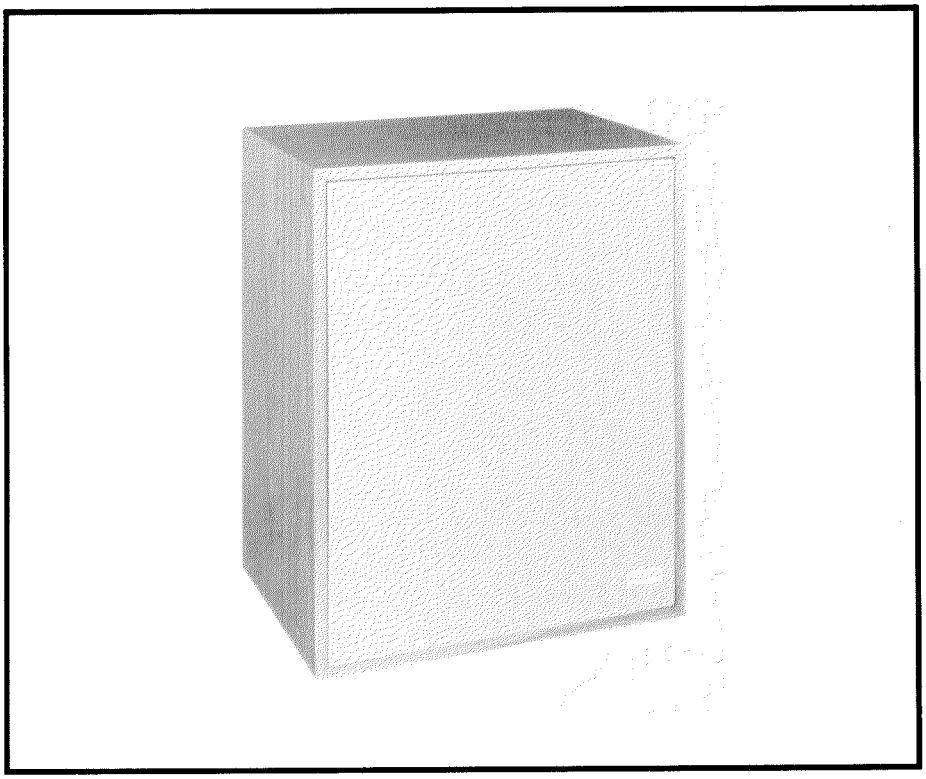

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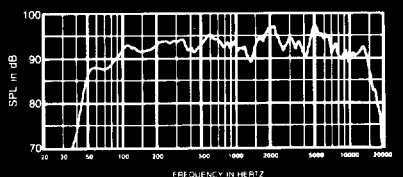

FIGURE 1 — Axial Frequency Response 4 volts/10 feet

# Model FR300
## Three-Way High-Level Speaker System

SPECIFICATIONS

Frequency Response, 10 Feet on Axis, Swept Sine Wave, Half-Space Anechoic Environment (see Figure 1):
38-16,000 Hz ±3 dB

Usable Frequency Response:
33-18,000 Hz

Half-Space Reference Efficiency:
4.5%

Long-Term Average Power Handling Capacity per EIA Standard RS-426A (see Power Handling Capacity section):
200 watts

Sound Pressure Level at 1 Meter, 1 Watt Input, Anechoic Environment, Band-Limited Pink Noise Signal, 300-2,000 Hz:
100 dB

Dispersion Angle Included by 6 dB Down Points on Polar Responses, Horizontal and Vertical Planes, Indicating One-Third-Octave Bands of Pink Noise (see Figure 3),
250-500 Hz:
130° ±30°
500-20,000 Hz:
110° ±60°

Directivity Factor $R_\theta$ (Q), 800-16,000 Hz Median (see Figure 4):
8.1 (+7, −5.5)

Directivity Index $D_i$, 800-16,000 Hz Median (see Figure 4):
9.1 dB (+2.7 dB, −4 dB)

Distortion, 0.1 Full Power Input (see Figure 5),
Second Harmonic,
100 Hz: <1%
1,000 Hz: <1%
10,000 Hz: <3%
Third Harmonic,
100 Hz: 2%
1,000 Hz: 3%
10,000 Hz: 5%

Distortion, 0.01 Full Power Input (see Figure 6),
Second Harmonic,
100 Hz: <1%
1,000 Hz: <1%
10,000 Hz: 2%
Third Harmonic,
100 Hz: <1%
1,000 Hz: 1%
10,000 Hz: <1%

Transducer Complement:
High Frequency:
ST350B
Mid Frequency:
Vented Midrange
Low Frequency:
EVX-15

Box Tuning Frequency:
40 Hz

Crossover Frequencies:
600 Hz and 4,000 Hz

Crossover Slope:
12 dB per octave

Impedance,
Nominal:
8 ohms
Minimum:
4.7 ohms

Input Connections:
Screw terminals (#8-32) on barrier strip

Enclosure Materials and Colors:
Oak-grain vinyl on particle board with beige cloth grille

Mounting:
Hanging via eight $\frac{5}{16}$-18 threaded inserts

Dimensions:
78.1 cm (30.75 in.) high
63.5 cm (25 in.) wide
45.7 cm (18 in.) deep

Net Weight:
50 kg (110 lb)

Shipping Weight:
54 kg (118 lb)

DESCRIPTION

The Electro-Voice FR300 is a three-way, high-efficiency speaker system designed for indoor sound reinforcement in commercial installations, such as churches, meeting halls, and small auditoriums. It combines professional quality components, highlighted by the VMR® vented midrange speaker, with a Thiele-Small aligned vented enclosure for extended low bass. The result is clear and articulate high-quality sound.

The high-frequency section of the FR300 employs the ST350B constant-directivity tweeter featuring wide and uniform high-frequency coverage coupled with an auto-limiting protection circuit.

The midrange is the EV VMR speaker built with a high-efficiency flat wire coil and high temperature construction materials.

The bass section of the FR300 is designed using Thiele-Small parameters for efficient performance to below 40 Hz. The 15-inch

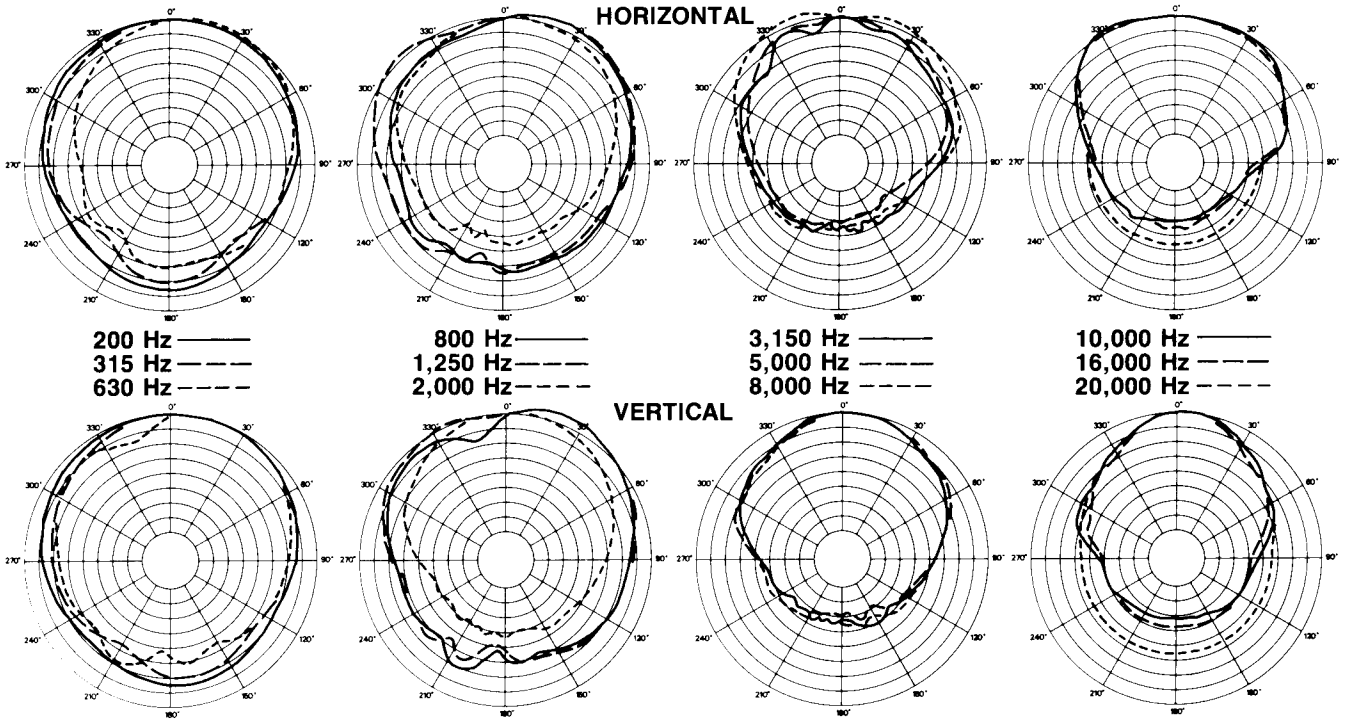


**FIGURE 2 — Polar Response (⅓-octave pink noise 4 volts/10 feet)**

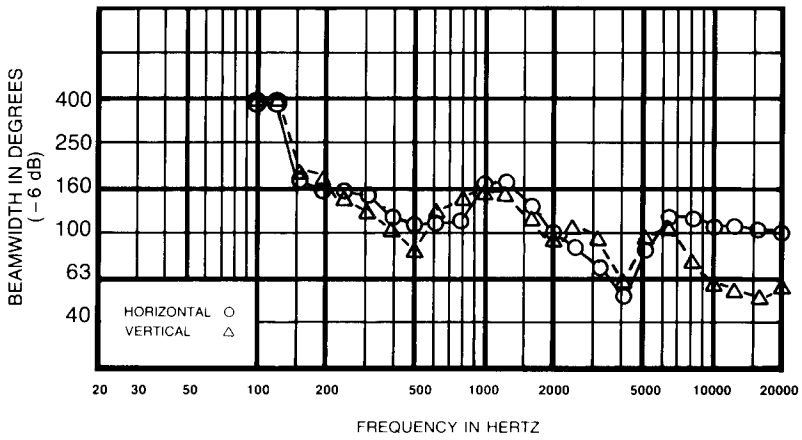


**FIGURE 3 — Beamwidth vs Frequency Whole Space (anechoic)**

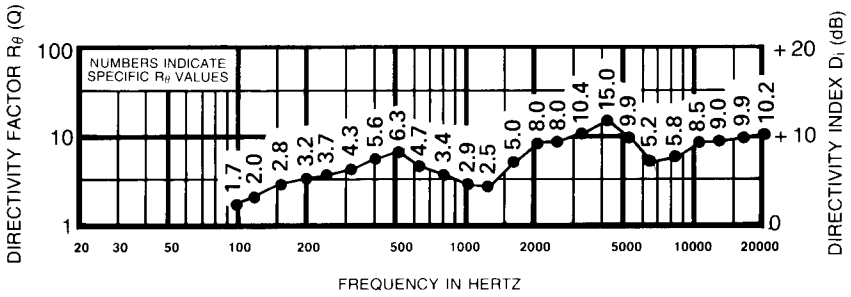


**FIGURE 4 — Directivity vs Frequency Whole Space (anechoic)**

woofer used in the system is an EVX-15 unit featuring beryllium copper lead wire and an extended length, edgewound voice coil protected by the unique EV Thermo Inductive Ring (TIR™). The part of the magnetic structure adjacent to the coil is insulated, using the exclusive EV PROTEF™ process. The coil is driven by a massive (16-lb) magnetic structure.

### THE VENTED MIDRANGE

An unusual feature of this system is the vented midrange used to bridge the frequency region between the specialized EVX woofer and the ST350B tweeter. This EV innovation represents a unique way of providing high acoustic output and efficiency from a compact direct-radiator form of loudspeaker. It is capable of providing large amounts of acoustic output from a small package that can be gracefully integrated into a medium-sized loudspeaker system. It does so without having the "honky" sound quality and upper-range beaminess often associated with small-format horn transducers used to cover midrange frequencies with a bandpass below 1,000 Hz.

### ENCLOSURE CONSTRUCTION

The FR300 cabinet is wood-grain (vinyl wrapped) particle board with beige cloth stretched over a plywood frame. This oak-grain vinyl enclosure with detachable beige grille avoids the "utility" appearance of separate components, with colors and styling that complement most interiors. In addition, the grille cloth may be easily removed from the grille frame and replaced when a custom cloth color is required.

### FREQUENCY RESPONSE

The combination of the 15-inch woofer, vented midrange, and high-frequency tweeter provide the wide and smooth overall response shown in Figure 1. This response was measured at ten feet, using a four-volt input in an anechoic chamber and was measured using a sine wave. No external equalization was used.

### DIRECTIVITY

The polar response of the FR300 speaker system at selected ⅓-octave bandwidths is shown in Figure 2. These polar responses were measured in an anechoic environment at ten feet using ⅓-octave pink noise inputs. The frequencies selected are fully representative of the polar response of the system. Beamwidth of the system utilizing the complete ⅓-octave polar data is shown in Figure 3. $R_\theta(Q)$ and directivity index ($D_i$) are plotted in Figure 4.

### POWER HANDLING CAPACITY

To our knowledge, Electro-Voice was the first U.S. manufacturer to develop and publish a power test closely related to real-life conditions. First, we use a random noise input signal because it contains many frequencies simultaneously, just like real voice or instrument program. Second, our signal contains more energy at extremely high and low frequencies than an actual program, adding an extra measure of reliability. Third, the test signal includes not only the overall "long-term average" or "continuous" level — which our ears interpret as loudness — but also short-duration peaks which are many times higher than the

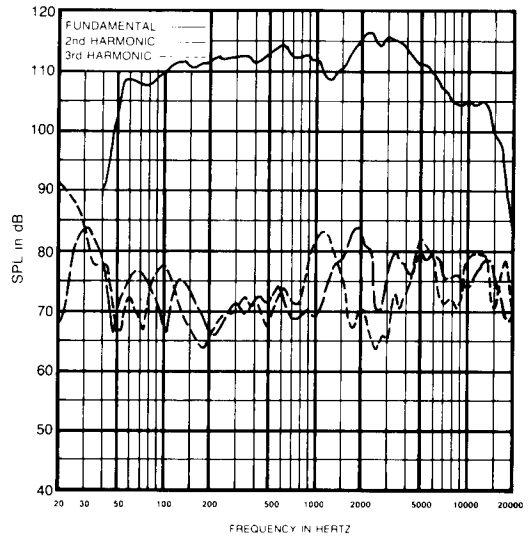


**FIGURE 5 — Harmonic Distortion, 0.1 Rated Power Input, 20 Watts**

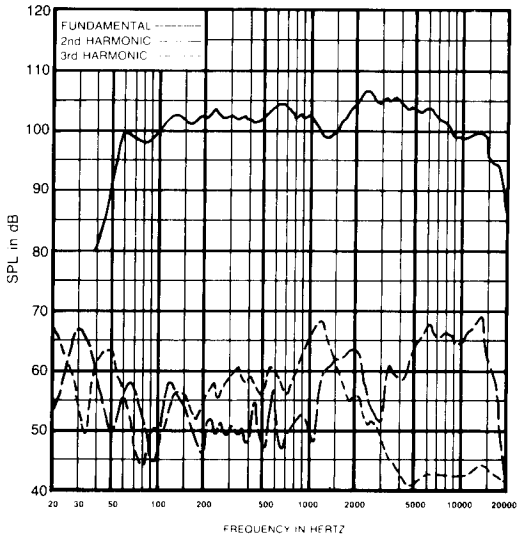


**FIGURE 6 — Harmonic Distortion, 0.01 Rated Power Input, 2 Watts**

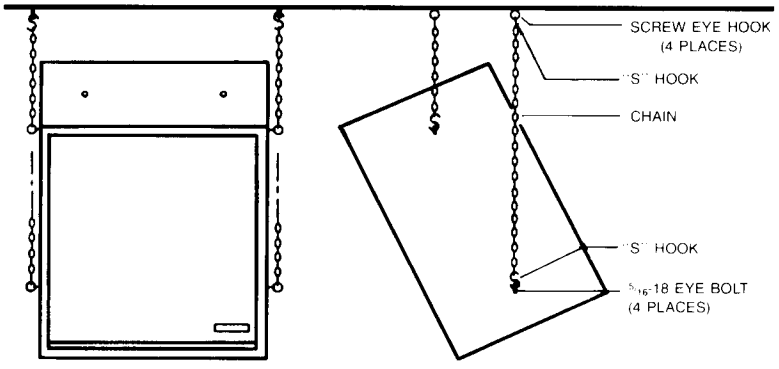


**FIGURE 7 — System Mounting**

type of random noise with equal energy per bandwidth in Hz) is fed to a shaping filter with 6-dB-per-octave slopes below 40 Hz and above 318 Hz. When measured with the usual constant-percentage bandwidth analyzer (one-third-octave), this shaping filter produces a spectrum whose 3-dB-down points are at 100 Hz and 1,200 Hz with a 3-dB-per-octave slope above 1,200 Hz. This shaped signal is sent to the power amplifier with the continuous power set at 200 watts

**WARRANTY (Limited) —**
Electro-Voice Speakers and Speaker Systems (excluding active electronics) are guaranteed for five years from date of original purchase against malfunction due to defects in workmanship and materials. If such malfunction occurs, unit will be repaired or replaced (at our option) without charge for materials or labor if delivered prepaid to the proper Electro-Voice service facility. Unit will be

ELECTRO-VOICE, INC., 600 Cecil Street, Buchanan, M
MANUFACTURING PLANTS AT ■ BUCHANAN, MI ■ NEWPORT, TN ■ SEVIERVILLE, TN