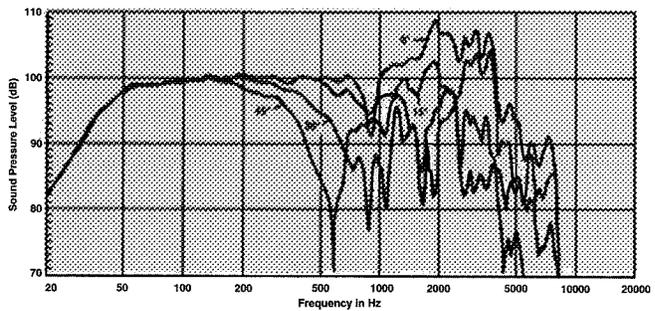
4638 system half-space (2π) response, 100 watts at one meter on-axis; distortion raised 20 dB.



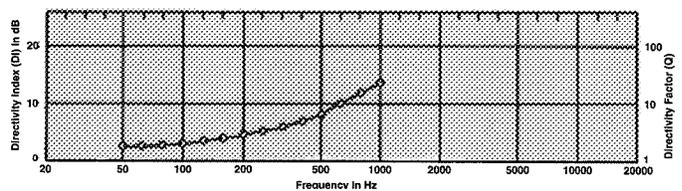
4638 system horizontal off-axis response (0, 15, 30 and 45 degrees); one watt at one meter.



4638 system vertical off-axis response (0, 15, 30 and 45 degrees); one watt at one meter.



4638 Directivity Index (DI) and Directivity Factor (Q), on-axis, half-space (2π).



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