

## **ECS 15-3**

### **Three-Way Stage System**

- **Three-Way compact system with trapezoidal enclosure.**
- **High excursion 15 inch woofer.**
- **Titanium diaphragm high-frequency driver.**
- **300 W power handling capacity.**

#### **SPECIFICATIONS**

**Frequency Response, 10 Feet on Axis, Anechoic Environment,  $\pm 3$  dB:**

62–20,000 Hz

**Low-Frequency -3 dB Point:**

62 Hz

**Usable Low-Frequency Limit, -10 dB Point:**

50 Hz

**Half Space Reference Efficiency:**

4.5%

**Long Term Average Power Handling Capacity:**

300 Watts

**Maximum Woofer Acoustic Output:**

18 Watts

**Sound Pressure Level at 1 meter, 1 Watt Input, Anechoic Environment:**

100 dB

**Dispersion Angle nominal, Horizontal and Vertical:**

500–5000 Hz

120 $\times$ 100 $^\circ$

**Transducer Complement:**

**High-Frequency:**

HT94 Horn

DH2010 Driver

**Mid-Range:**

6 inch Mid-Range

**Low-Frequency:**

Modified DL-15X

**Box Tuning Frequency:**

44 Hz

**Crossover Frequencies:**

600 Hz & 4,000 Hz

**Crossover Slope:**

12-dB-per-octave

**Impedance:**

**Nominal:**

8 Ohms

**Minimum:**

5.0 Ohms

**Input Connections:**

Two Parallel Speakon Connectors

**Material:**

**Enclosure:**

Black carpet covered Road

Wood™

**Grill:**

Black metal grill, removable

**Optional Accessories:**

Model 100 BK Speaker Stand

**Dimensions:**

89.5 cm (35.2 in) high

47.0 cm (18.5 in) wide

43.5 cm (17.1 in) deep

**Net Weight:**

37.0 kg

**Shipping Weight:**

41.0 kg

#### **DESCRIPTION**

The ECS 15-3 is a 300 Watt three-way, high efficiency stage system. It combines professional quality components in a durable, unusually small enclosure, resulting in a clear and articulate sound. The enclosure is constructed of Road-Wood™, a structural material made of layered and selectively oriented hardwood strands strongly bonded together with phenolic resins. This high-strength shell (U.S. Patent # 4,624,338) is covered with densely woven, abuse-resistant black carpeting.

The high-frequency section of the ECS 15-3 utilizes a 90 $^\circ$  $\times$ 40 $^\circ$  constant-directivity horn driven by a one-inch-throat, wide-bandwidth, titanium diaphragm driver. This driver uses a unique convex drive Time Path™ phasing plug structure (U.S. Patent # 4,525,604) for smooth and extended high-frequency performance. The voice coil is coupled to the diaphragm with EV's exclusive Resonant Drive™ technology (patent pending). This increases and smooths the high-frequency response and reduces the amount of internal equalization required for flat frequency response.

A self-resetting, high-frequency protection circuit has been added to the ECS 15-3 to prevent against accidental overdrive and to improve system reliability. If the input power to the high-frequency driver exceeds the nominal rating, the protection circuit is activated and reduces the power delivered to the driver by 6 dB. The system will remain in this mode of operation until the input power is reduced to a safe level.

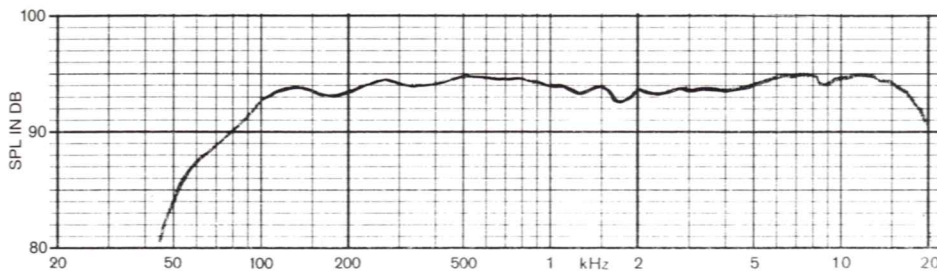


FIGURE 1 – Axial Frequency Response

The bass section of the ECS 15-3 is designed using Thiele-Small parameters for efficient performance to below 60 Hz. The 15-inch woofer is a modified version of the DL 15X unit featuring beryllium copper lead wires with an extended-length edgewound voice coil further 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 (U.S. Patent # 4,547,632). The coil is driven by a massive (16 lb) magnetic structure. A specially designed midrange driver, enclosed in a separate internal enclosure completes the system.

#### ENCLOSURE CONSTRUCTION

The ECS 15-3 enclosure utilizes a structural material that combines the strength of high-quality plywood with the density and acoustic damping of particle board without brittleness. Road-Wood uses the same principle of crossbanding veneers, as in plywood, in order to achieve its very high rigidity. A tough liquid-phenolic resin is blended with long, narrow strands of hardwood. Alternate layers are perpendicularly bonded under intense heat and pressure to form panels of superior uniformity. Unlike many grades of plywood, Road-Wood is dimensionally stable, water-resistant and free from voids.

A combination of dado-cut joints, tough adhesives, and proper bracing ensure a sonically dead enclosure free from panel resonances.

The densely-woven, industrial-grade, abuse-resistant carpeting provides a finish that is both attractive and highly durable. A solidly constructed, one piece, removable metal grill protects the front of the system. Firmly secured rubber feet, and recessed handles complete the enclosure and ensure that the ECS 15-3 speaker system is ideally suited to a long and reliable life «on the road».

#### FREQUENCY RESPONSE

The combination of 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 4-volt input in an anechoic

chamber, and was measured using a swept 1/3-octave signal. No external equalization was used.

#### CONNECTIONS

The ECS 15-3 is equipped with Neutrik Speakon™ NL4MPR connectors. Two connectors are installed in parallel allowing additional ECS 15-3's to be installed. One mating Speakon™ connector NL4FC is supplied with each system. These connectors are locking, self-polarizing and capable of 30 amps rms continuously. Additional connectors and cables can be purchased from your dealer.

#### GRILLE REMOVAL

The grille assembly of the ECS 15-3 is fastened to the enclosure using four sturdy dual-lock fasteners. The grille assembly can be removed quickly and easily, allowing access to the drivers, by firmly pulling on the two black polyester ribbon loops provided.

#### 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 typical actual program, adding an extra measure of reliability. Third, the test signal includes not 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 average, just like the actual program. The long-term average level stresses the speaker thermally (heat). The instantaneous peaks test mechanical reliability (cone and diaphragm excursion). Note that the sine wave test signals sometimes used have a much less demanding peak value relative to their average level. In actual use, long-term average levels exist from several seconds on up, but we apply the long-term average for several hours, adding another extra measure of reliability.

Specifically, the ECS 15-3 is designed to withstand the power test described in the revised

EIA Standard RS-426A. The EIA test spectrum is applied for eight hours. To obtain the spectrum, the output of a white-noise generator (white noise is a particular 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 300 watts into the 7.7 ohms EIA equivalent impedance, (48.1 volts true rms). Amplifier clipping sets instantaneous peaks at 6dB above the continuous power, or 1200 watts peak (96.1 volts peak). This procedure provides a rigorous test of both thermal and mechanical failure modes.

#### WARRANTY (Limited)

Electro-Voice speaker and speaker systems (excluding active electronics) and accessories 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 returned prepaid. Warranty does not cover finish or appearance items or malfunction due to abuse or operation at other than specified conditions. Repair by other than Electro-Voice or its authorized service agencies will void this guarantee.

For shipping address and instructions on return of Electro-Voice products for repair and locations of authorized service agencies, please write:

Service Department, Electro-Voice, Inc.  
600 Cecil Street, P.O. Box 186  
Buchanan, Michigan 49107  
(Phone: 616/695-6831), or  
Electro-Voice West, 8234 Doe Ave.  
P.O. Box 3297, Visalia, CA 93277  
(209/625-1330, -1)

In Europe

Mark IV Audio AG, Keltenstrasse 5  
CH-2563 Ipsach, Switzerland

In Germany

Mark IV Audio  
Hirschberger Ring 45  
D-94302 Straubing

Electro-Voice also maintains complete facilities for non-warranty service.

Specifications subject to change without notice.



## MARK IV AUDIO AG

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