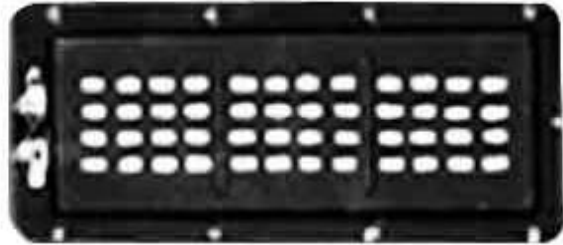


# NEO8 *A High Performance Wideband, Planar-Magnetic Transducer*

## Product Description

The NEO8 is the first planar-magnetic (ribbon) transducer that uses an innovative high-tech diaphragm material called Kaladex<sup>®</sup> from Dupont. This material, combined with a new proprietary technology for etching the aluminum/Kaladex<sup>®</sup> laminate, makes it possible to overcome the usual limitations of previous generation planar-magnetic designs. Traditionally most planar drivers were built using a Mylar<sup>®</sup> diaphragm but Kaladex<sup>®</sup> has a much higher thermal limit, lower mass, better durability and mechanical stability. As a result, the NEO8 has both higher sensitivity and power handling as well as excellent sound quality. The careful design and unique assembly technology employed by the NEO8 allow for more extended high frequency output, less distortion and higher dynamic range than with few other planar drivers of similar size.



The NEO8 has a push-pull symmetrical magnet system that has been designed with the help of Finite Element Analysis software to achieve optimum efficiency/cost performance. It uses the newest grades of neodymium—the “super” magnet material with the highest magnetic energy. The extremely light Kaladex<sup>®</sup> diaphragm with an etched planar aluminum conductor is suspended in a magnetic field and is uniformly driven by the electromagnetic force providing accurate and immediate reproduction of the input signal. There are no heavy voice coils, spiders, glue joints, paper cones and surrounds. Hence there is no cone break-up resonance, distortion, phase incoherency or signal smearing that is common for conventional drivers. With the NEO8 there is virtually nothing between the electrical signal and the sound—just an almost weightless diaphragm. No other commercially available loudspeaker transducer is so pure and so “minimalistic”. No wonder the NEO8 delivers clean, airy, transparent sound that is inherently natural and musically pleasing.

The purely resistive impedance of the NEO8 makes an easy load for a power amplifier and greatly facilitates crossover design. The magnet system is completely shielded for safe implementation in multimedia and AV systems. The NEO8 is a very versatile driver and its applications are limited only by the designer’s imagination.

Objective measurements of the NEO8 illustrate some of the unique features of this driver that contribute to the “magic” that lies behind its sound.

Fig.1 shows a family of curves representing (from top to bottom) on-axis, 30° off-axis, and 60° off-axis response of the NEO8 measured as a dipole (without baffle or rear enclosure) at 1 metre for a 2.83V input. It is evident that the superior dispersion uniformity up to 7 kHz will allow the NEO8 to deliver smooth and balanced sound in a real listening environment. It is necessary to stress that using the NEO8 as a dipole (without any rear enclosure) may require some signal equalization at lower frequencies, since a dipole exhibits a natural roll-off. In some applications where flat on-axis response is desirable, the use of a notch filter at 12 kHz is recommended; in others correction may not be

necessary, since spatial averaging will provide smoother power response without the 12kHz peak reduction. Line array systems may not need the notch filter due to specifics of acoustical coupling in these systems. The notch filter schematic is given at the end of this document.

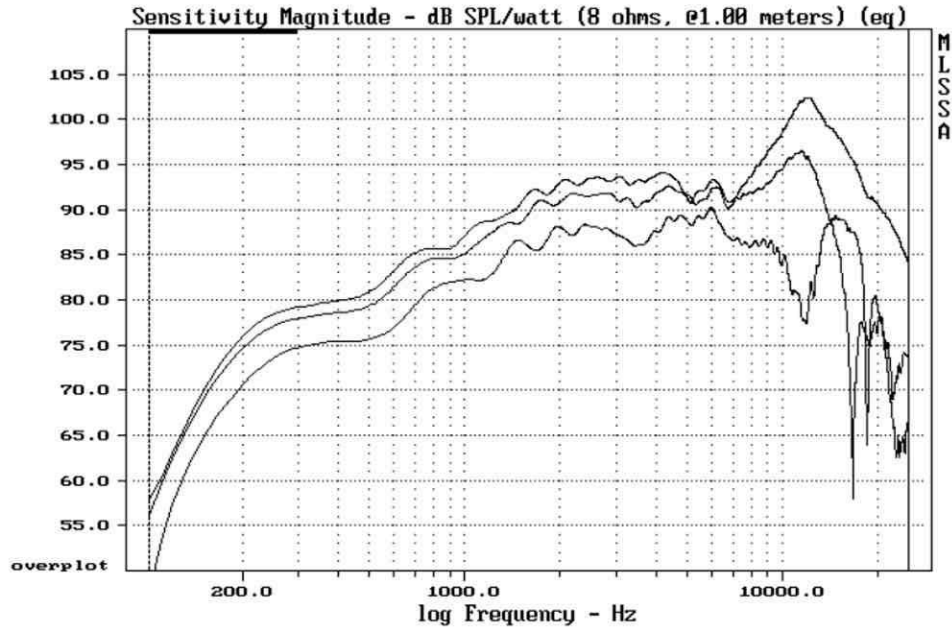


Fig.1 Neo 8 SPL on-axis, 30° off-axis, 60° of-axis

Fig2. shows the effect of small baffle loading. This condition is close to a typical system or situation when the transducer is a part of matrix panel combining multiple drivers. Top curve—the NEO8 in the center of 9”x 9” baffle, middle curve - the NEO8 with 9”x 4.5” baffle from one side, bottom curve—the NEO8 without a baffle. It is worthwhile to note that a carefully designed rear enclosure provides additional equalization at the low end of the reproduced frequency spectrum.

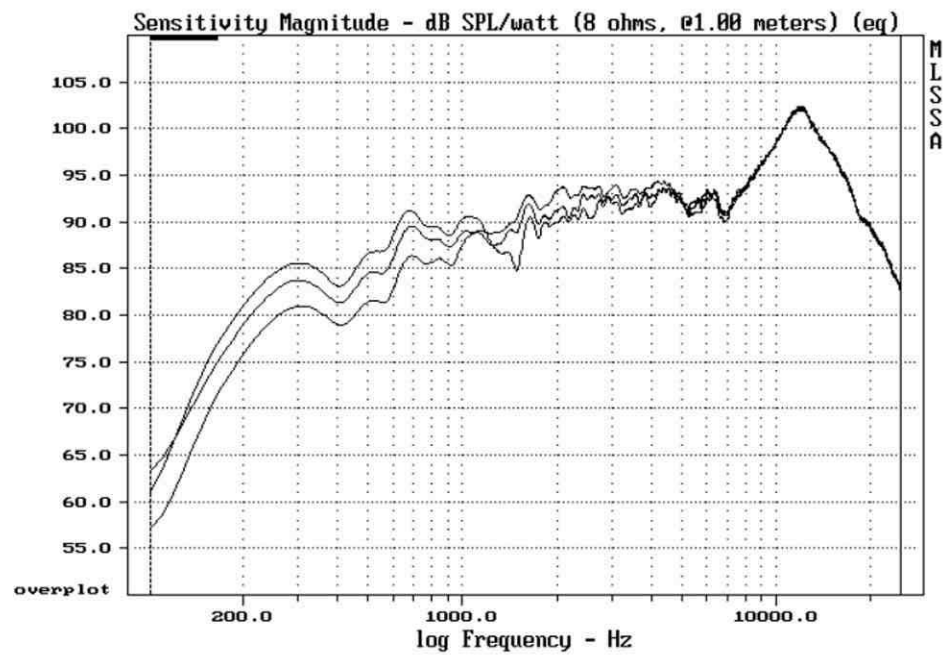


Fig.2 Neo8 SPL under different loading conditions

Fig.3 shows the Cumulative Decay Spectrum (CDS) plot of the NEO8. Even the best conventional transducers have decay times in the critical midrange region around 1.5–2ms (-20dB level drop) extending to 3-4 ms in lower frequencies. The NEO8 has a decay time of about 0.5ms across its entire effective range down to human voice fundamental frequencies. The absence of complex mechanical parts, common for a conventional driver, allows the NEO8 to perform free of delayed spectral contamination. This explains the NEO8’s unsurpassed clarity and the superb intelligibility of voice reproduction.

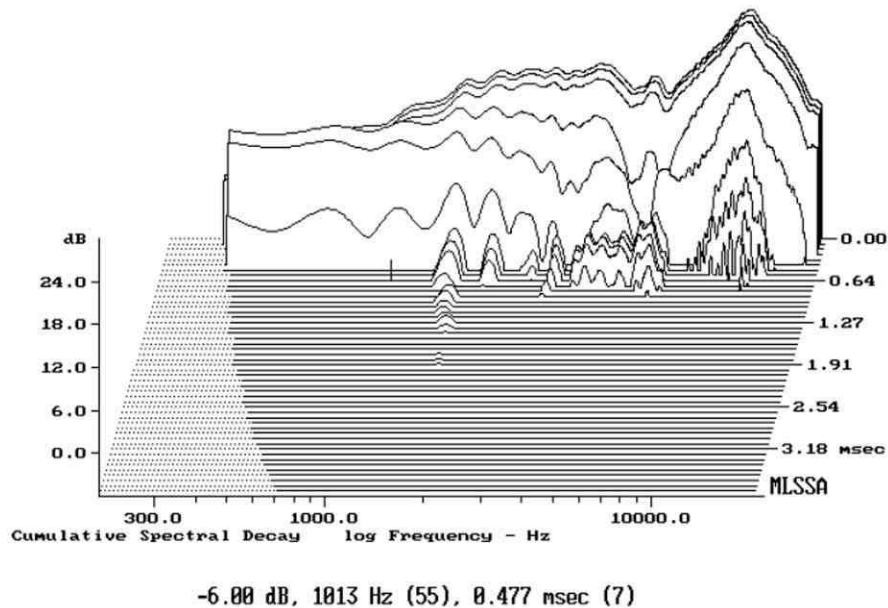
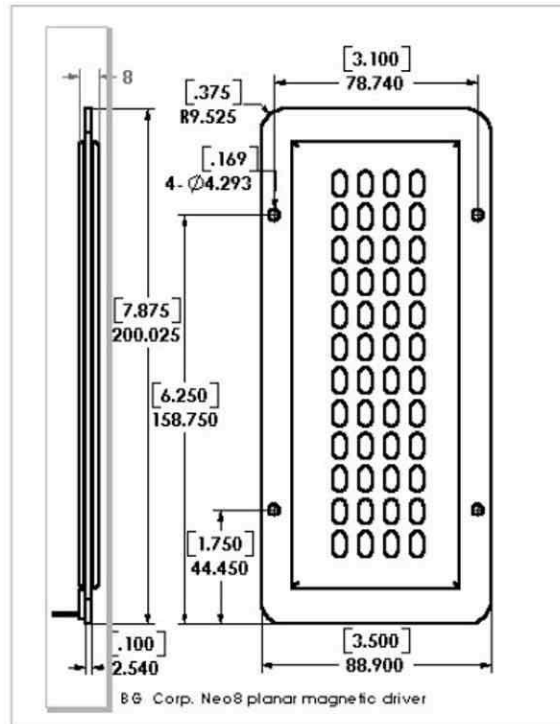
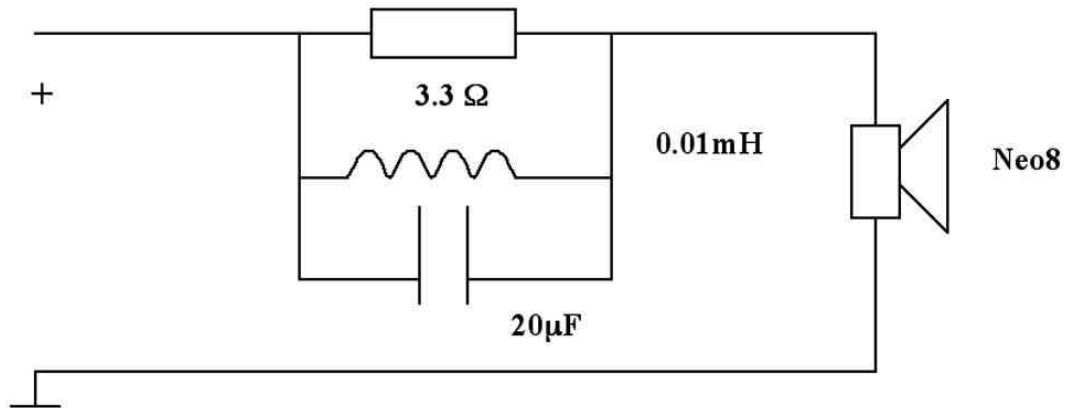


Fig.3 Neo8 cumulative decay spectrum

| SPECIFICATIONS  |                   |
|---|-------------------|
| 1 Effective frequency range   | 200Hz – 20000 kHz |
| 2 Recommended LF crossover<br>multimedia and mini systems<br>home theater and hi-fi | 220Hz<br>500 Hz   |
| 3 Sensitivity ( 2.83V/1m,<br>in reference mid band region)                          | 93 dB             |
| 4 Impedance (resistive over entire range)   | 4 ohm             |
| 5 Power handling:<br>Program<br>Peak  | 50 W<br>150 W     |
| 6 Weight  | 350 g             |



**Recommended Notch Filter Schematics**



For more information and technical assistance please contact:  
 B&G Corporation,  
 1780 Forrest Way, Carson City, NV, 89706, USA  
 tel: (775)884-1900, fax: (775)884-1276, www.bgcorp.com