

Professional Series Model 2405 Ultra-High Frequency Transducer

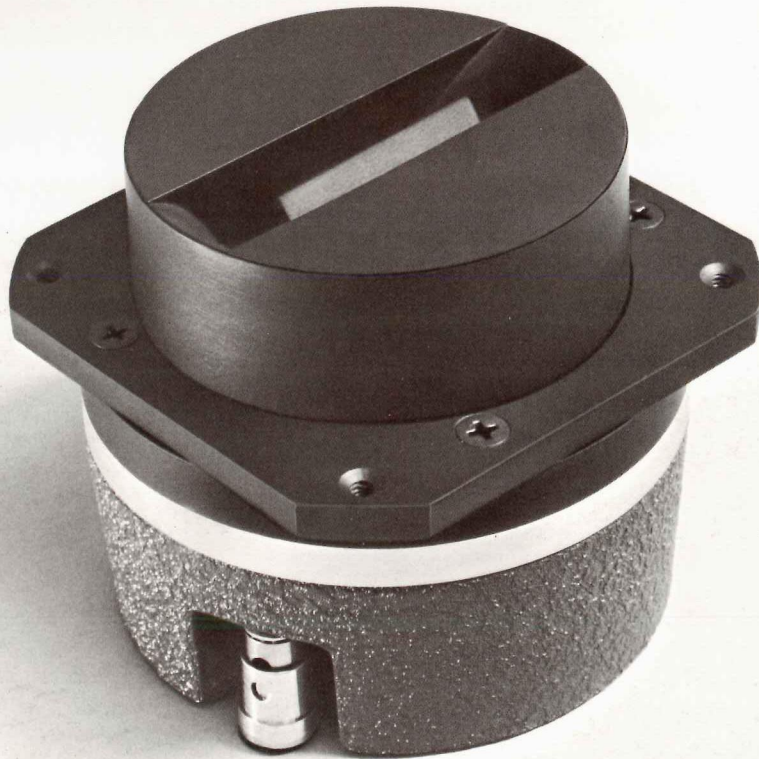
20 watts continuous program

6.5 kHz to 21.5 kHz response

44 mm (1 $\frac{3}{4}$ in) edgewound aluminum ribbon voice coil

105 dB sensitivity, 1 W, 1 m (3.3 ft)

90° x 30° dispersion at 16 kHz



The 2405 is designed for use as the ultra-high frequency driver in a wide range, multi-element loudspeaker system. It features a unique combination of extended frequency response, high efficiency and wide dispersion pattern.

Frequency response extends smoothly from 6500 Hz to beyond the range of human hearing. A unique diffraction horn provides horizontal dispersion that is greater than 90 degrees at 16 kHz and 65 degrees at 20 kHz—far wider than conventional direct radiating loudspeakers of comparable efficiency, regardless of their size. Vertical dispersion pattern is 30 degrees at 16 kHz and 25 degrees at 20 kHz. Dispersion pattern measurements are determined

from the points where level is 6 dB down from the on-axis value using $\frac{1}{3}$ -octave bands of pink noise as the signal source. For a given power input, the 2405 produces an exceptionally high acoustic output, converting a 1-watt input into a sound pressure level of 105 dB at a distance of one meter. At typical monitoring levels, such efficiency allows the 2405 to recreate intense high frequency onsets and transients with outstanding clarity and accuracy.

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The 2405 has a powerful Alnico V magnet housed in a cast iron magnetic circuit. Total weight of this assembly is 1.5 kg (3¼ lb). By precisely machining these and related parts, a flux density of 1.65 tesla (16,500 gauss) in the voice coil gap is realized.

The diffraction horn assembly is die cast of solid aluminum. Internally, the annular voice coil diaphragm is pneumatically formed of fatigue-resistant aluminum alloy. Wire used in the 44 mm (1¼-inch) voice coil is aluminum, milled to a thin ribbon then tightly wound by hand on its narrow edge. This process places a maximum amount of conductor in the magnetic gap for optimum efficiency and transient response.

Architectural Specifications

The transducer shall have a measured sensitivity (SPL at 9.1 m [30 ft] with a 1 mW input, swept from 7000 Hz to 20,000 Hz) of at least 56 dB on-axis. On-axis frequency response measured under free field conditions at a distance of 1.8 metres (six feet) or more shall extend from 7000 Hz to 20,000 Hz within plus or minus 3 dB. Horizontal dispersion shall be uniform at 45 degrees off-axis at 16 kHz and 30 degrees off-axis at 20 kHz, when measured at the 6 dB down points relative to on-axis frequency response characteristics using ½-octave band pink noise as the signal source.

Nominal impedance shall be 16 ohms and power capacity shall be at least 20 watts when driven by pink noise, band-limited from 4 kHz to 20 kHz.

The transducer shall have a maximum diameter of 98 mm (3⅞ inches) and a depth of 83 mm (3¼ inches) and weigh not less than 2 kg (4½ lb). The diffraction horn shall be die cast of aluminum and the magnetic circuit will consist of Alnico V and low-reluctance iron, weighing not less than 1.5 kg (3¼ lb).

Voice coil diameter shall be 44 mm (1¼ inches), operating in a magnetic field whose flux density measures at least 1.65 tesla (16,500 gauss). Voice coil wire shall be aluminum, milled to a ribbon then wound by hand on its narrow edge and mated to an anodized aluminum diaphragm.

The transducer shall be JBL Model 2405.

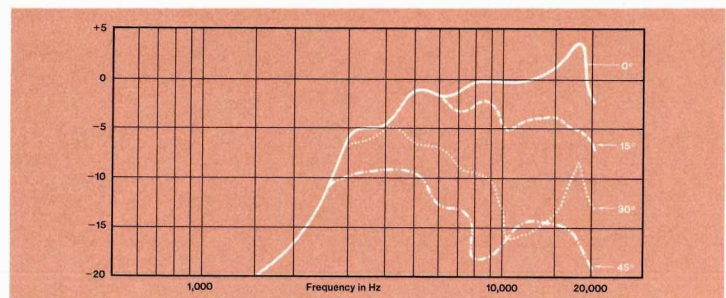
Specifications

Horn Mouth	79 mm x 18 mm	3.125 x 0.725 in
Nominal Impedance	16 Ω	
Power Capacity ¹	20 watts continuous program	
Sensitivity ²		
1 W, 1 m (3.3 ft.)	105 dB SPL	
1 mW, 30 ft. (9.1 m)	56 dB SPL	
Frequency Range	6.5 kHz to 21.5 kHz	
Dispersion ³		
(6 dB down points, ½-octave band, pink noise)	90° horizontal x 30° vertical at 16 kHz	
	65° horizontal x 25° vertical at 20 kHz	
Recommended Crossover	7 kHz or higher	
Diaphragm	0.05 mm (0.0022 in) aluminum alloy	
Voice Coil Diameter	44 mm	1¼ in
Voice Coil Material	Edgewound aluminum ribbon	
Magnetic Assembly Weight	1.5 kg	3¼ lb
Flux Density	1.65 T (16,500 gauss)	
Baffle Cutout Diameter	79 mm	3⅞ in
Dimensions	98 mm (3⅞ in) diameter	
	83 mm (3¼ in) depth	
Net Weight	2.0 kg	4½ lb
Shipping Weight	2.4 kg	5¼ lb

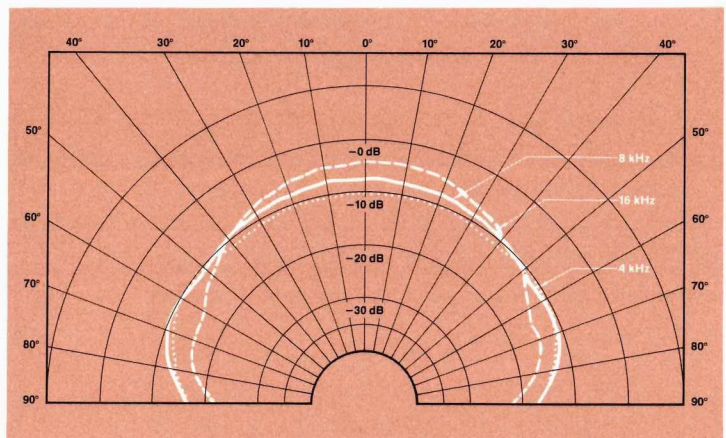
¹Continuous program power is defined as 3 dB greater than continuous sine wave power (RMS). It is a conservative expression of the transducer's ability to handle normal speech and music program material.

²Sensitivity measured with an input swept from 7000 to 20,000 Hz.

³Widest dispersion is in the plane perpendicular to the length of the horn opening.



Vertical dispersion of the 2405.



Polar response of the 2405 in the horizontal plane, measured with ½-octave band pink noise in a free-field environment.

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