

Professional Series Acoustic Lens Family

Wide horizontal, narrow vertical dispersion

For short-throw use

Uncolored musical reproduction

Compact and lightweight

Uniform wavefront



The JBL family of acoustical lenses was originally designed for stereophonic audio systems for motion picture theater application. They were first presented to the industry in 1954. The acoustic lens, which had been described by Bell Laboratory scientists Kock and Harvey in 1949, had not previously been applied to commercial sound reproduction. The acoustic lens, as engineered by JBL, was the first real innovation in high-frequency sound reproduction since the early 1930's.



Acoustic Lens Family

Within certain limits, the acoustic lens can be made to function as an optical lens to achieve any desired high frequency distribution-pattern. In JBL lens systems, the lens is attached to a short horn device so that the wavefront approaching the lens is a properly constituted plane wave.

The slant-plate acoustical lenses utilize a series of plates with carefully calculated hyperbolic shapes which results in a horizontal response pattern that does not converge with increasing frequency. The plates are spaced to allow the lens diffraction effect to be maintained at high frequencies. The vertical response is determined by the horn shape behind the lens.

The perforated-plate lens assembly consists of a collection of perforated barriers at the horn mouth. These perforated screens are actually ring shaped with varying sizes of center cutouts. Thus, the profile of the assembled plate openings describes a hyperbolic shape in all planes resulting in a conical pattern. The lens diffraction is determined by both plate spacing and the size of the holes in the screens.

The soft edge pattern of these acoustical lenses is well suited to high quality music reproduction systems and short-throw reinforcement applications.

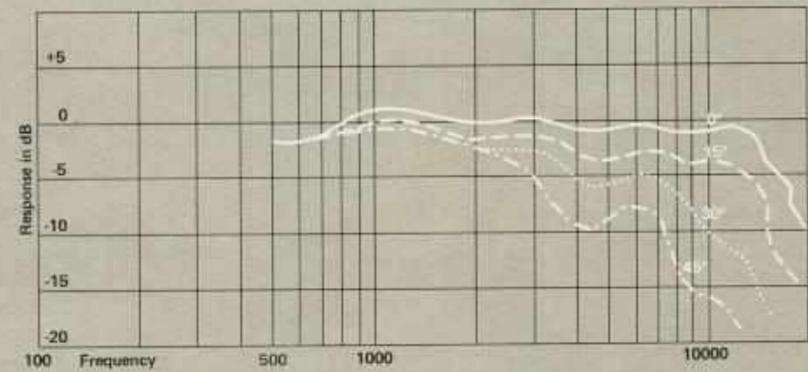
Model	Height	Width	Depth	Shipping Weight
2305		5 3/4"	7 3/4"	4 lbs
2390				
Horn	7 1/2"	10 1/2"	12"	
Lens	7"	19 3/8"	4 5/8"	12 lbs
2391				
Horn		6 3/8"	7 3/4 lbs	
Lens	6 3/8"	10"	2 1/2"	4 lbs
2392				
Horn		6 3/8"	4 5/8"	
Lens	6 3/8"	10"	2 1/2"	4 lbs
2395	15"	36"	18 3/4"	37 lbs

NOTE: The Sensitivity quoted for each horn is the SPL measured on-axis at 30 feet with a 1-mW input signal (0.126 V into 16 ohms) warbled from the lowest recommended crossover frequency to 2500 Hz, with any JBL driver.

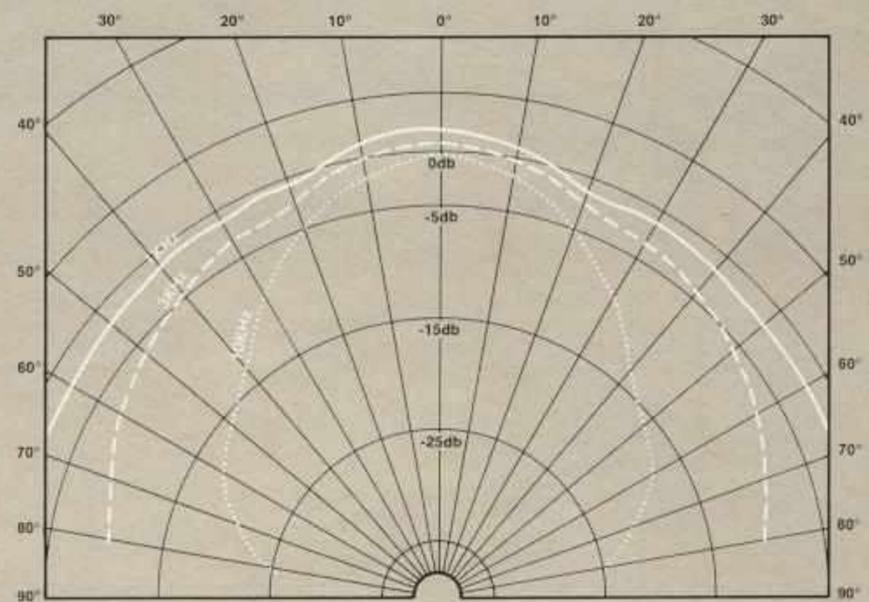
Model 2305



The JBL 2305 is a perforated plate acoustic lens for use above 1200 Hz. It is intended for use as the high frequency element in a two or three frequency band integrated system where the length of throw does not exceed 30 feet. Above 1200 Hz, the pattern has a conical shape with an included angle of 90°. Sensitivity 60 dB. The 2305 will accept 1-inch drivers only.



Vertical Dispersion



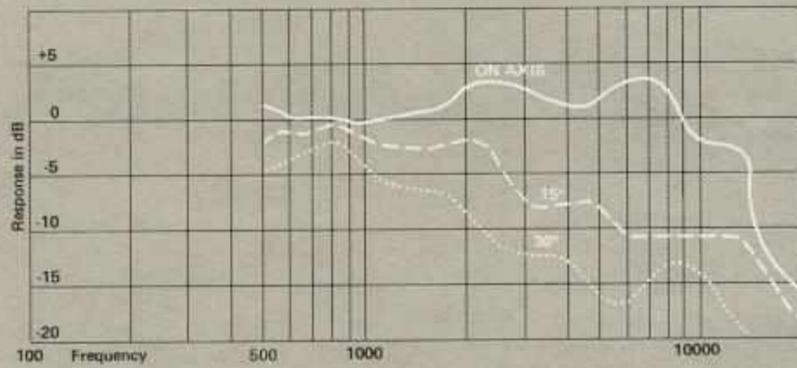
Lateral Dispersion

Above curves taken with 2410 compression driver.

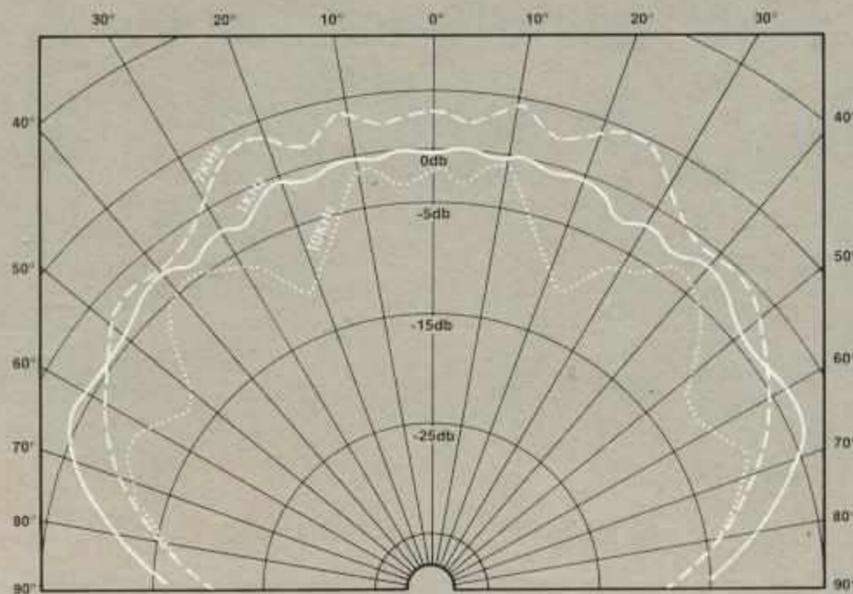
Model 2390



The JBL 2390 is a folded-plate acoustic lens for use above 800 Hz. Sensitivity is 58 dB. The horizontal pattern determined by the shape of the plate is 100°. The complex appearance of the lens is a result of the fact that the plates have been folded in a series of 45° planes to reduce depth. The lens is backed up by a 12-inch rectangular exponential horn. The 45° vertical dispersion pattern is closely controlled by the shape of the horn. The lens requires a baffle to function properly in the crossover region. If the 2390 is not mounted in a cabinet a 20-inch by 20-inch baffle board must be included between the lens and the horn. When mounted in normal position the lens is usually exposed to avoid masking the ends of the plates. The two-inch entry may be reduced with a Model 2327 throat adaptor to accommodate 1-inch drivers.



Vertical Dispersion



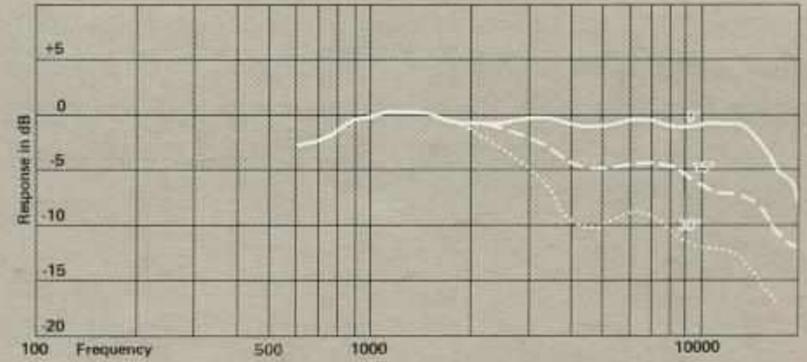
Lateral Dispersion

Above curves taken with 2440 compression driver.

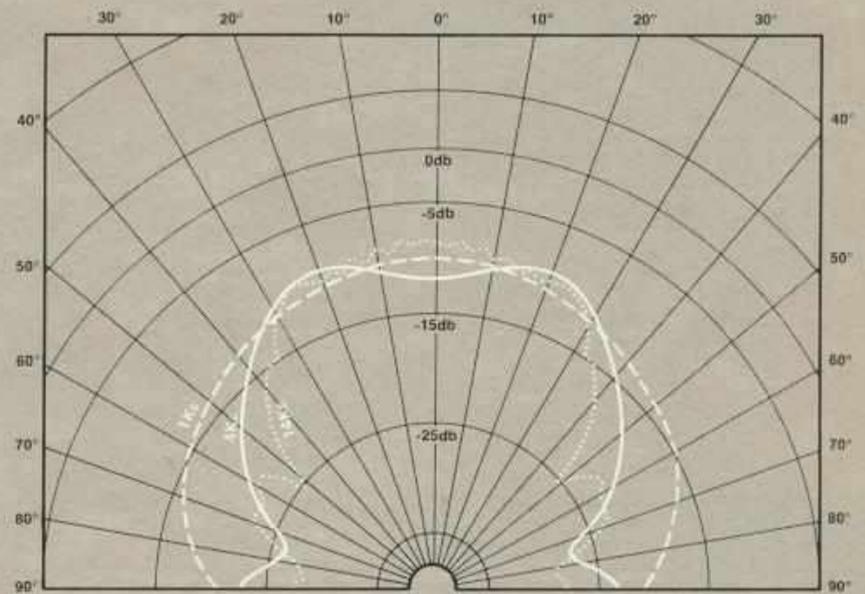
Models 2391 and 2392



The JBL 2391 and 2392 horn with slant-plate acoustic lens is intended for use in two or three frequency band systems where the length of throw does not exceed 30 feet. In some integrated systems, the lens may be used for frequencies above 800 Hz for short throw applications. Otherwise, a crossover point of 1200 Hz is recommended. Above 1200 Hz, the pattern is 80° horizontal and 45° vertical. If this acoustic lens is not mounted in a cabinet, it must be mounted on a baffle board measuring at least 12 inches high by 12 inches wide. The sides of the lens plates must not be obstructed if proper high frequency dispersion is to be maintained. The 2391 will accept 1-inch drivers only. The 2392 employs the same lens with a shorter horn that accommodates 2-inch drivers. Sensitivity of the 2391 or 2392 is 59 dB.



Vertical Dispersion



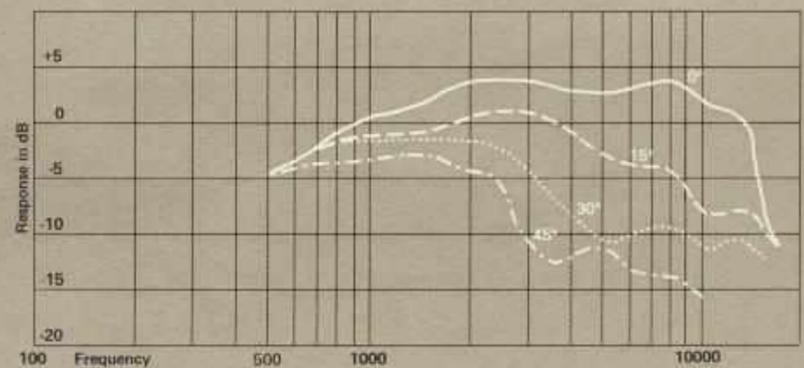
Lateral Dispersion

The above curves taken with 2420 compression driver.

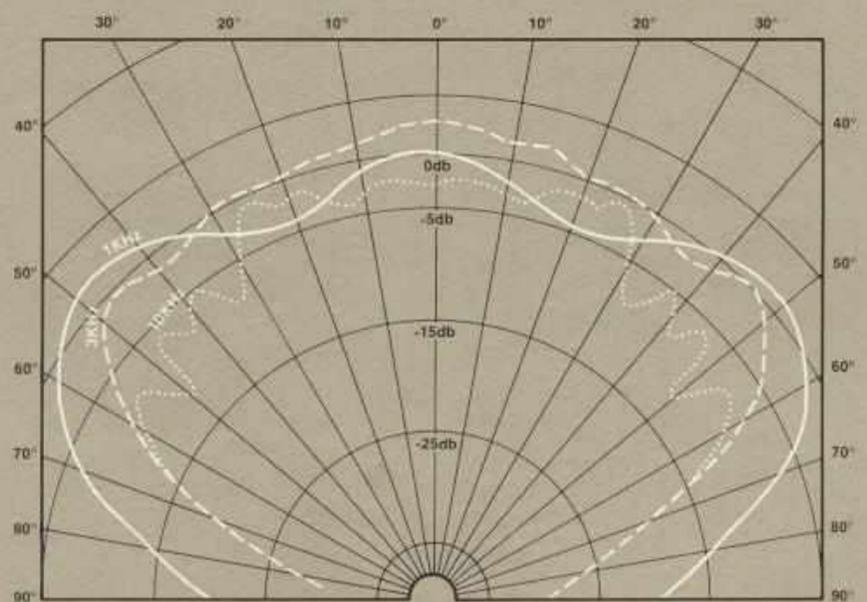
Model 2395



The JBL 2395 is a slant-plate acoustic lens for use above 800 Hz. Sensitivity 59 dB. The horizontal pattern of 140° is determined by the shape of the plates. The lens is backed up by a 12-inch elliptical exponential horn. The 45° vertical pattern is closely controlled by the shape of this horn. The lens does not require additional baffling for use above 800 Hz. To insure proper high frequency operation the ends of the lens plates must not be obstructed. Operation down to 500 Hz is feasible in motion picture sound systems or where vertical pattern control is not essential, provided a baffle is provided in the vertical plane. The 2-inch entry may be reduced with a Model 2327 throat adaptor to accommodate 1-inch drivers.



Vertical Dispersion



Lateral Dispersion

Above curves taken with 2440 compression driver.



**Professional Series
Professional Division**

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