

Xw15

X-Array™ Two-Way, Full-Range Floor Monitor

- EVX-155 woofer with increased LF output and low distortion
- New DH6, 1.4-inch compression driver for maximum HF output and low distortion
- Rugged 13-ply ultracompact, enclosure
- Constant-directivity 80° x 55° horn
- Professional Neutrik Speakon® paralleled pass-through connectors on both ends of enclosure

Description

The Electro-Voice Xw15 full-range, two-way, floor monitor loudspeaker system is part of the Electro-Voice X-Array™ series and is intended for high-level sound reinforcement in fixed-installation and touring-sound applications. The Xw15 is a full-range biamped floor monitor speaker system which may be used with the Electro-Voice Dx38 digital crossover, the Klark Teknik DN8000 or any high-quality, signal-controller system.

For low-frequencies, the Xw15 uses the EVX155 woofer. The EVX155 features a 4.0-inch voice coil with high-excursion capability for maximum low-frequency output. The cone uses a Kevlar pulp for maximum strength and internal damping.

For high frequencies, the Xw15 uses the DH6, a 1.4-inch-exit variant of the DH1A compression driver designed as part of the Xw15 development. Its unique one-piece geometrically optimized titanium dome and suspension combined with its unusually powerful magnetic motor provide maximum efficiency and precise control of the diaphragm motion.

The compression driver is coupled to an 80° x 55° horn. This flat-front, constant-directivity horn is based on the Electro-Voice HP series, and is geometrically optimized for performance from 1,250-20,000 Hz.

The Xw15 is constructed of 18-mm void-free, 13-ply plywood shell which is extremely rigid. This high-strength enclosure is sprayed with a resilient, textured black finish for a truly professional appearance. The end-mounted, recessed handle makes transportation relatively easy.

Applications

The Xw15 loudspeaker system is ideal for use as a professional touring or installation floor monitor where extremely high power and low distortion, as well as accurate vocal coverage and maximized intelligibility are required from a system housed in a compact, low-profile enclosure. The EVX-155 woofer offers a significant increase in LF output capability compared to typical floor-monitor designs. Its symmetrical design will allow two monitors to be placed head to head so that the high-frequency horns are coupled for high-level large stage applications. The Xw15 and associated controller combinations are recommended for full-range applications requiring maximum low-frequency output down to 50 Hz.

Power-Handling Test

Electro-Voice components and systems are manufactured to exacting standards to ensure reliability in continuous use in ardu-

ous real-life conditions. Besides utilizing industry-standard power tests, extreme in-house power tests which push the performance boundaries of the loudspeakers are also performed for an extra measure of reliability. The Xw15 systems are rated per ANSI/EIA RS-426-A 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 Dx38 digital electronic unit was used to provide the necessary crossover filters and equalization during power testing. Specifically, the Xw15 passes the ANSI/EIA RS-426-A power test with the following test parameters:

Low-Frequency Section:

$P_{E(MAX)}$:	600 watts
Test Voltages:	58.7-volts rms 117.5-volts peak
$R_{SR}(1.15 R_E)$:	5.75 ohms

High-Frequency Section:

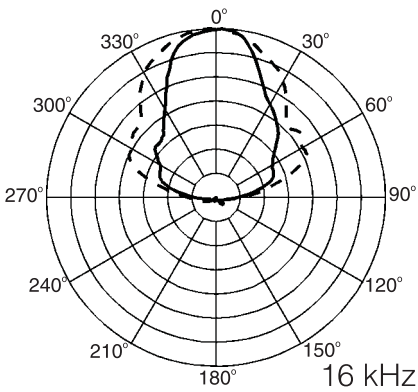
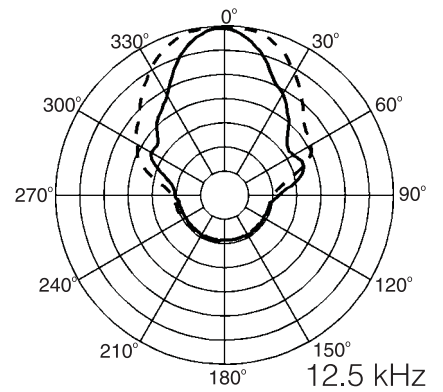
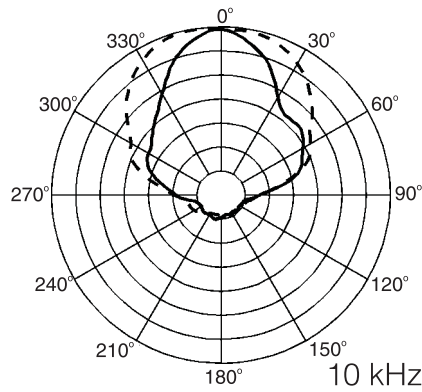
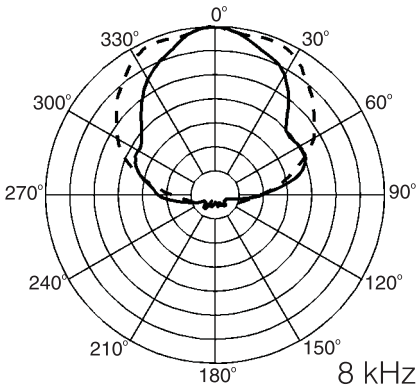
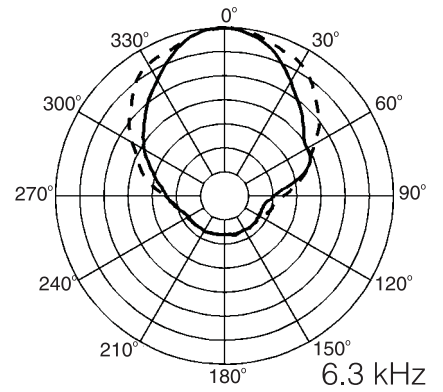
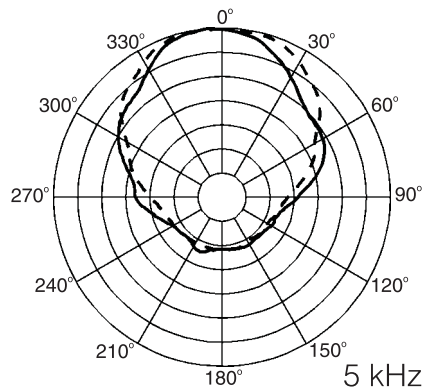
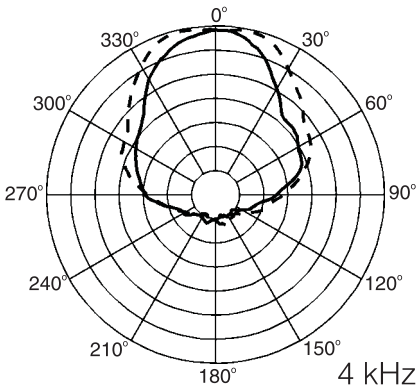
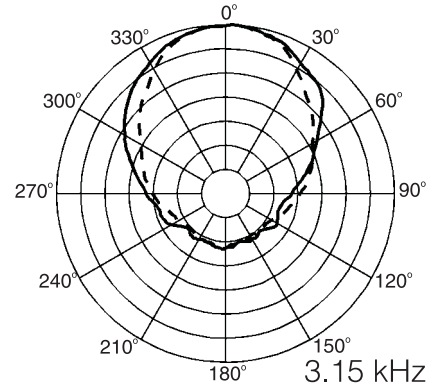
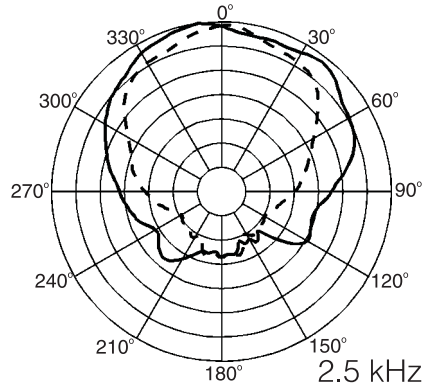
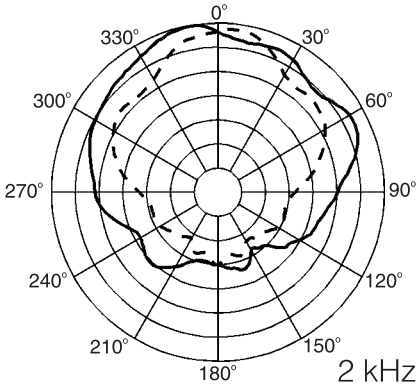
$P_{E(MAX)}$:	75 watts
Test Voltages:	28.0-volts rms 54.0-volts peak
$R_{SR}(1.15 R_E)$:	10.5 ohms

Crossover, Equalization and Time-Delay Controller

The Xw15 speaker system was designed as an integrated package that utilizes

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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 Dx38 digital electronic unit was used to provide the necessary crossover filters, equalization and time delay. One watt of power (2.83 volts rms at 400 Hz) was applied to the midband of the low-frequency section. The sound-pressure level was normalized for an equivalent one meter distance.

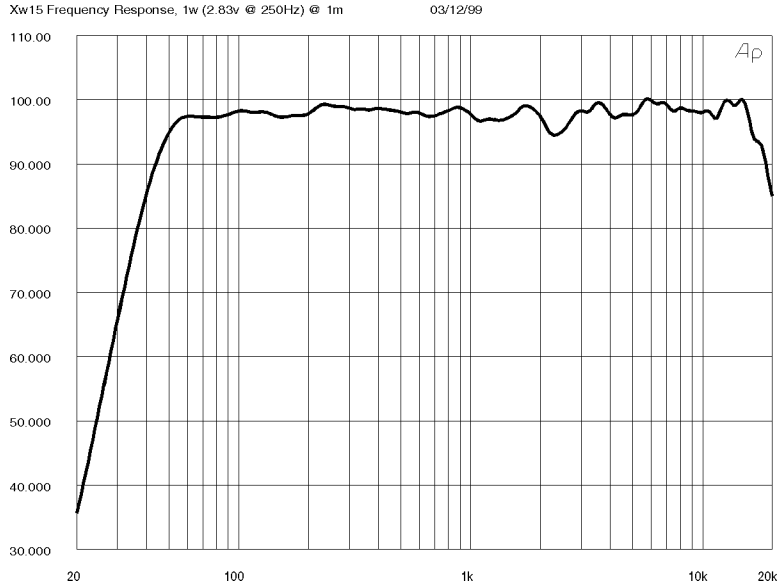


Figure 3—Beamwidth

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

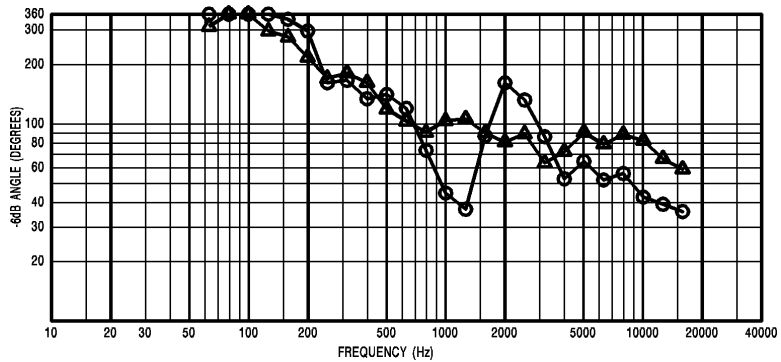
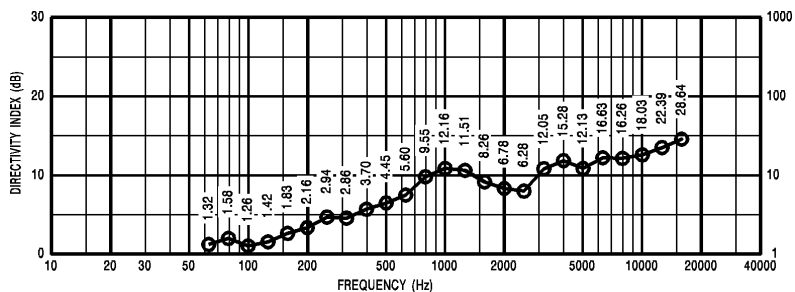


Figure 4—Directivity

The directivity index, D_i , and directivity factor $R_0(Q)$, of the system were measured with a full spherical measurement system as described for the "Polar Response."



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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 Dx38 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.

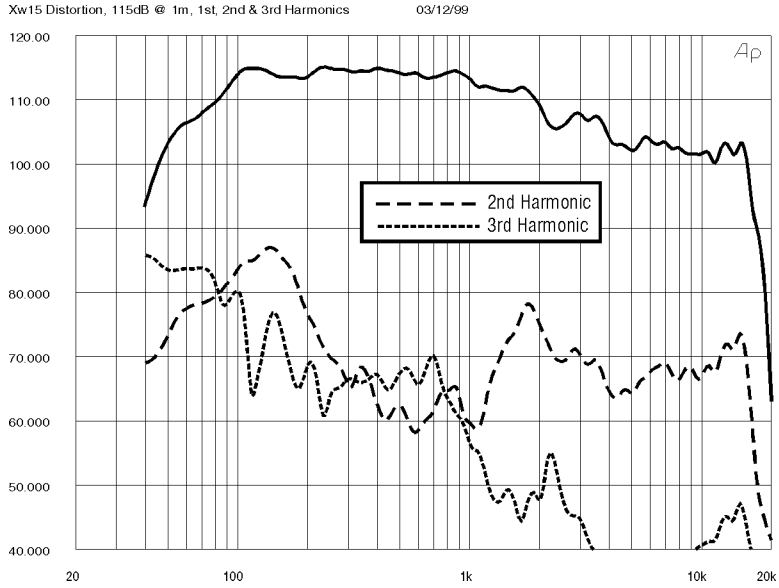


Figure 6—Impedance

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

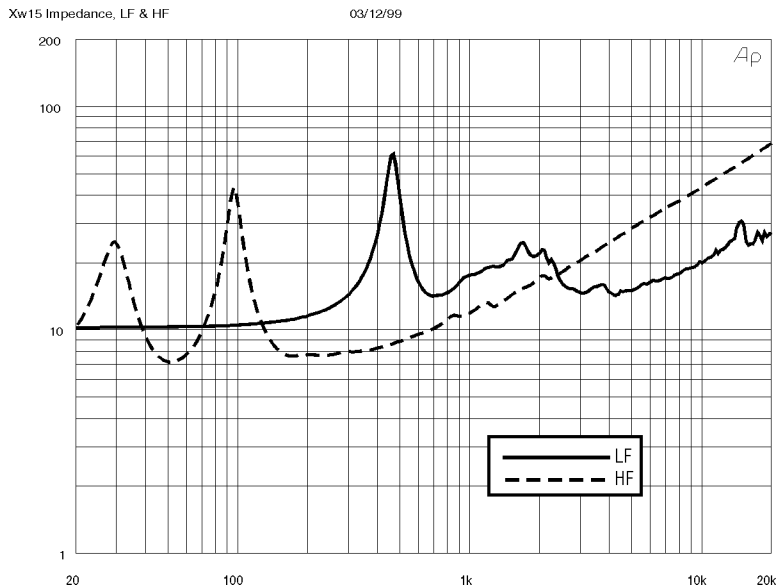
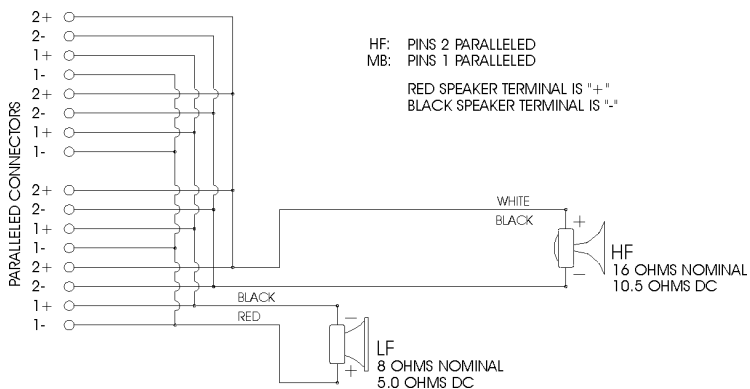


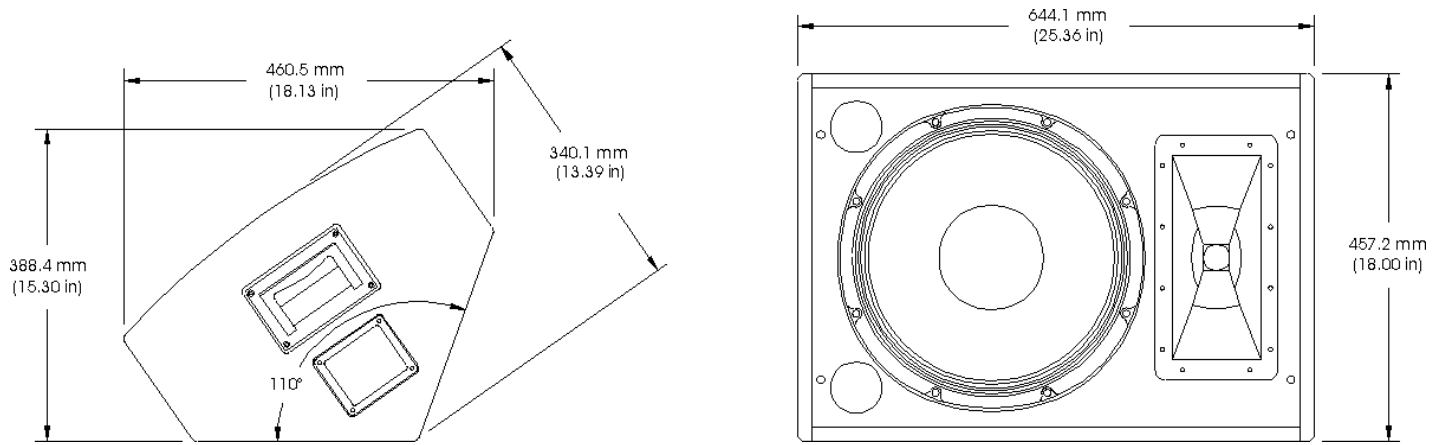
Figure 7—Wiring

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



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Figure 8—Dimensions



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Specifications

Frequency Response (measured in far field, calculated to one meter on axis, swept sine wave, one watt into LF section 2.83 V at 400 Hz, anechoic environment; see Figure 2):

50-16,000 Hz

Crossover Frequency:

1,250 Hz

Efficiency, LF/HF:

4.2/25 %

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

600/75 watts

Maximum Long-Term-Average Midband Acoustic Output, LF/HF:

25/19 acoustic watts

Sensitivity (SPL at one meter, indicated input power, anechoic environment, average level), LF/HF,

1/1 watt:

99.0/110.0 dB

600/75 watts:

126.8/128.8 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, 1,200-16,000 Hz:

80° (+25°, -21°)

Vertical, 1,200-16,000 Hz:

55° (+90°, -18°)

Directivity Factor, R_0 (Q), 1,200-16,000 Hz Average (see Figure 4):

14.3 (+14.3, -8.1)

Directivity Index, D_i , 1,200-16,000 Hz Average (see Figure 4):

11.6 dB (+3.0 dB, -3.6 dB)

Distortion (115 dB SPL at one meter, shaped spectrum; see Figure 5),

Second Harmonic,

100 Hz:

3.0 %

500 Hz:

0.3 %

2,000 Hz:

2.0 %

5,000 Hz:

1.3 %

Third Harmonic,

100 Hz:

2.0 %

500 Hz:

0.5 %

2,000 Hz:

<0.1 %

5,000 Hz:

<0.1 %

Transducer Complement,

HF:

DH6 driver, HP-type 80°x 55° horn

LF:

EVX155 15-in. woofer

Impedance (see Figure 6),

Nominal, LF/HF:

8/16 ohms

Minimum, LF/HF:

7.2/14.3 ohms

Input Connections:

Two Neutrik NL4MPR Speakon® connectors paralleled on each side of enclosure

Recommended Amplifier Power,

HF:

600 watts/channel @ 8 ohms

LF:

800 watts/channel @ 8 ohms

Enclosure Construction,

Enclosure Shell:

18-mm, 13-ply flat birch plywood

Finish:

Black textured paint

Grille:

14-gauge perforated steel

Dimensions,

Height (front):

457.2 mm (18.00 in.)

Height (profile):

388.4 mm (15.30 in.)

Width:

644.1 mm (25.36 in.)

Depth (overall):

340.1 mm (13.39 in.)

Depth (profile):

460.5 mm (18.13 in.)

Angle:

110° wedge

Net Weight:

31.8 kg (70 lb)

Shipping Weight:

34.9 kg (77 lb)

Electro-Voice®

12000 Portland Avenue South, Burnsville MN 55337

952/884-4051, 952/884-0043 Fax

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SPEAKERS—X-Array™

Part Number 535556 Rev. B—0238