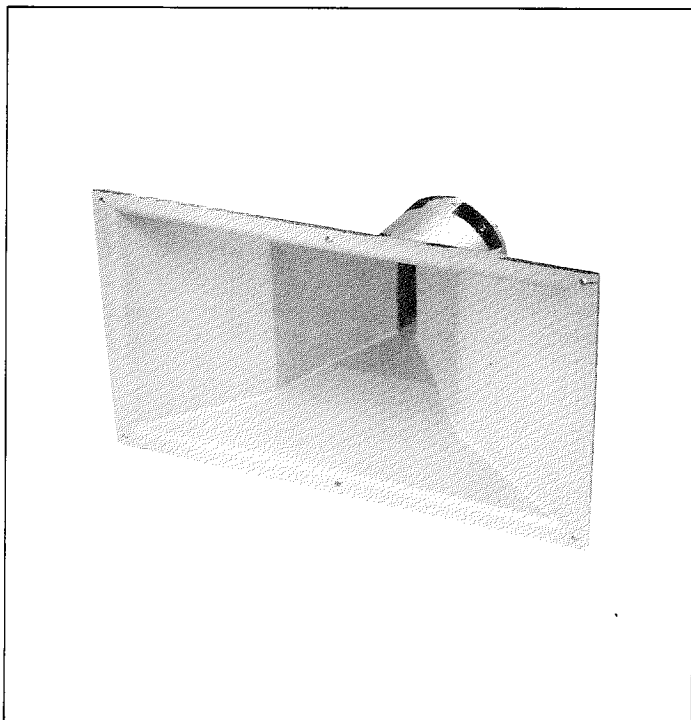




MR II 594A MANTARAY® CONSTANT DIRECTIVITY HORN



DESCRIPTION

The Altec Lansing MR II 594A is a 90° x 40° mid/high-frequency horn with efficient low-frequency loading down to 500 Hz, having excellent directivity control over the full frequency range to 16 kHz.

The result of a continuing research project by Altec Lansing, the MR II 594A is a radical departure from previous horn designs. The geometry of the MR II 594A minimizes the problem of high-frequency beaming and maintains uniform dispersion at all frequencies within the rated frequency bandpass. This greatly benefits the listeners sitting off-axis of a MANTARAY horn, as they will hear the same sound quality as listeners sitting on-axis.

Performance is shown graphically in the MR II 594A's test results. Polar patterns look nearly identical at all frequencies from 2 kHz to 16 kHz. Frequency response curves show similar uniformity both on-axis and off-axis.

The MANTARAY horn is constructed of heavy-duty, weather resistant General Electric Noryl™. This construction material results in a horn design that is surprisingly light weight, yet extremely rugged and non-resonant. A steel driver/horn mounting bracket is included for ease of mounting.

SPECIFICATIONS

Nominal Dispersion

Angle: 90° x 40°

Dispersion Angle

vs. Frequency: See Figure 1

Mean Dispersion

Angle—	Horizontal	Vertical
(2 kHz to 16 kHz):	93° (+10°, -13°)	40° (+8°, -6°)
Standard Deviation (σ):	7°	5°

Polar Patterns: See Figure 6

Solid Angle Coverage

(1 to 2 kHz): See Figure 5

Frequency Response: See Figures 2 & 3

Directivity Index

(DI): See Figure 4

Directivity Factor

(Q or R_0): See Figure 4

Mean Directivity (Q)

(2 kHz to 16 kHz): 12.9 (+4.6, -3.4)
(See Figure 4)

Useable Low

Frequency Limit: 500 Hz

Pressure Sensitivity

dB (SPL): Measured on axis 10 feet from the horn mouth with one watt (Ex I) of pink noise band-limited from 500 Hz to 16 kHz and calculated to one meter equivalent by inverse square law.

Driver	Power Level	1 Meter	4 Feet
288	1 watt	110	108
	15 watts	122	120
290	1 watt	108	106
	100 watts	128	126
291	1 watt	109	107
	40 watts	125	123

Dimensions: 12.76" (32.41 cm) high
22.875" (58.10 cm) wide
12.5" (31.75 cm) deep

Weight: 4.6 lbs. (2.1 kg)

Accessories: 25544 adapter

REFERENCE LITERATURE

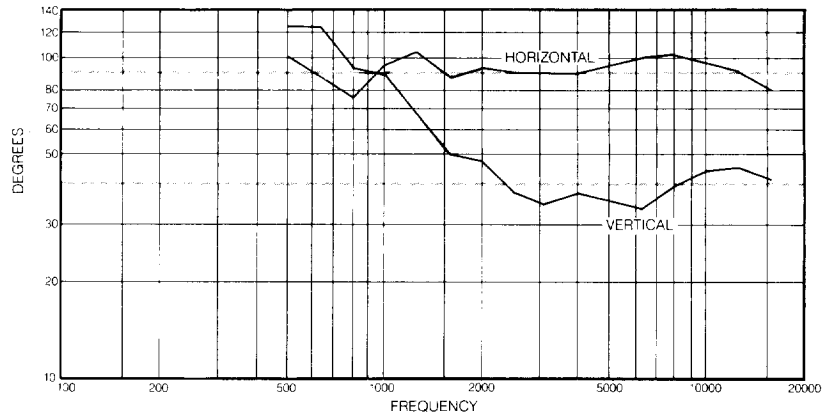
"The Mantaray Horns," C. A. Henricksen and M. Ureda, **J. Audio Eng. Soc.**, vol. 26, p 629-634 (1978 Sept.)

"Apparent Apex Theory: Far-Field Polar Characteristics at Close Proximity," M. Ureda, **J. Audio Eng. Soc.** (Abstracts), vol. 26, p 988 (1978 Dec.)

"Coverage of Multiple Mantaray Horns," M. Ureda and T. Uzzle, **Tech. Letter #262**, Altec Lansing.

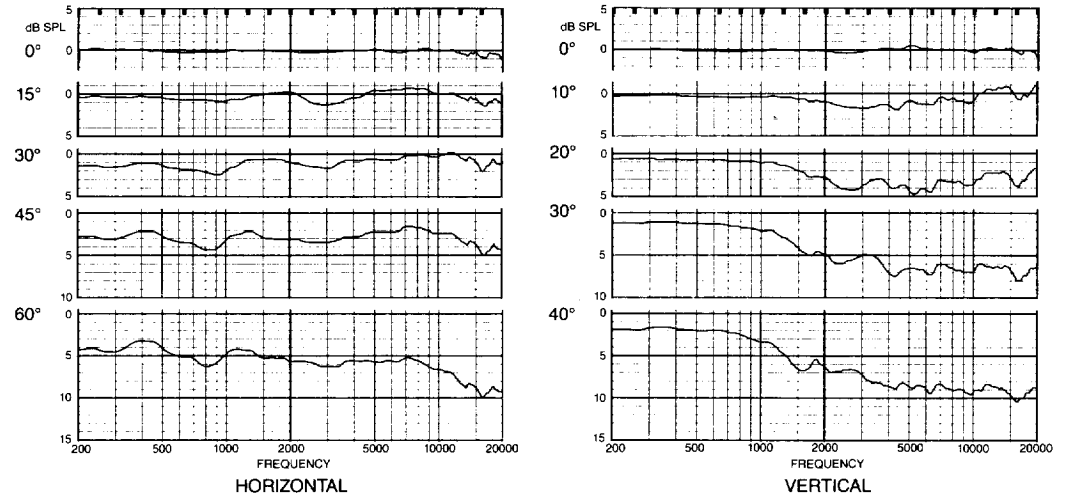
1. Dispersion Angle vs Frequency

This graph displays the MR II 594 excellent horizontal and vertical directivity control. Note the uniformity above 2000 Hz.



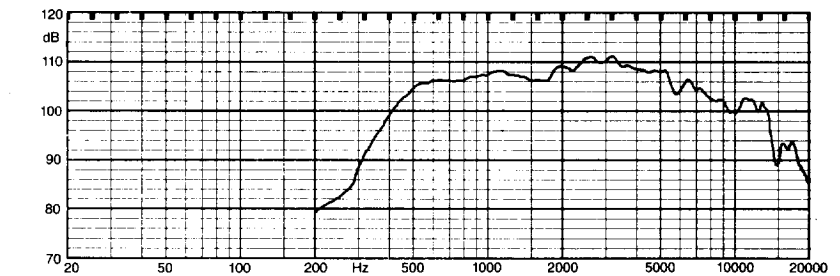
2. Off-Axis Horizontal and Vertical Frequency Response

On-axis response has been equalized in this graph to illustrate the uniformity of the on and off-axis response curves.



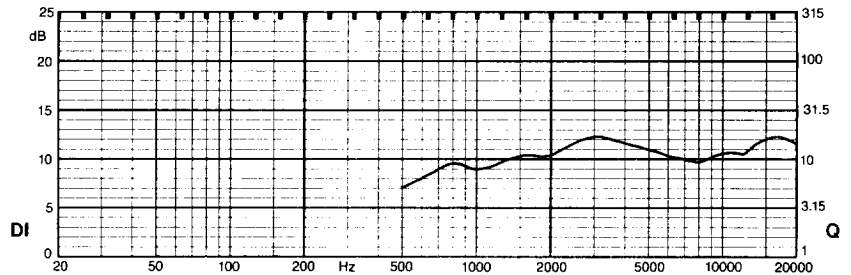
3. Unequalized Frequency Response (Measured with an Altec Lansing 288-8K Compression Driver)

The response curves exhibited here are very similar to the actual power response of the 288-8K driver measured on a plane wave tube because of the dispersion uniformity of the MR II 594.

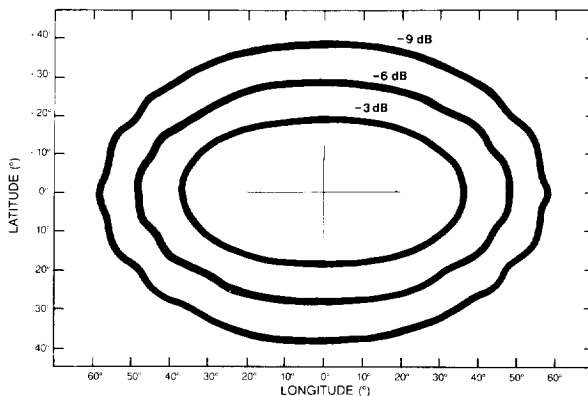


4. Q and DI vs Frequency

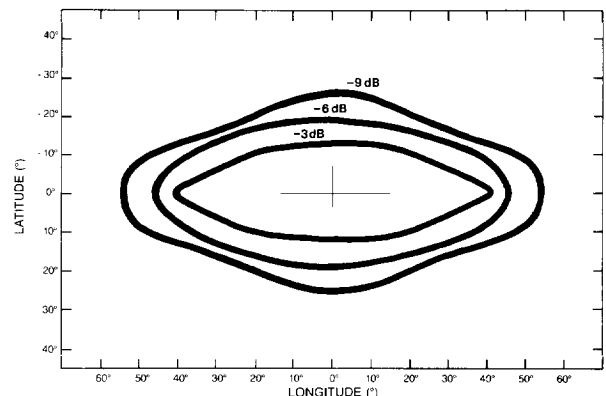
(DI = 10 Log Q)



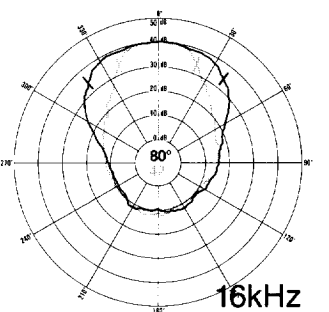
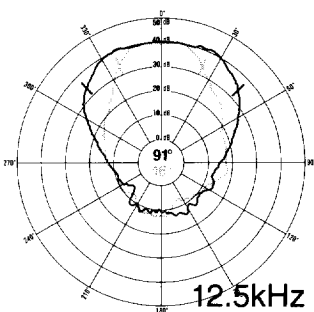
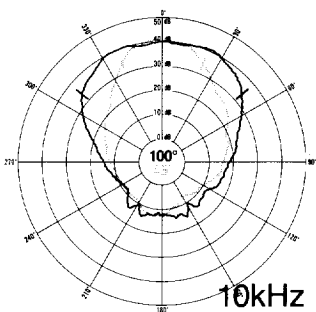
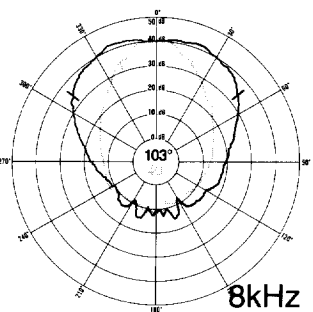
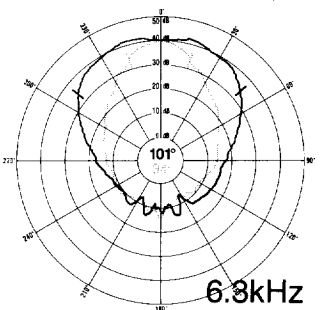
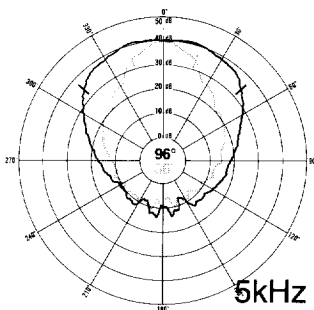
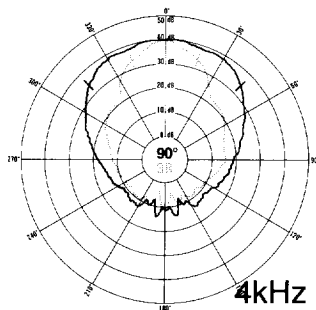
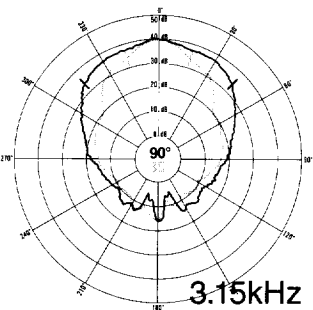
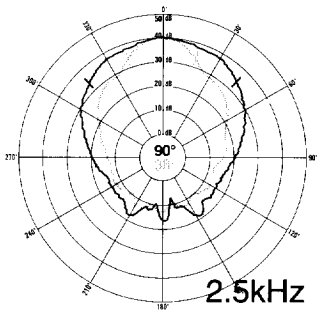
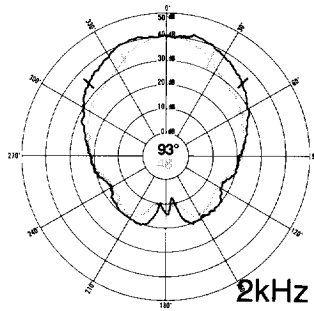
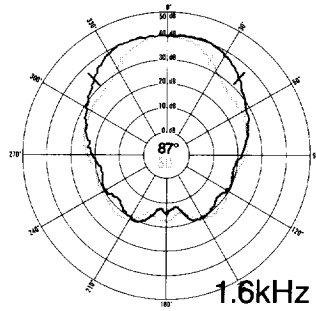
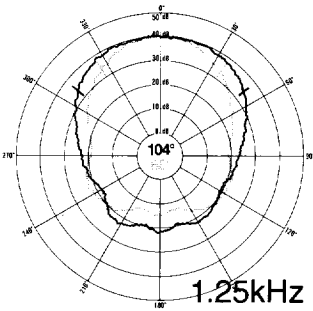
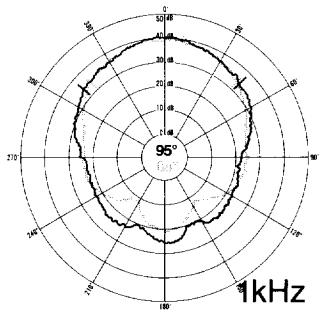
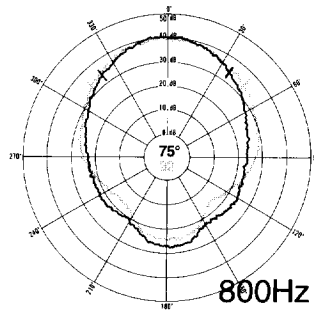
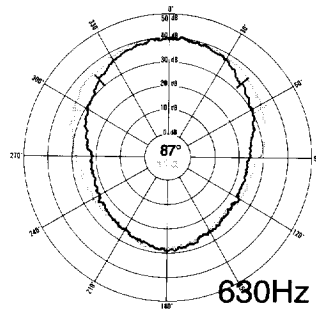
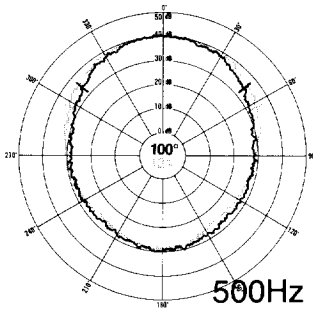
5. Solid-Angle Coverage



at 1 to 2 kHz



at 2 to 4 kHz (representative from 2 to 16kHz)



6. Polar Response Charts
 (using 1/3 octave
 bands of pink noise
 rotated about the
 apparent apex)

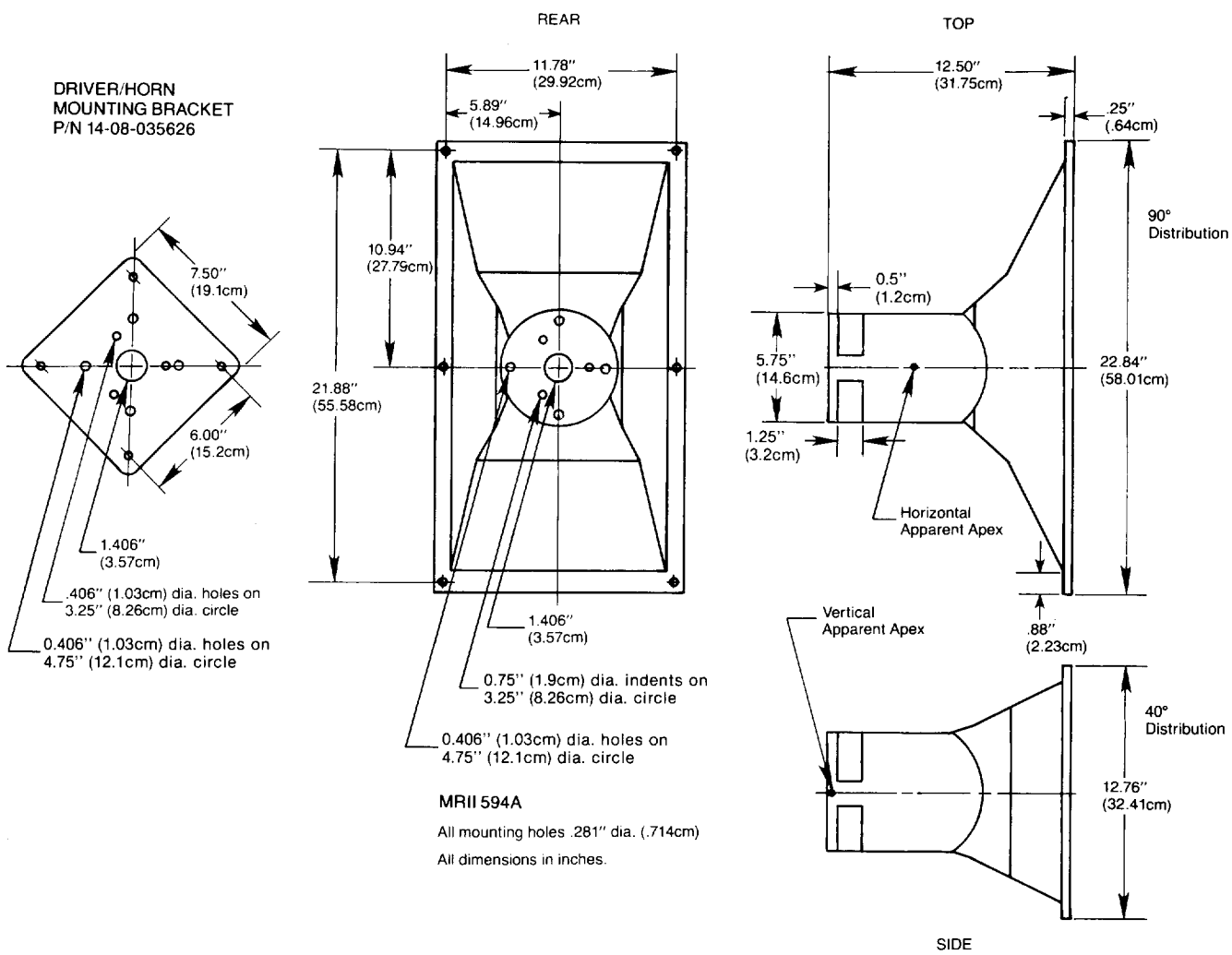
VERTICAL
 HORIZONTAL

ROW 1 (1 : 3)



ROW 2 (4 : 6)





For technical instructions on mounting drivers and adapters to this horn, refer to Altec Lansing publication 42-02-025551.

ARCHITECT'S AND ENGINEER'S SPECIFICATIONS

The loudspeaker shall be a directivity-control mid/high frequency horn. The horn shall meet the following performance criteria over the bandpass of 2 kHz to 16 kHz. Mean horizontal dispersion angle, 93° (+10°, -13°) with a standard deviation of 7°. Mean vertical dispersion angle, 40° (+8°, -6°) with a standard deviation of 5°.

Pressure sensitivity shall be 110 dB SPL at 1 meter on axis with one watt (E x I) input of band-limited pink noise from 500 Hz to 16 kHz applied to an attached 288-type Altec Lansing compression driver.

The loudspeaker shall be the Altec Lansing Model MR II 594A.



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