PROFESSIONAL SERIES

4410 STUDIO MONITOR

FEATURES:

Frequency Range (−6 dB): 35 Hz–27 kHz

Frequency Response (± 2 dB): 45 Hz–20 kHz

Sensitivity: 91 dB SPL, 1 W (2.83 V), 1 m

Power Rating: 125 watts, pink noise

Transducer Complement:
250 mm (10 in) LF, Aquaplas laminate cone
125 mm (5 in) midrange cone
25 mm (1 in) HF, pure titanium dome

JBL's new 4410 studio monitor consists of a three-way vertical array of transducers. The system is provided in mirror-imaged pairs in order to ensure absolute accuracy of stereophonic imaging. The 4410 is thus the logical choice for critical digital recording applications where wide bandwidth, linear response, and accurate imaging are essential.

The 4410 reflects the same design principles which characterize all JBL monitors: smooth overall response, controlled dispersion, and the ability to produce high acoustical output with little stress.

Optimum enclosure porting and careful network design ensure smooth response over a wide bandwidth. Response to 27 kHz ensures that the upper musical octave (10 kHz to 20 kHz) will be reproduced with utmost accuracy.

JBL

HIGH FREQUENCY DOME RADIATOR

Pure titanium was first used by JBL in the design of diaphragms for high frequency compression drivers. Recently, JBL has perfected a 25 mm titanium dome radiator which is capable of 30 watts power handling and can reproduce the frequency range from 3 kHz to 27 kHz. The unique "diamond surround" and ribbed dome structure of the model 035Ti HF unit provide control over secondary resonances, yielding absolutely flat axial response to the normal upper limits of today's recording media. With a basic sensitivity of 92 dB, one watt at one meter, the 035Ti transducer exhibits virtually no dynamic compression.

MIDRANGE DRIVER

The 100 mm (5 in) midrange driver used in the 4410 has a 25 mm (1 in) diameter copper voice coil. The cone is made of felted paper with a special damping treatment applied to ensure smooth response. The basic sensitivity of the midrange transducer is 94 dB, one watt at one meter, and this ensures that the device will exhibit negligible dynamic compression, even at high drive levels.

LOW FREQUENCY DRIVER

The 250 mm (10 in) diameter LF driver has a felted paper cone laminated with Aquaplas. This unique combination of materials has been used by JBL for many years as a means of achieving smooth response in the upper range of low frequency transducer operation. In the 4410 system, the critical crossover region around 800 Hz benefits from the Aquaplas treatment, and the transition to the midrange unit is made effortlessly.

Linearity of the LF driver is the result of careful attention to mechanical suspensions as well as Symmetrical Field Geometry (SFG). SFG reduces harmonic distortion by producing identical magnetic flux fields on each side of the magnetic gap. This ensures that the voice coil will intersect equal flux lines for both positive and negative excursions of the cone. A flux stabilizing ring placed around the pole piece reduces the effects of magnetic flux field modulation. Overall, SFG reduces distortion to about one-tenth the value found in conventional magnetic structures.

A cast aluminum frame ensures mechanical integrity under the most demanding operating conditions.

DIVIDING NETWORK

The complex network design produces a seamless system frequency response through the critical crossover regions at 800 Hz and 4.5 kHz. The rolloff slopes are precisely determined to result in smooth axial and power response.

High quality polypropylene and polystyrene capacitors are utilized as "bypass capacitors" in parallel with the larger network mylar capacitors. This design procedure linearizes energy storage in the larger capacitors, and the result is greater accuracy in the reproduction of transient signals.

Front baffle controls allow precise adjustment of mid and high frequency transducer levels, enabling the system to be adjusted to taste, or to match a given acoustical environment.

SPECIFICATIONS:

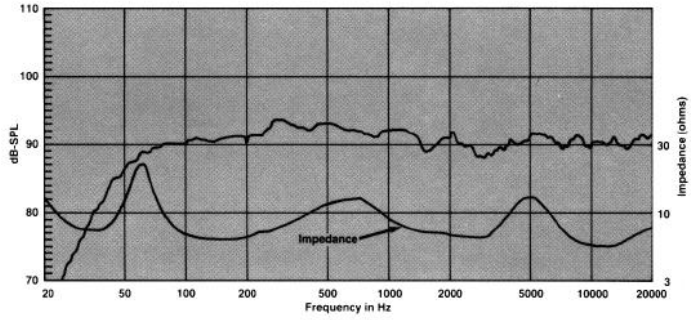
SYSTEM:	
Frequency Range (−6 dB):	35 Hz–27 kHz
Frequency Response (± 2 dB):	45 Hz–20 kHz
Power Rating[1]:	125 watts
Sensitivity:	91 dB SPL, 1 watt (2.83 V) at 1 meter
Nominal Impedance:	8 ohms
Crossover Frequency:	800 Hz; 4.5 kHz
LOW FREQUENCY TRANSDUCER:	
Nominal Diameter:	250 mm (10 in)
Voice Coil:	50 mm (2 in) diameter copper
Magnetic Assembly Weight:	2.7 kg (6 lb)
Flux Density:	1.08 tesla (10,800 gauss)
Sensitivity[2]:	90 dB SPL, 2.83 V at 1 m (3.3 ft)
MID RANGE DRIVER:	
Nominal Diameter:	125 mm (5 in)
Voice Coil:	25 mm (1 in)
Magnetic Assembly Weight:	0.74 kg (1.63 lb)
Flux Density:	1.25 tesla (12,500 gauss)
Sensitivity:	94 dB SPL, 2.83 V at 1 m (3.3 ft)
HIGH FREQUENCY DOME RADIATOR:	
Nominal Diameter:	25 mm (1 in)
Voice Coil:	25 mm (1 in) diameter copper
Magnetic Assembly Weight:	0.91 kg (2 lb)
Flux Density:	1.5 tesla (15,000 gauss)
Sensitivity[3]:	92 dB SPL, (2.83 V) at 1 m (3.3 ft)
GENERAL:	
Finish:	oiled walnut
Grille Color:	dark blue
Dimensions:	597 mm x 362 mm x 286 mm deep (23½ in x 14¼ in x 11¼ in deep)
Weight:	19 kg (43 lbs)
Shipping Weight:	23 kg (50 lbs)

[1]Rating based on test signal of filtered random noise conforming to international standard IEC 268-5 (pink noise with 12 dB/octave rolloff below 40 Hz and above 5000 Hz with a peak-to-average ratio of 6 dB), two hours duration.

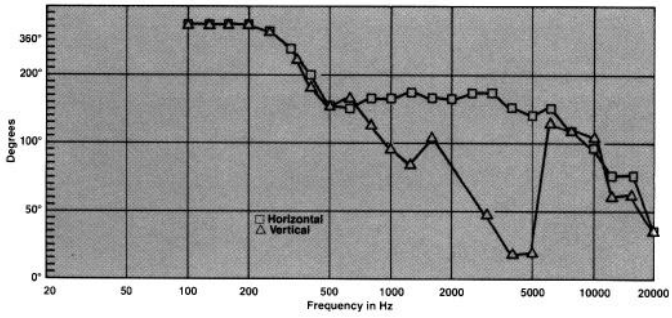
[2]Averaged from 100 Hz to 500 Hz within 1 dB

[3]Averaged above 3 kHz within 1 dB

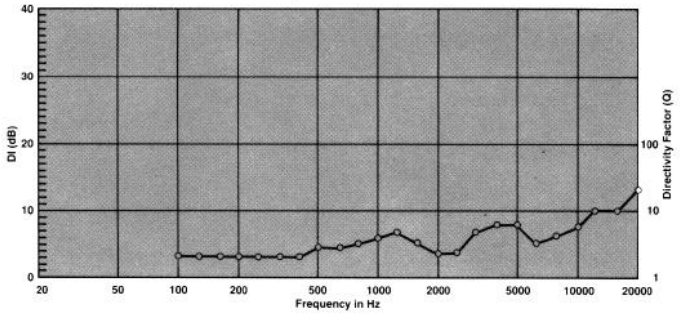
Frequency Response, 1 W at 1m; impedance



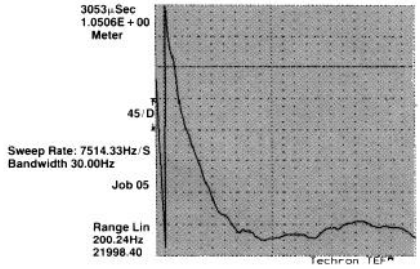
Beamwidth (−6 dB) vs. Frequency



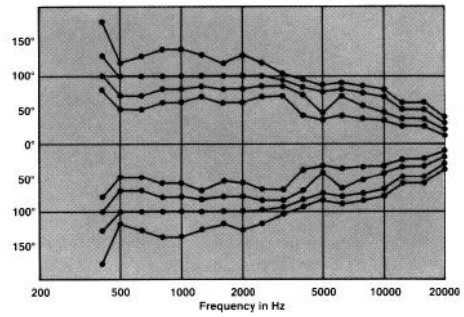
Directivity (DI and Q) vs. Frequency



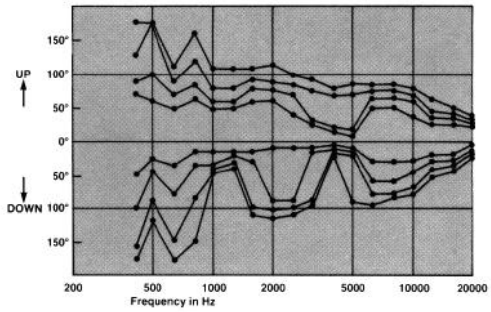
Phase Response vs. Frequency, 200 Hz to 22 kHz; vertical divisions at 45 degrees.



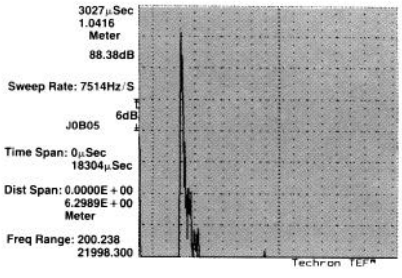
Horizontal Off-axis Response vs. Frequency (−3, −6, −9, and −12 dB contours)



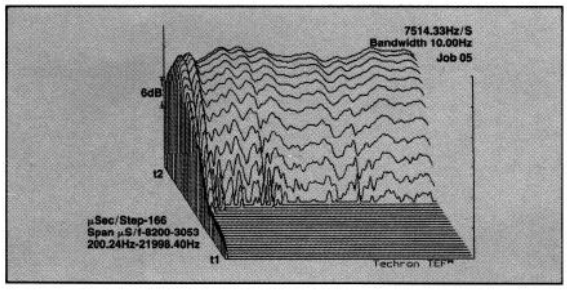
Vertical Off-axis Response vs. Frequency (−3, −6, −9, and −12 dB contours)



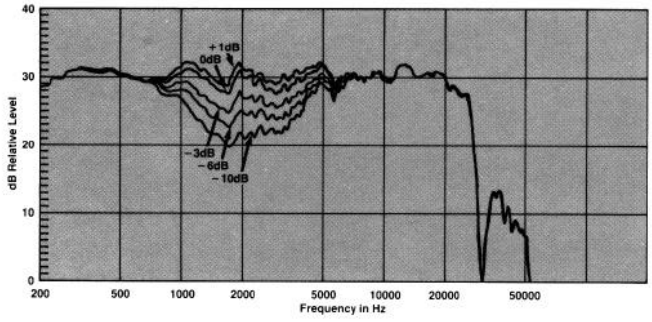
Energy-Time Curve (time span, 0 to 18,304 microseconds; vertical divisions 6 dB; loudspeaker placed one meter from microphone) Note that the bulk of the loudspeaker's energy arrives at the microphone coherently.



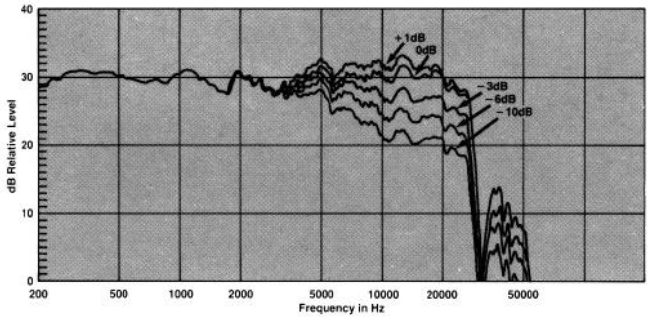
Time-Energy-Frequency (TEF) Curves (250 Hz to 20 kHz) Front-back span is from 8200 microseconds to 3053 microseconds; vertical divisions 6 dB. Note the smooth decay of the system and high frequency extension beyond 20 kHz.



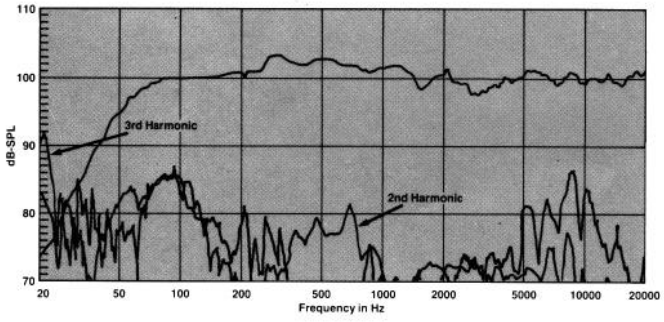
Mid Frequency Control Range



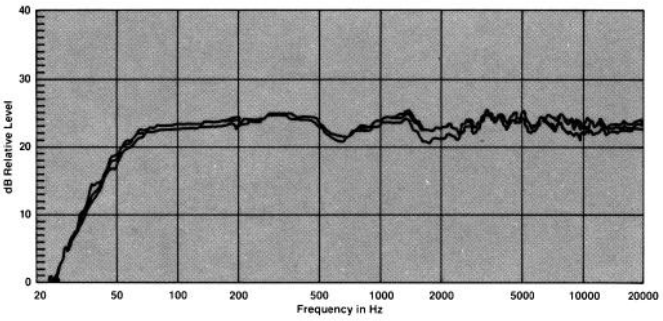
High Frequency Control Range



Distortion vs. Frequency, 10 watts (distortion raised 20 dB)



Power Compression, at 85, 95, and 105 dB, one meter



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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66988 SS4410 P820 25M 4/86