JBL

2402H Ultra-High Frequency Transducer

Professional Series

Key Features:

▶ 40 W continuous program

▶ 2.5 - 15 kHz response

▶ 44 mm (1¾ in) aluminum ribbon voice coil

▶ 110 dB sensitivity, 1 W, 1 m

▶ 40° conical dispersion at 10 kHz

Sound reinforcement applications demand loudspeakers with high acoustic output and controlled dispersion. The JBL Model 2402H ultra-high frequency transducer is engineered to meet these demands, providing tight pattern control, deep penetration, and extremely high on-axis sensitivity. The high end of the audio spectrum is reproduced with incredible clarity and crispness – all the realism a performer could desire.

Frequency response extends smoothly from 2.5 kHz to 15 kHz. A circular exponential horn assembly provides a dispersion pattern that is 40° conical at 10 kHz. For a given power input, the 2402H produces an exceptionally high acoustic output, converting a 10 W input into a sound pressure level of 100 dB at a distance of 10 m (33 ft). Such efficiency allows the 2402H to re-create intense high frequency onsets and transients with outstanding clarity and accuracy.

The 2402H utilizes an anisotropic strontium ferrite magnet, manufactured using a wet-pressed forming process. The benefits of this technology are better temperature stability, resistance to demagnetization, reduction in weight over typical ferrite material, and the highest performance on an actual production basis. A flux density of 1.75 T (17,500 gauss) in the voice coil gap is realized.

Specifications:

Horn Mouth Diameter:	79 mm (3⅛ in)
Nominal Impedance:	8 Ω
Minimum Impedance:	8 Ω at 2.5 kHz
DC Resistance:	6.25 Ω ± 10% @ 25°C
Power Capacity[1]:	40 W continuous program
Sensitivity[2]:	110 dB, 1 W, 1 M (3.3 ft)
Frequency Response (±3 dB):	3 kHz to 15 kHz
Frequency Range (−10 dB):	2.5 kHz to 15 kHz
Dispersion:	40° conical at 10 kHz
Recommended Crossover:	2.5 kHz or higher
Diaphragm:	0.056 mm (0.0022 in) aluminum alloy
Voice Coil Diameter:	44 mm (1¾ in)
Voice Coil Material:	Aluminum ribbon
Magnetic Assembly Weight:	1.9 kg (4⅛ lb)
Flux Density:	1.75 T (17,500 gauss)
Baffle Cutout Diameter:	79 mm (3⅛ in)
Dimensions:	121 mm diameter (4¾ in) 98 mm depth (3⅞ in)
Net Weight:	2.3 kg (5 lb)
Shipping Weight:	2.6 kg (5¾ lb)

[1]Continuous program is defined as 3 dB greater than continuous pink noise and is a conservative expression of the transducer's ability to handle normal speech and music program material. Continuous pink noise power ratings are tested with pink noise input having a 6 dB crest factor, with a high-pass filter set at the specified lower limiting frequency for two hours duration.

[2]Averaged from 5 kHz to 20 kHz.

The circular exponential horn assembly is die cast of solid aluminum. Internally, the annular diaphragm is pneumatically formed of fatigue-resistant aluminum alloy. Wire used in the 44 mm (1¾ in) voice coil is aluminum, milled to a thin ribbon. This process places a maximum amount of conductor in the magnetic gap for optimum efficiency and transient response.

The use of high-temperature voice-coil former materials and adhesives has improved the power handling and ruggedness of the drivers.

Architectural Specifications:

The transducer shall have a measured sensitivity (SPL at 1 m with a 1 W input swept from 5 kHz – 20 kHz) of at least 110 dB on axis. On-axis frequency response measured under free-field conditions at a distance of 1.8 m (6 ft) or more shall extend from 3 kHz to 15 kHz, within plus or minus 3 dB. Dispersion shall be 40° conical at 10 kHz, when measured at 6 dB down points relative to on-axis frequency response charactistics using ⅓-octave band pink noise as the signal source.

Nominal impedance shall be 8 Ω and the power capacity shall be at least 20 W when driven by pink noise, band-limited from 6 kHz to 20 kHz.

The transducer shall have a maximum diameter of 121 mm (4¾ in), a depth of 98 mm (3⅞ in) and weigh not less than 2.3 kg (5 lb).

The exponential horn shall be die cast of aluminum and the magnetic circuit shall weigh not less than 1.9 kg (4⅛ lb).

Voice coil diameter shall be 44 mm (1¾ in) operating in a magnetic field whose flux density measures at least 1.75 T (17,500 gauss). Voice coil wire shall be milled aluminum ribbon.
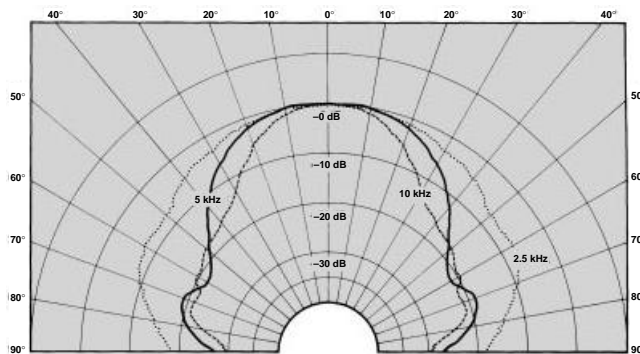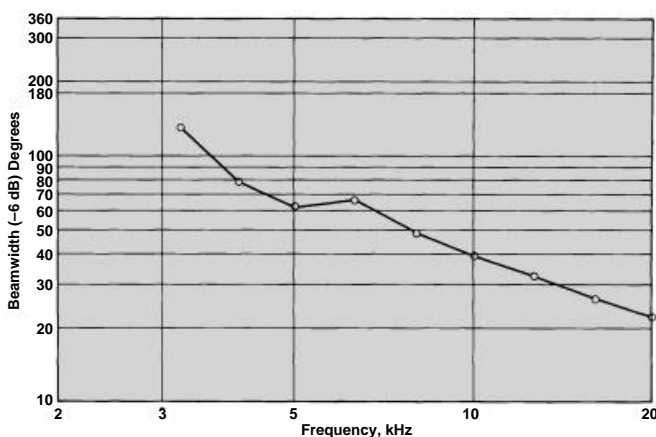
The transducer shall be JBL Model 2402H.

Frequency response of the 2402H, measure on axis.
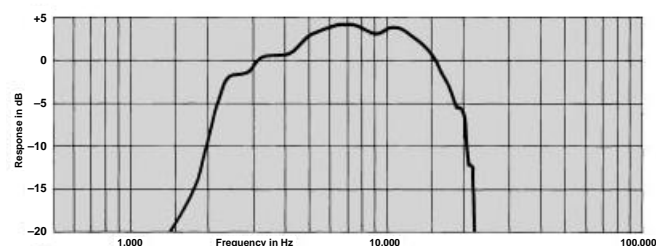
Beamwidth vs. Frequency

Polar response of the 2402H in the horizontal plane, measured with ⅓-octave band pink noise in a free-field environment. The curves were traced by an automatic recorder. Power fed to the 2402H was adjusted to provide the same 0 dB reference for each curve.