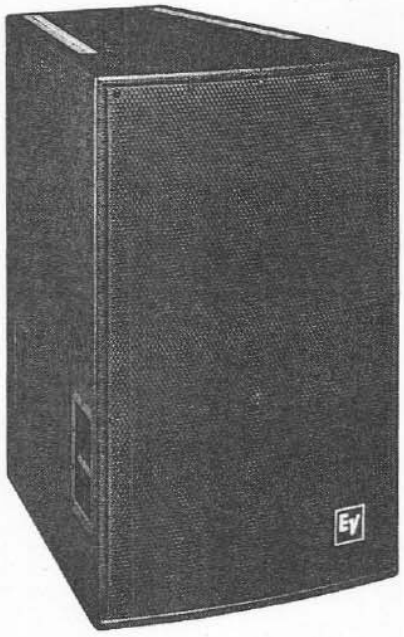
Electro-Voice®



DMS-1183/64 Series

DeltaMax™ Three-Way, Full-Range, Electronically Controlled Sound-Reinforcement System

- **Ultra-compact/high-level, three-way design**
- **EVX-180A low-frequency section: Excellent linear excursion superior thermal capability**
- **New design, 12-inch mid-bass driver (60° x 40°)**
- **Coaxially-mounted HF section includes ND4 compression driver for very high output, extremely rigid piston range performance**
- **Fully rotatable MB/HF section for vertical or horizontal suspension**
- **Front dimensions identical to DMS-2181 and compatible with MT-2/MT-2.5 series products**

Description

The Electro-Voice DMS-1183/64 is a full-range, three-way loudspeaker system. The design of the DMS-1183/64 was optimized for permanent-installation and touring-sound applications. The unique configuration yields full-spectrum, high-level output and maintains vocal clarity and intelligibility. The DMS-1183/64 may be used with either the Electro-Voice Dx34 digital crossover system or any high-quality, signal-controller system.

The DMS-1183/64 employs an 18-inch EVX-180A woofer for low-frequency reproduction. This woofer features very-high linear-excursion capability as well as very-high power-handling capacity. The unique low-frequency loading further improves diaphragm control and allows the EVX-180A to be used to below 60 Hz.

The mid-bass section of the DMS-1183/64 is a horn-loaded, 12-inch loudspeaker specifically designed for the DMS-1183/64. Extended horn length and diaphragm loading-ratio employed allow operation to 140 Hz. This low-frequency limit and the high-frequency cut-off of 1,480 Hz provide uniform loading over the entire frequency spectrum covered by this device with a constant-directivity 60° x 40° pattern.

A 60° x 40° high-frequency device is coaxially mounted in the mid-bass horn. Both the mid-bass and high-frequency sections are fully rotatable, thus allowing the enclosure to be vertically or horizontally mounted and still achieve desired coverage.

The compression driver is an Electro-Voice neodymium-based magnetic system. The ND4 features very high output and wide pistonic output. The ND4 driver and high frequency horn combination offer extremely smooth performance from 1,480 Hz to above 18,000 Hz.

The DMS-1183/64 is a tri amp-ready enclosure constructed of 18-mm, 13-ply birch plywood and is available in a painted, non flying version (DMS-1183/64P), and is also available in a standard two-point (two track top, two track bottom) flying version (DMS-1183/64PF).

Applications

The DMS-1183/64 is ideally suited for high-level, high-fidelity applications. The extended capabilities, of the system, particularly the low-frequency capability allow the system to be used very successfully without the need of a subwoofer. For application of low-frequency sound pressure levels coupled with very accurate vocal reproduction, the DMS-1183/64 may be coupled with the Electro-Voice DMS -2181T or DMS-2181 subwoofers. The combined system may be run in either a conventional four-way implementation (sub crossover to DMS-1183/64 at 80 Hz) or three-way with the subwoofer run in parallel with the DMS-1183/64 low-frequency section (either with a separate amplifier or with an amplifier possessing appropriate low impedance capabilities).

Power-Handling Test

Electro-Voice components and systems are manufactured to exacting standards to ensure reliability in continuous use in arduous real-life conditions. Besides utilizing industry-standard power tests, extreme in-house power tests which push the performance bounadries of the loudspeakers are also performed for an extra measure of reliability. The DMS-1183/64 systems are rated per ANSI/EIA RS426-A 1980 Loudspeaker Power Rating, Full Range Test, which uses a shaped-random-noise signal to simulate typical music to test the mechanical and thermal capabilities of the loudspeakers. The Dx34 digital electronic unit was used to pro-

vide the necessary crossover filters and equalization during power testing. Specifically, the DMS-1122/85 passes the ANSI/EIA RS426-A power test with the follwing test parameters:

Low-Frequency Section:

$P_{E(MAX)}$:	600 watts
Test Voltages:	58.7 volts rms
	117.4 volt speak
$R_{SR}(1.15\ R_E)$:	5.75 ohms

Mid-bass Section:

$P_{E(MAX)}$:	300 watts
Test Voltages:	40.3 volts rms
	80.6 volts peak
$R_{SR}(1.15\ R_E)$:	5.41 ohms

High-Frequency Section:

$P_{E(MAX)}$:	60 watts
Test Voltages:	17.6 volts rms
	35.2 volts peak
$R_{SR}(1.15\ R_E)$:	5.18 ohms

Crossover, Equalization And Time-Delay Controller

The DMS-1183/64 speaker system and variants are designed as an integrated package that utilizes the Electro-Voice Dx34 digital crossover system. Optimal performance of the DMS-1183/64 speaker system can only be assured when using the above controller.

The Dx34 features 160-Hz and 1,480-Hz crossover frequencies utilizing 24-dB-per-octave Linkwitz-Riley filters. All contain fixed time delay and equalization for optimum performance of the DMS-1183/64.

Electrical Connection And System Wiring

Electrical connections to the DMS-1183/64 are made on the back of the enclosure via a 8-pin connector. There are two connectors on the input panel to allow paralleling of other DMS-1183/64 systems. The Neutrik Speakon® NL8MPR is used for both connections. The pin assignments are as follows:

Pin 1+: LF(+)
Pin 1-: LF(–)
Pin 2+: No Connection
Pin 2-: No Connection
Pin 3+: MB(+)
Pin 3-: MB(–)
Pin 4+: HF(+)
Pin 4-: HF(–)

The wiring diagram of the loudspeaker system is shown in figure 7. The electrical impedance is shown in Figure 6.

Amplifier Recommendations

Power amplfiers with the following ratings are recommended for use with the DMS-1183/64 speaker systems:

LF: 600-1,200 watts continous into 8 ohms.

MB: 300-600 watts continous into 8 ohms.

HF: 125-250 watts continous into 8 ohms.

DMS-1183/64 speakers may be paralleled only with other DMS-1183/64 speakers if the amplifier is capable of delivering full power at the lower impedances. The use of amplifiers with lower power ratings is acceptable; however, the full-power capabilities of the DMS speakers will to be realized. The use of amplifiers with significantly higher power ratings will generate maximum dynamic range and fidelity, but care must be utilized for longer duration signals as mechanical and thermal damage is possible in the system.

Flying the DMS Systems

A manual entitled the *DMS Flying Manual* is available from Electro-Voice, and is included with each flying DMS loudspeaker system. A breif introductory overview is included here. The *DMS Flying Manual* should be consulted for complete structural specifications and detailed information on safely suspending and using the DMS systems.

The DMS-1183/64PF is the version of the DMS-1183/64 loudspeaker system that includes flying hardware. The DMS systems incorporate a unique two-point flying system that permits a wide range of vertical angle adjustment, and offers maximum flexibility in array design for both touring sound and permanent installations. The quick-release, aircraft-rated heavy-duty L-track-type hardware design allows arrays of loudspeakers to be assembled (and disassembled) very quickly, and offers such flexibility in the vertical angling of cabinets that pull-up points are usually unnecessary. Furthermore, all of the flying DMS loudspeaker models include the same rigging hardware, allowing different models to be mixed as necessary throughout an array.

The working-load limit (for an 8:1 safety factor) for each rigging point on the DMS loudspeaker enclosure is 227 kg (500 lb) for a 0° pull angle and 170 kg (375 lb) for a 90° pull angle when used with the New Haven NH32101-2 double-stud fitting, and 113 kg (250 lb) at any angle when used with the New Haven NH8192-2S or Ancra 42546-10 single-stud fittings with locking pins. The working-load limit (for an 8:1 safety factor) for the overall enclosure is 453 kg (1,000 lb). (Consult the *DMS Flying Manual* for specific structural ratings and limitations.) The enclosures may be oriented with the rigging track on the sides of the enclosure, or on the top and bottom, and may be daisy-chained together as long as the safety factor is 8:1 or greater, and local regulations are met. For fire safety and additional structural strength in both flying orientations, top-to-bottom and side-to-side metal straps link the rigging track inside the enclosure. Electro-Voice offers a line of flying-hardware accessories for use with the DMS loudspeaker systems. All associated rigging is the responsibility of others.

CAUTION: The DMS loudspeaker system should be suspended overhead only in accordance with the procedures and limitations specified in the *DMS Flying Manual* and manual updates notices.

Field Replacment

The DMS-1183/64 may be serviced as follows. To access the 18-inch woofer, remove the mid-bass horn and woofer hatch panel. The 18-inch woofer may then be unbolted and removed. To access the 12-inch midbass driver remove the mid-bass horn and the midbass-horn-throat extension. The 12-inch woofer may then be unbolted and removed. To access the high-frequency driver, remove the mid-bass horn. The high-frequency driver may be unscrewed from the high-frequency

horn for service

The following replacement parts are available from EVI Audio Service in Buchanan, Michigan:

LF: Complete woofer: EV Part No. 818-2389

MB: Complete woofer: EV Part No. 812-2776

HF: Diaphragm kit; EV Part No. 82816-XX

Architects' and Engineers' Specifications:

The loudspeaker system shall be a three-way tri-amp system. The system shall have an 18-inch, low-frequency loudspeaker with a nominal impedance of 8 ohms and a 4 inch aluminum voice coil. The low-frequency loudspeaker shall have a power handling capacity of 600 watts with a shaped pink-noise signal with a 6-dB crest factor for 8 hours (as per ANSI/EIA RS-426 A) The mid-bass loudspeaker shall be a fully horn-loaded, 12-inch driver with a 2.5-inch voice coil and a nominal impedance of 8 ohms. The mid-bass driver shall have a power-handling capacity of 300 watts for 8 hours (as per ANSI/EIA standard). The mid-bass horn shall be fully rotatable for rated coverage pattern when the enclosure is operated either vertically or horizontally. The high-frequency section shall be coaxially mounted in the mid-bass horn and shall employ a compression driver capable of handling 60 watts, 1,480- to 20,000-Hz when pink noise of a 6-dB crest factor is applied for 2 hours (as per AES 2-1984 and ANSI S4.26-1984 standards). The loudspeaker shall be constructed of 18-mm, 13-ply birch and shall be trapezoidal in shape. The wedge angle shall be 18-degrees.

The system shall be capable of very-high-level operation with a band width of 80 to 18,000 Hz. The system dimensions shall be 572 mm (22.50 inches) wide by 914 mm (36.00 inches) high by 759 mm (29.88 inches) deep. The system shall employ flying hardware of a "track" style and two tracks on the enclosure top and two tracks on the enclosure bottom (top and bottom reference to the 36-inch dimension.)

The loudspeaker shall be the Electro-Voice DMS-1183/64.

Uniform Limited Warranty

Electro-Voice products are guaranteed against malfunction due to defects in materials or workmanship for a specified period, as noted in the individual product-line statement(s) below, or in the individual product data sheet or owner's manual, beginning with the date of original purchase. If such malfunction occurs during the specified period, the product will be repaired or replaced (at our option) without charge. The product will be returned to the customer prepaid. Exclusions and Limitations: The Limited Warranty does not apply to: (a) exterior finish or appearance; (b) certain specific items described in the individual product-line statement(s) below, or in the individual product data sheet or owner's manual; (c) malfunction resulting from use or operation of the product other than as specified in the product data sheet or owner's manual; (d) malfunction resulting from misuse or abuse of the product; or (e) malfunction occurring at any time after repairs have been made to the product by anyone other than EVI Audio Service or any of its authorized service representatives. Obtaining Warranty Service: To obtain warranty service, a customer must deliver the product, prepaid, to EVI Audio Service or any of its authorized service representatives together with proof of purchase of the product in the form of a bill of sale or receipted invoice. A list of authorized service representatives is available from EVI Audio Service at 600 Cecil Street, Buchanan, MI 49107 (800/234-6831 or FAX 616/695-4743). Incidental and Consequential Damages Excluded: Product repair or replacement and return to the customer are the only remedies provided to the customer. Electro-Voice shall not be liable for any incidental or consequential damages including, without limitation, injury to persons or property or loss of use. Some states do not allow the exclusion or limitation of incidental or consequential damages so the above limitation or exclusion may not apply to you. Other Rights: This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

Electro-Voice Speakers and Speaker Systems are guaranteed against malfunction due to defects in materials or workmanship for a period of five (5) years from the date of original purchase. The Limited Warranty does not apply to burned voice coils or malfunctions such as cone and/or coil damage resulting from improperly designed enclosures. Electro-Voice active electronics associated with the speaker systems are guaranteed for three (3) years from the date of original purchase. Additional details are included in the Uniform Limited Warranty statement.

Electro-Voice Accessories are guaranteed against malfunction due to defects in materials or workmanship for a period of one (1) year from the date of original purchase. Additional details are included in the Uniform Limited Warranty statement.

Electro-Voice Flying Hardware (including enclosure-mounted hardware and rigging accessories) is guaranteed against malfunction due to defects in materials or workmanship for a period of one (1) year from the date of original purchase. Additional details are included in the Uniform Limited Warranty statement.

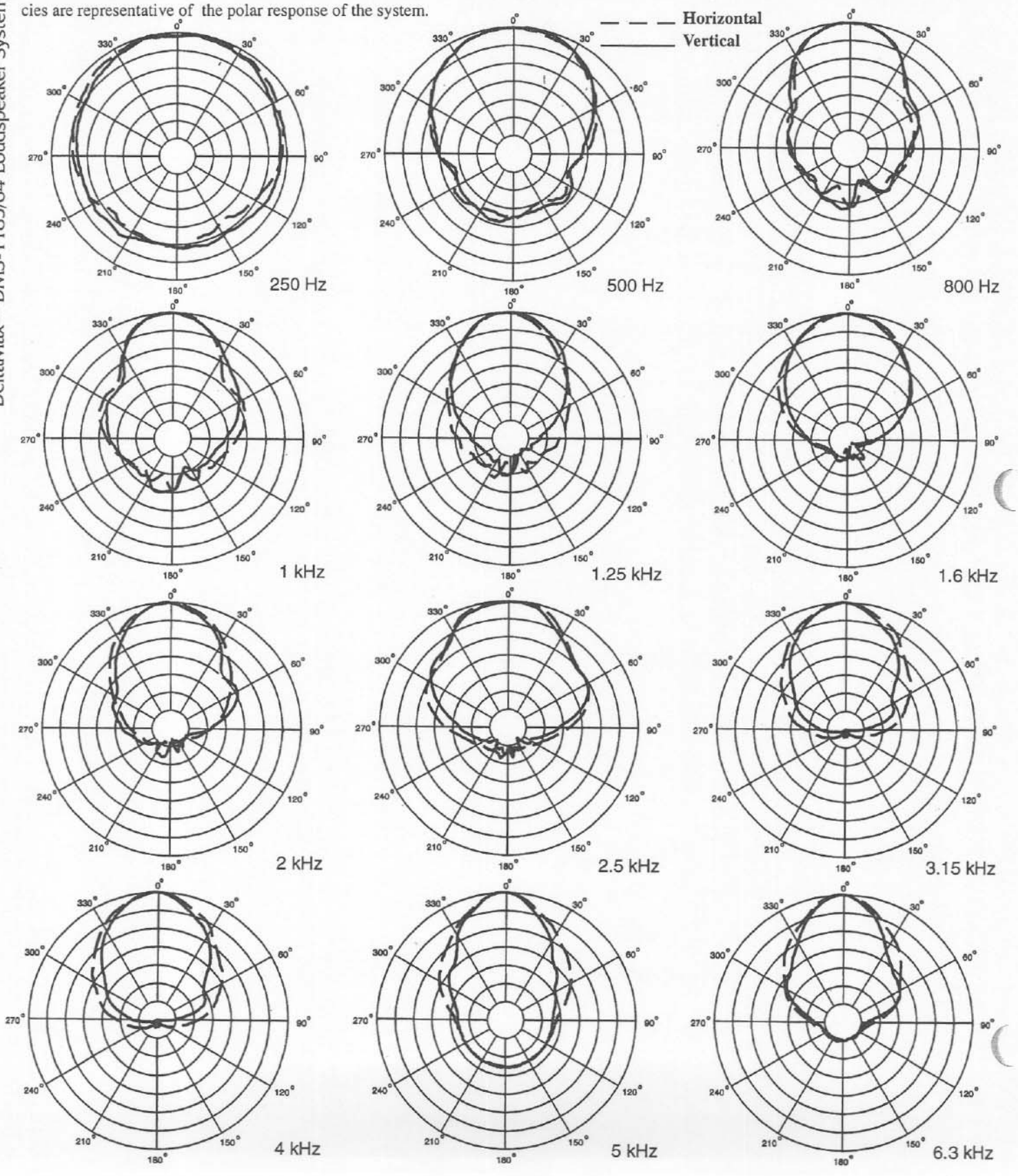
For warranty repair, service information, or a listing of the repair facilities nearest you, contact the service repair department at: 616/695-6831 or 800/685-2606.

For technical assistance, contact Technical Support at 800/234-6831 or 616/695-6831, M-F, 8:00 a.m. to 5:00 p.m. eastern standard time.

Specifications subject to change without notice.

Figure 1—Polar Response

The directional response of the system was measured in an anechoic environment at a distance of 6.1 m (220 feet) using 1/3-octave-filtered pink noise with a full spherical measurement system. The Dx34 digital electronic unit was used to provide the necessary crossover filters, equalization and time delay. The polar response of the loudspeaker system at selected 1/3-octave frequencies is shown. The selected frequencies are representative of the polar response of the system.



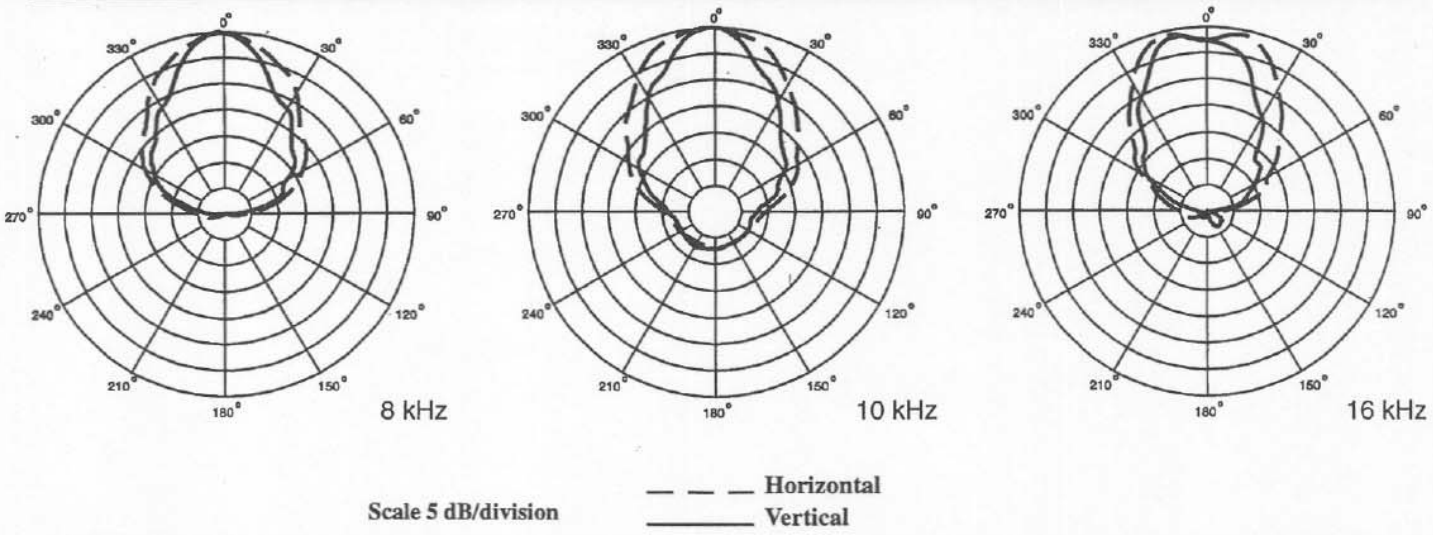


Figure 2—Frequency Response

The frequency response of the system was measured on axis in the farfield in an anechoic environment using a swept sine-wave signal. The Dx34 digital electronic unit was used to provide the necessary crossover filters, equalization and time delay. One watt of power (2.83 volts rms at 250 Hz) was applied to the midband of the midbass section. The sound-pressure level was normalized for an equivalent one-meter distance.

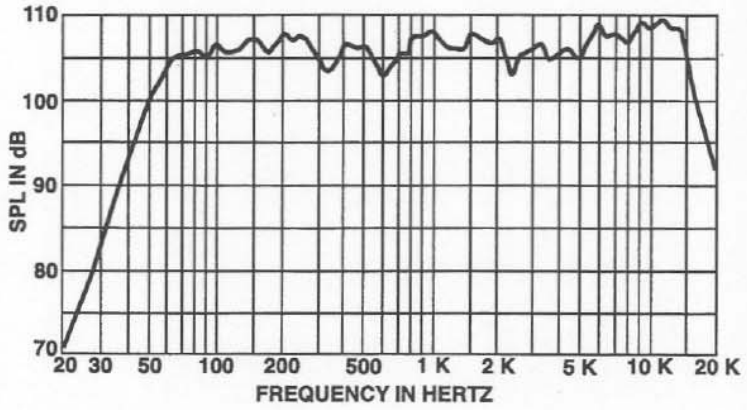


Figure 3—Beamwidth

The beamwidth of the system, (i.e., the included horizontal and vertical coverage angles at the -6-dB points) was measured with a full spherical measurement system as described in *Polar Response*.

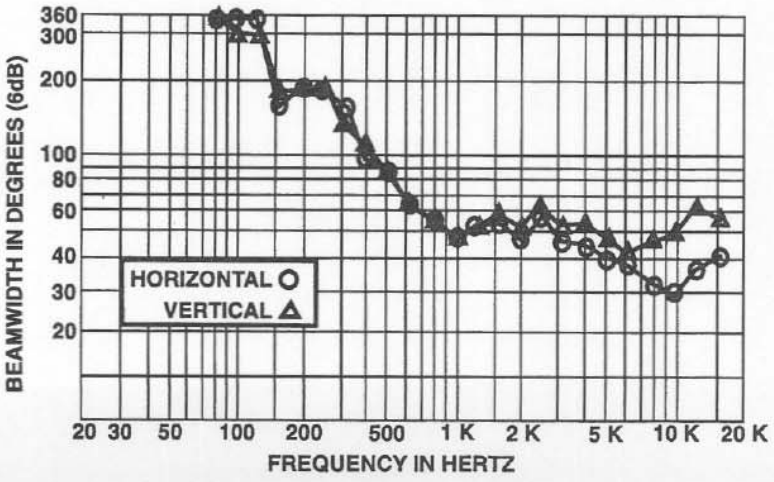


Figure 4—Directivity

The directivity index, D_I, and directivity factor, R_θ, of the system were measured with a full spherical measurement system as described for the Polar Response.

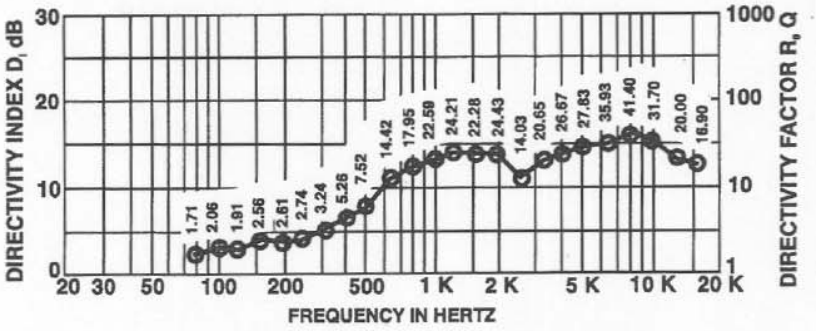


Figure 5—Distortion

Distortion for the system was measured on axis in the farfield in an anechoic environment with an input signal that would result in a sound-pressure level of 115 dB at one meter. The Dx34 digital electronic unit was used to provide the necessary crossover filters, equalization and time delay. A frequency spectrum typical of close-miked rock music was employed. The sound-pressure level was normalized for an equivalent one-meter distance. Plots of second and third harmonic distortion are shown referenced to the fundamental.

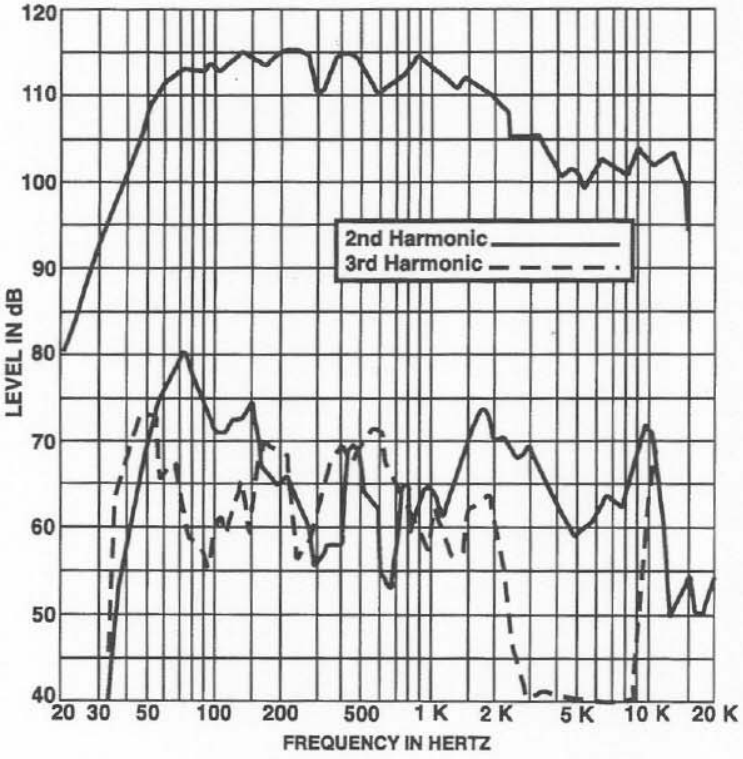


Figure 6—Impedance

The impedance of each frequency band of the system was measured in an anechoic environment.

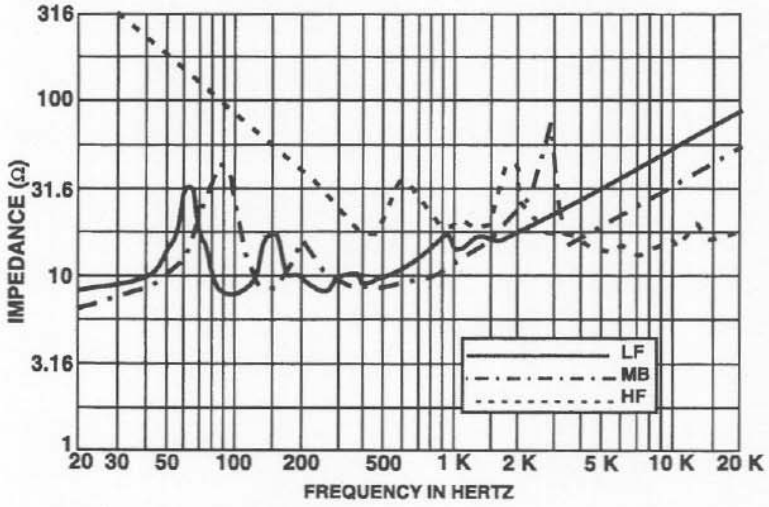


Figure 7—Wiring Diagram

The wiring diagram of each frequency band of the system is shown.

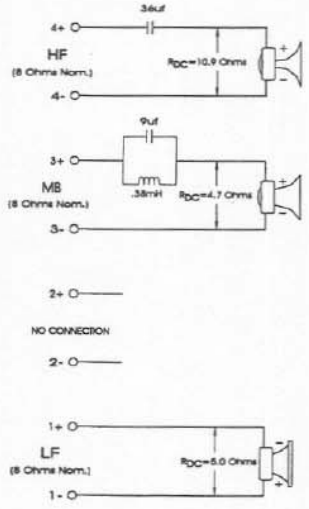
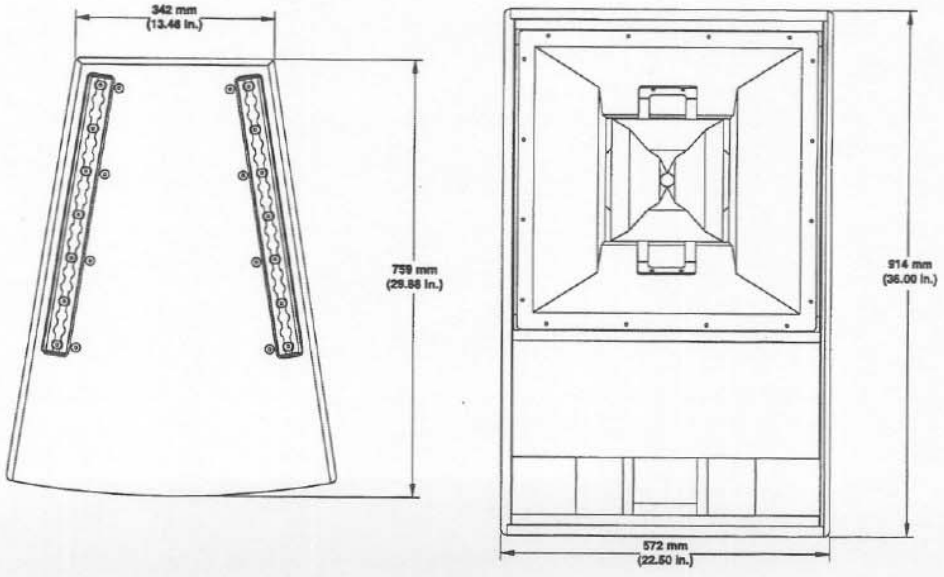


Figure 8—Dimensions



DeltaMax™ DMS-1183/64 Loudspeaker System

Specifications:

Frequency Response (measured in far field, calculated to one meter on axis, swept sine wave, one watt into MB section –2.83 V at 250 Hz, anechoic environment; see Figure 2):
48-16,000 Hz

Crossover Frequency:
160 and 1,480 Hz

Efficiency,
LF/MB/HF:
3.4/18/25%

Maximum Long-Term-Average Power-Handling Capacity (per ANSI/EIA RS-426-A 1980),
LF/MB/HF:
600/300/60 watts

Maximum Long-Term-Average Midband Acoustic Output, LF/MB/HF:
20/54/15 acoustic watts

Sensitivity (SPL at one meter, indicated input power, anechoic environment, average level),
LF/MB/HF,
1/1/1 watt:
96.0/107.0/110.0 dB
600/300/60 watts:
124.0/132.0/131.0 dB

Beamwidth (angle included by 6-dB-down points on polar responses, indicated one-third-octave bands of pink noise; see Figures 1 and 3),
Horizontal, 800-16,000 Hz:
60° (+10 , –10)
Vertical, 800-16,000 Hz:
40° (+20 , –8)

Directivity Factor, R_θ (Q), 800-16,000 Hz Average (see Figure 4):
24.8 (+16.6, –10.7)

Directivity Index, D_i, 800-16,000 Hz Average (see Figure 4):
13.9 dB (+2.2 dB, –2.5 dB)

Distortion (115 dB SPL at one meter, shaped spectrum; see Figure 5),
Second Harmonic,
100 Hz:
0.9%
500 Hz:
0.4%
2,000 Hz:
1.0%
5,000 Hz:
0.9%
Third Harmonic,
100 Hz:
0.2%
500 Hz:
0.6%
2,000 Hz:
0.3%
5,000 Hz:
<0.1%

Transducer Complement,
HF:
ND4-16 driver, HP-type 60° x 40° horn
MB:
DL-type 12-in. woofer, 60° x 40° horn
LF:
EVX-180A 18-in. woofer

Impedance (see Figure 6),
Nominal,
LF/MB/HF:
8/8/16 ohms
Minimum,
LF/MB/HF:
6.9/7.4/12.6 ohms

Input Connections:
Two Neutrik NL8MPR Speakon® connectors paralleled

Recommended Amplifier Power,
HF:
125-250 watts
MB:
300-600 watts
LF:
600-1,200 watts

Enclosure Construction,
Enclosure Shell:
18 mm, 13-ply birch plywood
Finish:
Black textured paint
Grille:
Vinyl-coated steel with foam

Rigging (DMS-1183/64PF only):
Two-point heavy-duty L-track system, accepts New Haven NH32102-2 double-stud fittings, or New Haven NH8192-2S or Ancra 42546-10 single-stud fittings with safety pins

Dimensions,
Height:
914 mm (36.00 in.)
Width (front):
572 mm (22.50 in.)
Width (back):
342 mm (13.46 in.)
Depth:
759 mm (29.88 in.)
Angle:
18° wedge

Net Weight:
87.1 kg (192 lb)

Shipping Weight:
91.2 kg (201 lb)

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Part Number 533667—9723