

**ENGINEERING STANDARD**DATE EFFECTIVE
October 30, 1979NUMBER
EST 1151ENGINEERING DESIGN
SPECIFICATION

DATE REVISED

PAGE
1 of 3MODEL NO. E120-8

300 mm Musical Instrument Loudspeaker

Frequency Response: Measured under hemispherical
See attached curve, page 2 free-field conditions

Impedance:
See attached curve, page 2

D.C. Resistance: 6.3 Ohms

Voice Coil: 52 turns, #28 aluminum ribbon wire,
7.366 mm (0.290 in.) axial length
mounted on aluminum/Kapton support

Flux Density: 1.35 T

Free Air Resonance: 60 Hz

Motional Impedance: 70 Ohms

Minimum Impedance: 8.2 Ohms @ 450 Hz

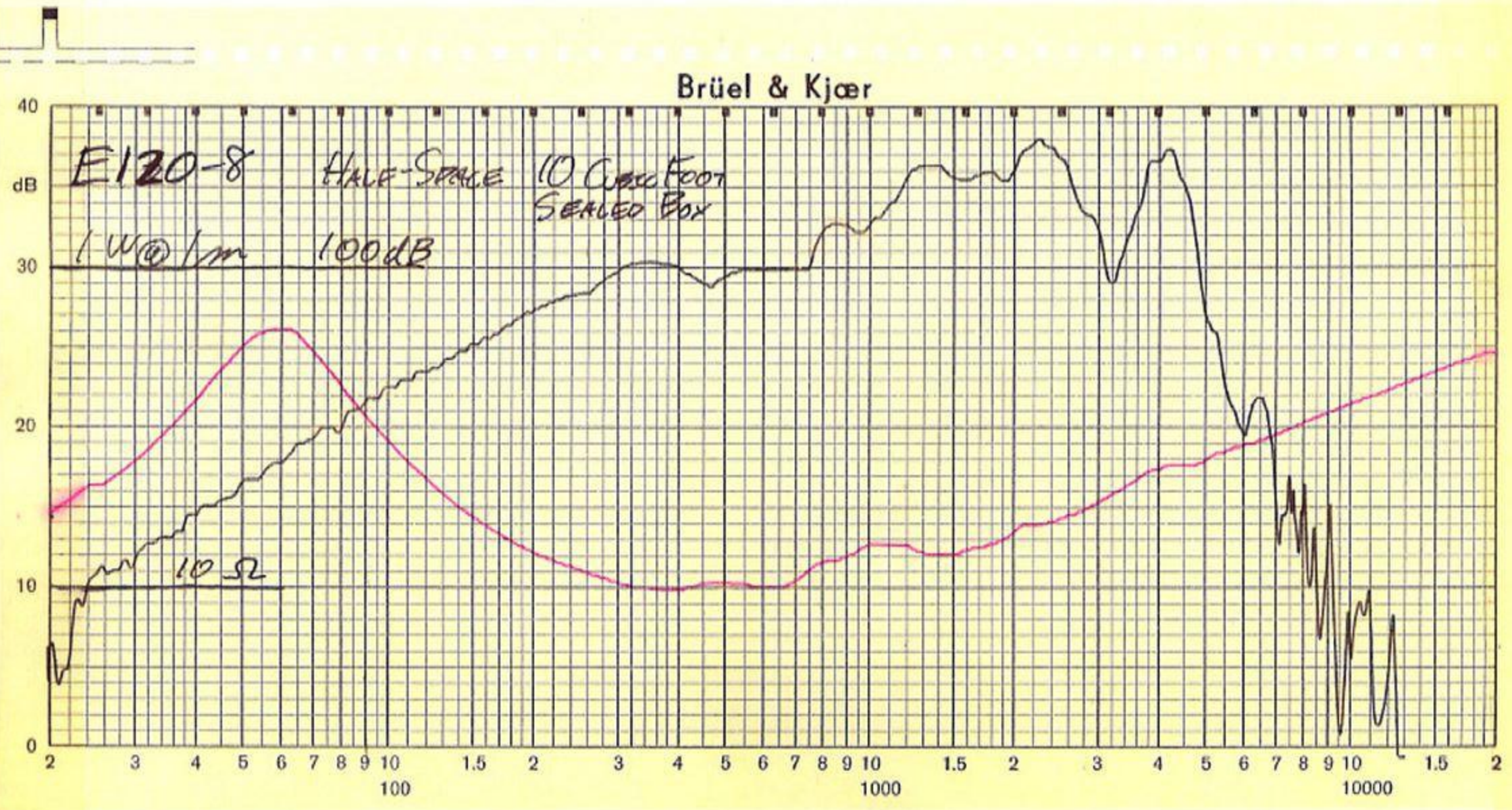
Polarity: Positive voltage to black terminal
gives forward diaphragm motion.

Power Test: 34.5 volts RMS swept 100 Hz to 500 Hz @ 10 Hz
rate one hour duration.

DESIGN ENGINEER


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$$R_E = 6.63 \text{ Ohms} \quad Z_M = 60.91 \text{ Ohms} \quad f_s = 63.30 \text{ Hz} \quad f_c = 60.10 \text{ Hz}$$

$$R_1 = 20.10 \text{ Ohms} \quad f_1 = 26.36 \text{ Hz} \quad f_2 = 137.02 \text{ Hz}$$

$$Q_{TS} = .1792 \quad Q_{MS} = 1.6461 \quad Q_{ES} = .2011$$

$$Z_{MCT} = 63.29 \text{ Ohms} \quad f_{st} = 85.78 \text{ Hz} \quad f_{ct} = 82.83 \text{ Hz}$$

$$R_{1ct} = 20.48 \text{ Ohms} \quad f_{1ct} = 45.95 \text{ Hz} \quad f_{2ct} = 149.30 \text{ Hz}$$

$$Q_{TCT} = .2594 \quad Q_{MCT} = 2.4763 \quad Q_{ECT} = .2898$$

$$V_{AS} = 2.6 \left[\frac{(.2898)(85.78)}{(.2011)(63.30)} - 1 \right] = 2.4766$$

$$n_o = 8.43 \%$$

$$\text{SPL for 1 Watt @ 1m} = 101.41 \text{ dB}$$

$$C_{AS} = 4.94 \times 10^{-7} \text{ m}^5/\text{N}$$

$$S_D = .053 \text{ m}^2$$

$$C_{MS} = 1.76 \times 10^{-4} \text{ m/N}$$

$$M_{MS} = .0360 \text{ kg}$$

$$BI = 21.71 \text{ N/A}$$

$$L = .565 \text{ mH}$$

$$\text{Minimum Impedance } (Z_{min}) = 8.23 \text{ Ohms @ } 460 \text{ Hz}$$