2382A FLAT-FRONT BI-RADIAL HORN

FEATURES:

Uniform horizontal on- and off-axis frequency response

Precise horizontal and vertical pattern control

Full horn loading to 500 Hz

Flat front and compact size

Lightweight construction

49 mm (2 in) throat entry

The JBL 2382A Bi-Radial™ horn[1] is designed for flush cabinet mounting or compact cluster applications. The 2382A has a nominal 120° horizontal x 40° vertical pattern. The horn provides uniform on- and off-axis frequency response from 500 Hz to beyond 16 kHz in the horizontal plane and 2 kHz to 16 kHz in the vertical plane, with uniform directivity above 2 kHz. The horn's vertical mouth dimension (just slightly larger than the compression driver used to drive the horn) allows very compact single and multiple horn/driver systems to be put together. Should tighter vertical pattern control be required below 2 kHz, two or more horns may be stacked vertically in line.

The exceptionally consistent horizontal dispersion eliminates the midrange narrowing and high frequency beaming problems typically associated with

conventional horn designs. Additionally, the predictable performance of the 2382A greatly simplifies cluster design. The need for horn overlapping is minimized, and lobing and comb filter effects are virtually eliminated.

Computer-aided design techniques were used to derive the horn contours in both horizontal and vertical planes. Using sidewall contours based on a polynomial power series equation, the horn design yields smooth response, low distortion, and consistent coverage over defined solid angles. The design avoids the performance disadvantages of horns that feature sharp flare transitions and flat sidewalls. To ensure light weight, superior strength, and freedom from resonances, the horn is made of molded structural foam.

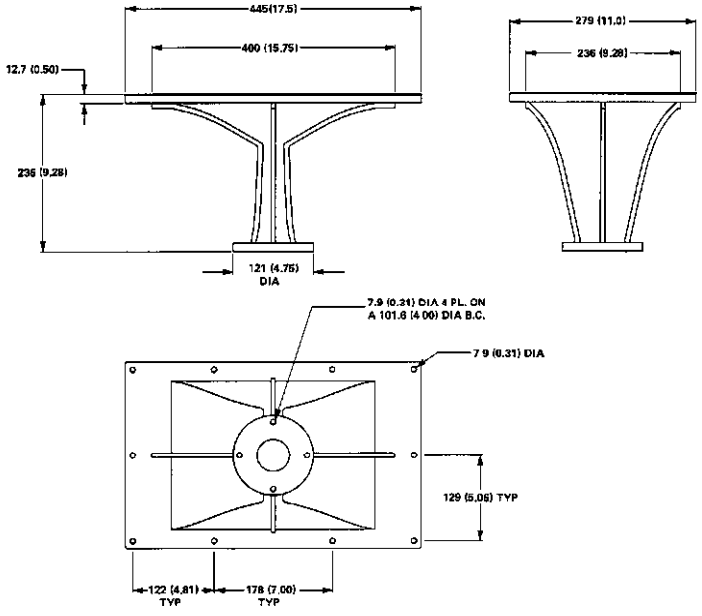
The 2382A will accept the 49 mm (2 in) throat 2441, 2445, or 2485 compression driver. With the addition of the 2327 adapter, the horn will also accept the 25 mm (1 in) throat 2425 driver.

[1]U.S Patent No 4,308.932 Foreign patents pending

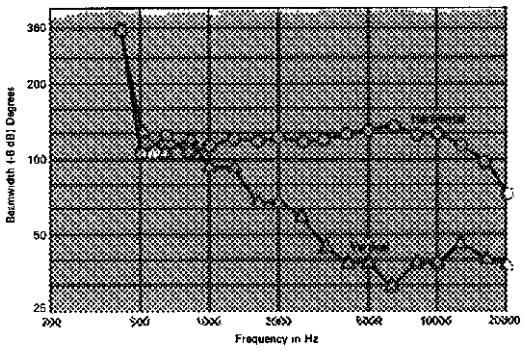
SPECIFICATIONS:

Horizontal Coverage:	
Angle Degrees (– 6 dB):	120 (+ 10, – 20)
Average Range:	500 Hz – 16 kHz
Vertical Coverage:	
Angle Degrees (– 6 dB):	40 (+ 26, – 11)
Average Range:	2kHz – 16kHz
Directivity Index (DI):	9 (+3, – 2 dB)
Directivity Factor (Q):	7.9 (+ 7.9, – 2.9)
Average Range:	500 Hz – 16 kHz
Usable Low-Frequency Limit:	400 Hz
Recommended Crossover Freaquency:	500 Hz
Axial Pressure Sensitivity:	110 dB SPL, 1 W, 1 m

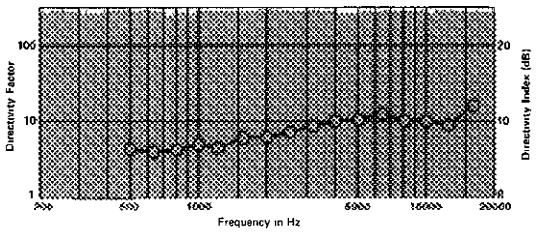
Construction:	Molded structural foam (nominal 10 mm (0.38 in.) wall thickness)
Overall Dimensions:	
Mouth Height:	279 mm (11 in)
Mouth Width:	445 mm (17.5 in)
Length:	236 mm (9.28 in)
Mounting Dimensions:	
Rear Height:	235 mm (9.25 in)
Rear Width:	400 mm (15.75 in)
Baffle Cutout Required:	(Front mounting only)
Height:	238 mm ($9^{7/8}$ in)
Width:	403 mm ($15^{7/8}$ in)
Net Weight:	1.62 kg (3.5 1b)
Shipping Weight:	3.42 kg (7.5 1b)



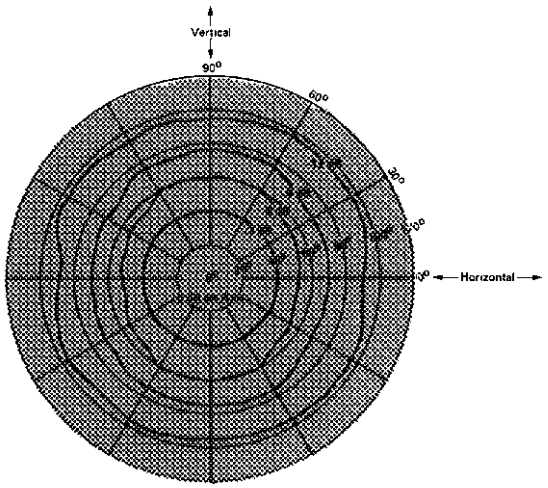
Beamwidth vs Frequency



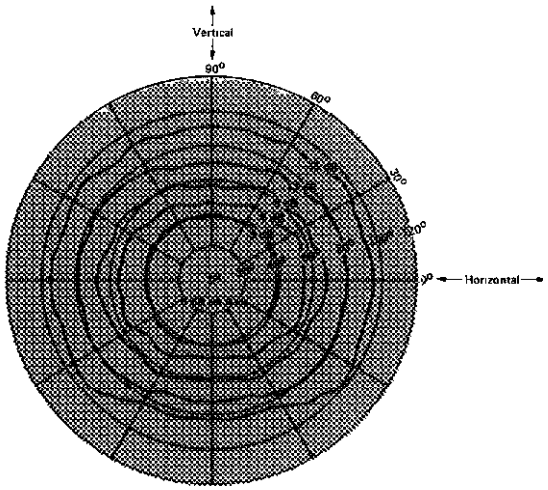
Directivity vs Frequency



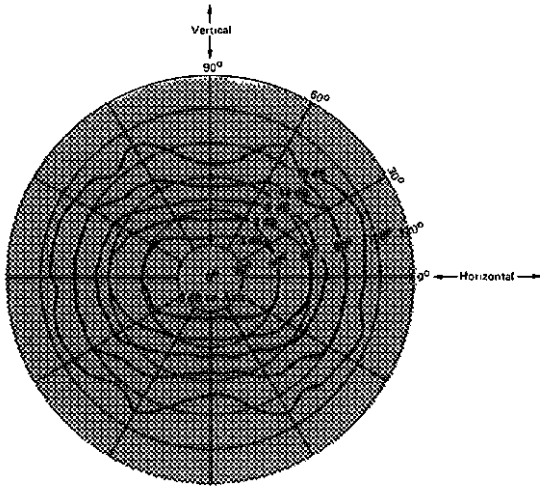
Frontal Isobar Contours



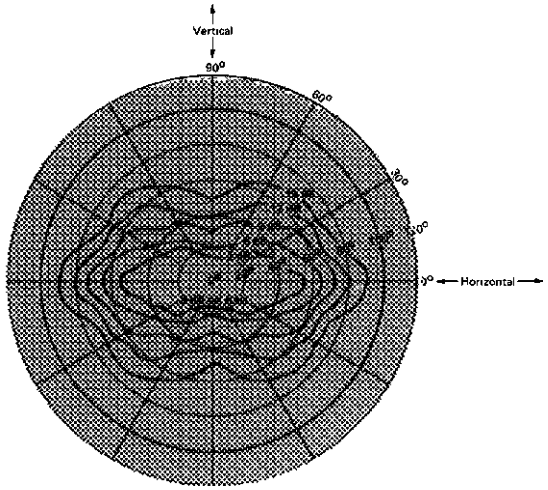
500 Hz octave bandwidth constant sound pressure contours of 0 to – 12 dB in steps of 3 dB. The contours are plotted on polar grid lines with on axis being center of the plot. The data was gathered by taking octave polar plots at oblique angles from 0° (horizontal) to 90° (vertical) in steps of 10°.



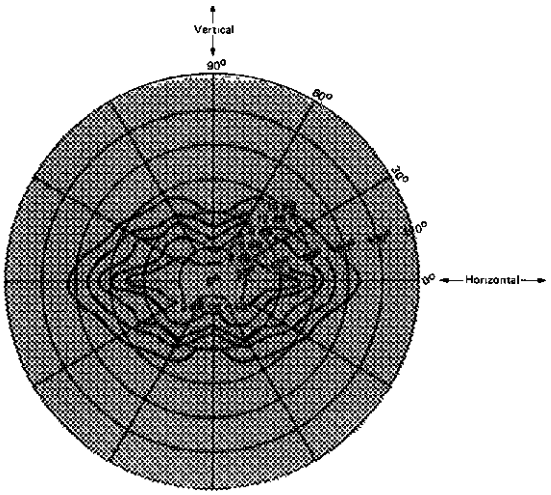
1 kHz octave bandwidth constant sound pressure contours from 0 dB to – 15 dB.



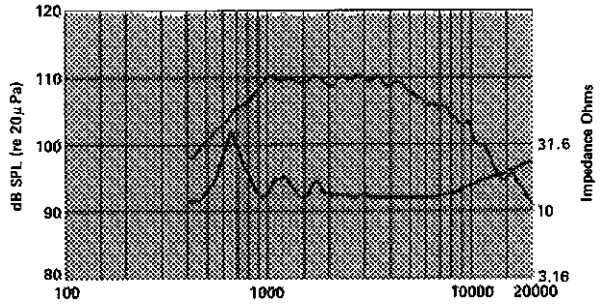
2 kHz octave bandwidth constant sound pressure contours. Same conditions as 1 kHz contours.



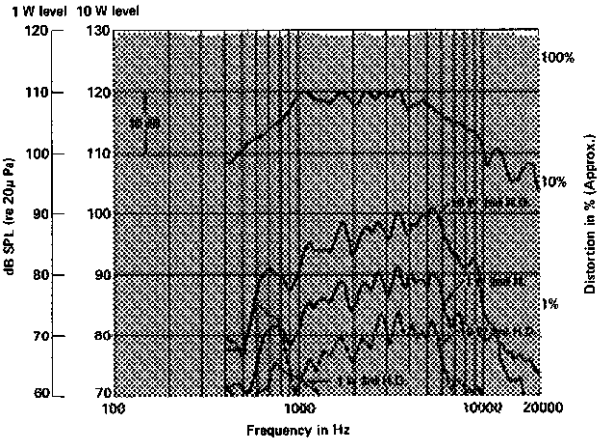
4 kHz octave bandwidth constant sound pressure contours. Same conditions as 1 kHz contours.



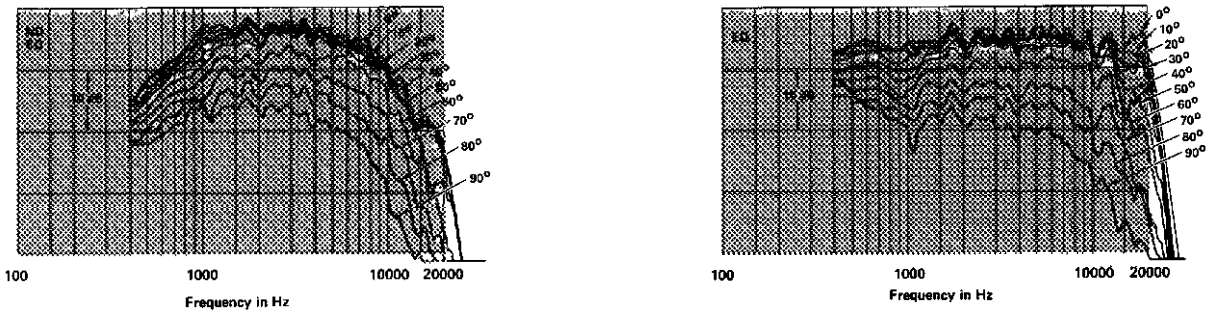
8 kHz octave bandwidth constant sound pressure contours. Same as 1 kHz contours.



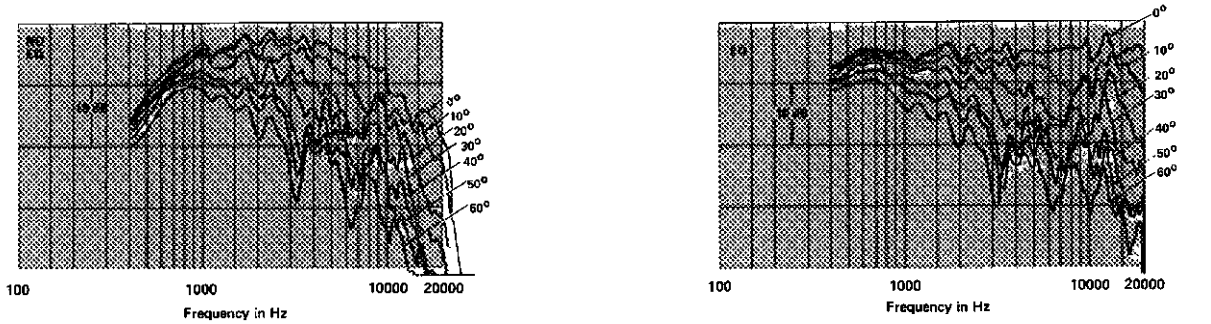
Frequency response and impedance. Frequency response of the 2382A, measured on axis at a distance of 1 meter with 1 watt (4 V RMS) applied to a JBL Model 2445 compression driver, in a reflection-free environment, with impedance vs frequency curve.



Harmonic distortion. Second and third harmonic distortion curves of the 2382A with 1 watt (4.0 V RMS) and 10 watts (12.65 V RMS) applied to the JBL Model 2445 compression driver. Measured on axis at a distance of 1 meter in a reflection-free environment.



Horizontal off-axis response. Horizontal off-axis response taken at 15° intervals out to 90° off axis. Both normalized (equalized flat on axis) and unequalized responses are shown.



Vertical off-axis response. Vertical off-axis response taken at 15° intervals out to 60° off axis. Both normalized (equalized flat on axis) and unequalized responses are shown.

JBL Professional, 8500 Balboa Boulevard, P.O. Box 2200, Northridge, California 91329 U.S.A.

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