

The LFT-11 Planar Magnetic Multimedia Reference Loudspeaker

Congratulations on purchasing the Eminent Technology LFT-11. The LFT-11 is the most advanced loudspeaker technology available for computer multimedia. With proper care and use, the LFT-11 should last many years. To get the most out of the LFT-11, please read the manual carefully. Do not forget to fill out the warranty form in the back of the manual so we can register your purchase.

UNPACKING

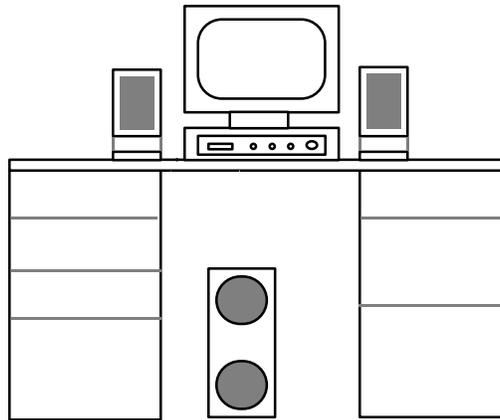
The shipping box should contain a Manual (This document), Woofer Cabinet, Amplifier, Two Planar Desktop Speakers, Monitor Stand, and Connecting Cables. Remove all of the components. Be careful with the speakers in the woofer cabinet making sure that you do not push inward on the speaker cones through the cloth covering as damage could result.

SETTING UP THE LFT-11

The woofer cabinet is designed to be positioned underneath or beside a desk. Ideally it should be positioned on the floor underneath the monitor firing in the direction of the listener however this is not critical to achieve the best performance.

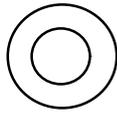
A stand is supplied to provide a location for the amplifier directly underneath the monitor. In some installations, this may not be practical, however we found that it is a user-friendly location allowing quick access to the volume and tone controls. In any case, be sure and position the amplifier where nothing is directly on top of it preventing heat from escaping.

The Planar Desktop Speakers are designed to be positioned on either side of the monitor. They could be placed anywhere around the monitor. Generally they should be at least three inches from the wall behind them for best sound quality. This is the only limitation. We recommend placing them on the desktop so that they can aim directly at the listener's ears. For the best high frequency performance the right speaker should aim up and toward your right ear and the left speaker should aim up and toward your left ear.

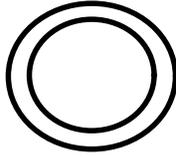


Make the electrical connections to the speakers as shown on the next page. Plug in the right desktop speaker cable (1/4 inch phone plug) into the socket on the back of the woofer cabinet designated "right" and the left desktop speakers cable into the left socket. The cable coming from the amplifier speaker output terminals is attached to the center connector.

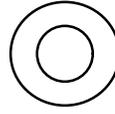
Left Desktop
Speaker

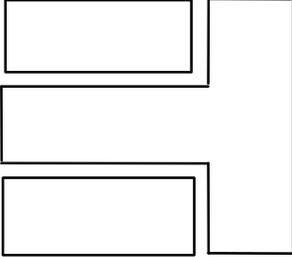


Amplifier Input



Right Desktop
Speaker



	<p>Eminent Technology Incorporated 225 East Palmer Street Tallahassee, FL 32301 ®</p>	<p>LFT</p>
<p>LINEAR FIELD TRANSDUCER</p>		
<p>MODEL NO. LFT-11 SERIAL NO. Made in the United States U.S. Patent #4,837,838</p>		

Electrical connections from the amplifier to the woofer cable are as follows:

Red = right channel positive

Green = right channel ground

White = Left channel positive

Black = Left channel negative

GETTING THE BEST PERFORMANCE FROM THE LFT-11

The LFT-11 is designed to be an accurate transducer. As a result it will reveal many limitations in the playback medium and recordings. Differences in sound quality between different sources such as AM or FM radio, the compact disc, or different digital recording schemes and sampling methods will be readily apparent.

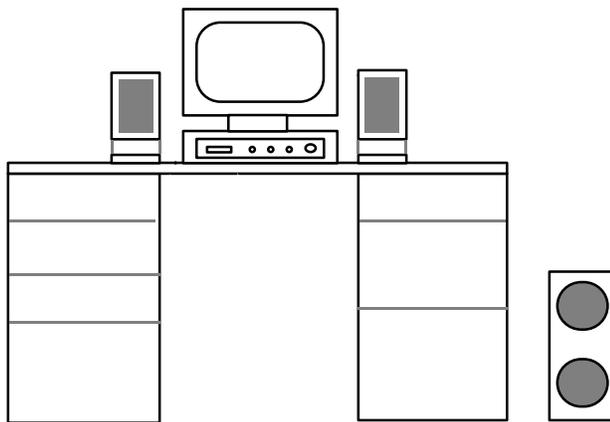
The LFT-11 is designed to have flat on axis frequency response. This may present a problem depending on your listening taste with some program material when listening to the speakers at low volume levels. The human ear is only sensitive to midrange and to a lesser degree high frequencies at low sound pressure levels. Because of this, the speakers will sound bright or thin when listened to at very low sound levels. We recommend using the tone controls to compensate for this to obtain the frequency balance you like. To get a more natural tonal balance at very low sound levels the treble control could be turned down and possibly the bass control turned up slightly.

Each desktop speaker panel is purposely designed to be very directional. This characteristic improves the ability of the speaker to project three-dimensional acoustic images by preventing the sound from one channel from interfering with sound from the other channel. The speakers should point directly toward the listener's ears at a distance of about 30 inches from the center of the speaker to each ear; if the frequency balance is too bright when the speakers are aimed directly toward your ears then aim them slightly outward. Well-recorded music can contain information, which will place musical instruments and voices between and around the speakers. Position the speakers to get the best tonal balance and maximize this effect. If positioned correctly they can project apparent sound sources well beyond the boundaries of the speakers provided that the program material contains the correct information.

Most Computer systems are installed in areas where the wall behind the speakers is acoustically reflective. To get the best tonal balance from the LFT-11 we would suggest experimenting with placing some sound absorbing material on the wall behind the desktop speakers and monitor. Open cell foam and carpet are good choices as sound absorbers.

WOOFER POSITIONING

The frequency balance of the LFT-11 was designed to have essentially flat response in the average computer desktop installation. Because the LFT-11 woofer section has extended low frequency output it easily excites room resonance modes, which may result in too much or too little bass output depending on its position. We found a large variation when moving the system from computer system to computer system in different rooms. An alternate position for the woofer is shown below:



The above woofer position may have slightly less bass output.

There are many possible positions for the woofer cabinet to achieve the best performance. We recommend using recorded music on a compact disk as the reference to determine the best position of the speakers for sound quality.

AMPLIFIER

Any audio amplifier can be used with the LFT-11. The minimum recommended amplifier power rating is 10 watts RMS per channel. We do not believe any built in amplifier that is included on an internal sound card has sufficient amplifier power to drive the LFT-11 to useable levels directly without the use of an external amplifier. The Radio Shack Optimus STA-300 amplifier included with the LFT -11 is rated at 15 watts RMS per channel and will drive the LFT-11 to suitable levels for most situations. Any other power amplifier or receiver can be used with the LFT-11 with a RMS power rating of between 10 and 50 watts per channel.

USING THE LFT-11 AS A HOME STEREO SYSTEM

Although the LFT-11 can fill a room with sound, this is not what the speaker is designed for. The same characteristic that gives the LFT-11 superior performance as a close up on axis speaker causes limitations in sound quality off - axis. Because the planar panels are purposely designed to be very directional, their off - axis high frequency response rolls off quickly and the overall frequency balance of the speaker will change. When you are not directly in front of the speaker, the low frequency output of the speaker will be emphasized and high frequencies will be lost. You can use the tone controls to compensate for this somewhat to get a satisfactory off axis performance.

THE LINEAR FIELD TRANSDUCER

Eminent Technology's Linear Field Transducer, introduced as the LFT, represents a new approach to the design and construction of a high-quality multimedia loudspeaker*. It builds on the strengths of previous planar designs while eliminating many of their drawbacks to allow use with computers.

DIAPHRAGM CONSTRUCTION

The construction of the LFT-11 begins by laminating a very thin sheet of aluminum foil to a half-mil-thick sheet of Mylar. A voice grid pattern, created by means of CAD (Computer-Aided Design) technology, is silk-screened onto the foil side; the remainder of the aluminum--the part not covered by ink from silk-screening is chemically etched away, in a manner similar to the etching of traces on a printed-circuit board. The ink is then washed away, leaving a voice grid of near perfect uniformity. This technique results in a diaphragm/voice coil grid that is still less than two mils in total thickness, and also permits relatively narrow spaces between the individual traces, so the diaphragm can be evenly driven over its entire surface.

With this construction the entire diaphragm area of the LFT-11 is driven full range. For midrange and high frequencies the wavelength of sound is smaller than the diaphragm making the speaker very directional. This characteristic substantially improves performance for separation and three-dimensional effects over speakers that use conventional cone drivers. It also lowers off axis sound levels.

THE MAGNET / FRAME STRUCTURE

The magnet/frame structure developed for the LFT-11 is also unique. Eminent Technology builds its magnets into individual steel channels, the size and shape of which have been carefully designed to help "focus" the magnetic flux lines and concentrate the strength of the magnetic field on the appropriate area of the diaphragm/voice grid. These channels are then welded to steel frames, which in turn are bolted to the frame that holds the diaphragm in place. These channels reduce stray magnetic fields preventing monitor convergence problems or damage to magnetic media in close proximity to the speaker.

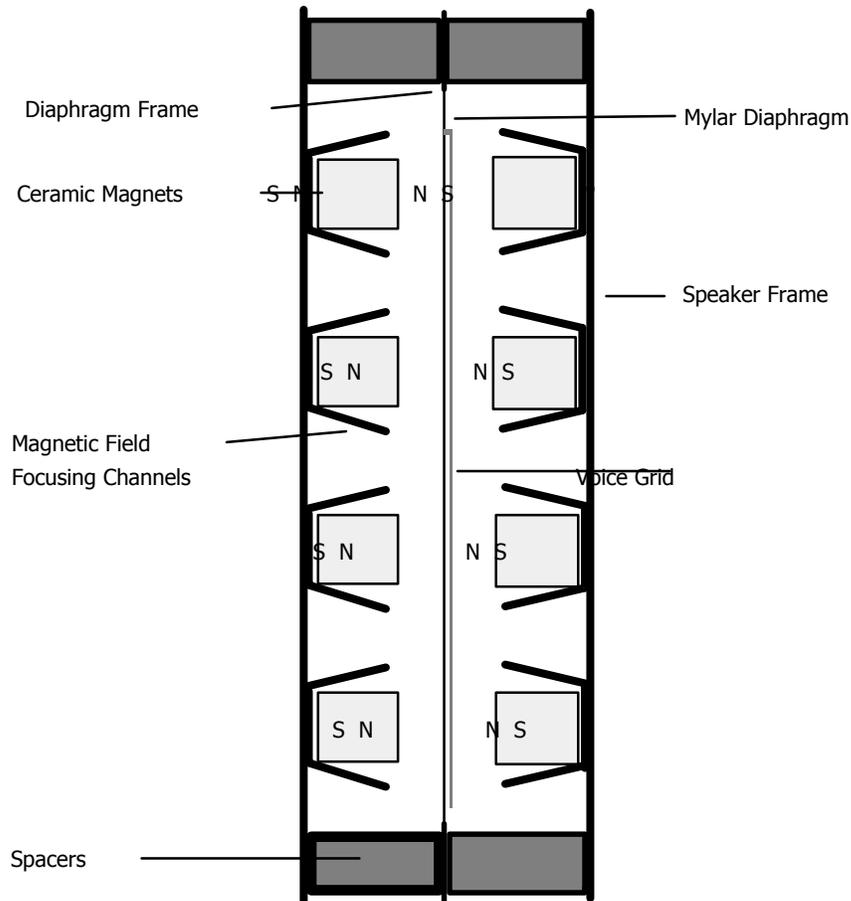
Interestingly, one of the biggest challenges faced in creating a true push-pull dynamic speaker was not a design consideration but rather a matter of construction difficulty: to assemble a perfect rigid structure with very powerful permanent magnets at the front and the rear, both sides opposing each other with tremendous force. The second

design challenge is making a planar speaker both small enough and efficient enough for use in computer multimedia.

By applying such new techniques to planar loudspeaker construction, Eminent Technology has been able to eliminate many of the flaws inherent in earlier designs

Cloth is used on the backside of the speaker to resistively load the diaphragm. This lowers the Q of the diaphragms free air resonance.

* The design and construction of the LFT-11 is patented



LFT-11 LINEAR FIELD TRANSDUCER

Top View Cross Section

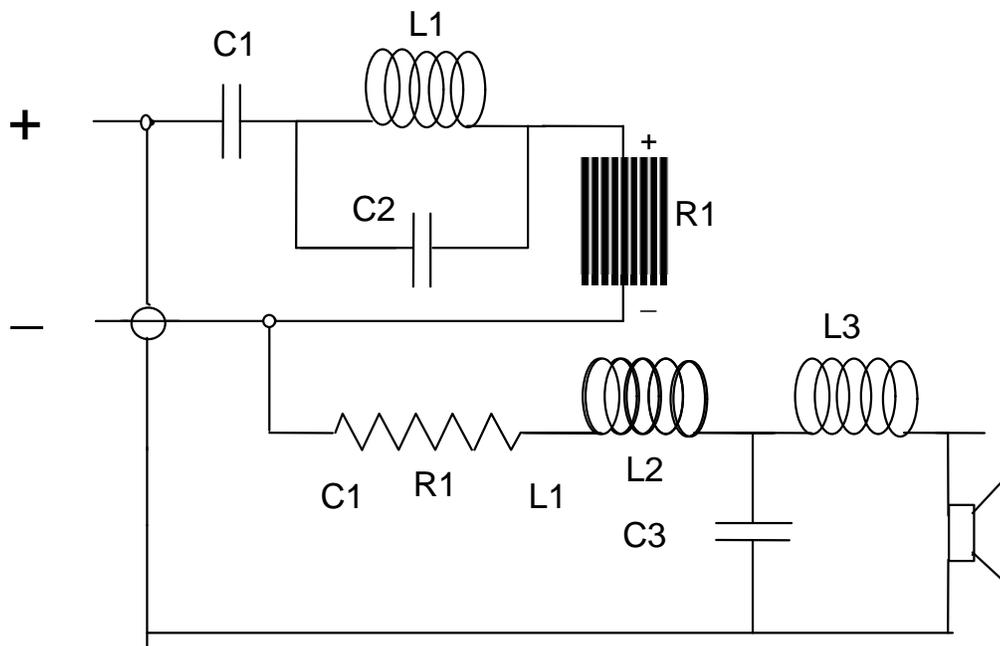
Since it is now possible to have a powerful, precisely aligned magnet structure on both sides of the diaphragm, true push-pull operation has been achieved: Regardless of the degree of excursion the diaphragm undergoes, the voice element is always optimally positioned within the magnetic field. The result is extremely linear performance throughout the audible range, with a profound increase in dynamic range and absolute minimum of distortion.

TECHNICAL SPECIFICATIONS

Frequency Response	35Hz - 20Khz + or - 4dB
Maximum power input	50 watts RMS per channel
Maximum sound pressure level	103 dB at 1 meter
Crossover Frequency	200Hz
Woofers	2 X 6.5 inch Eminence
Impedance	8 ohms nominal

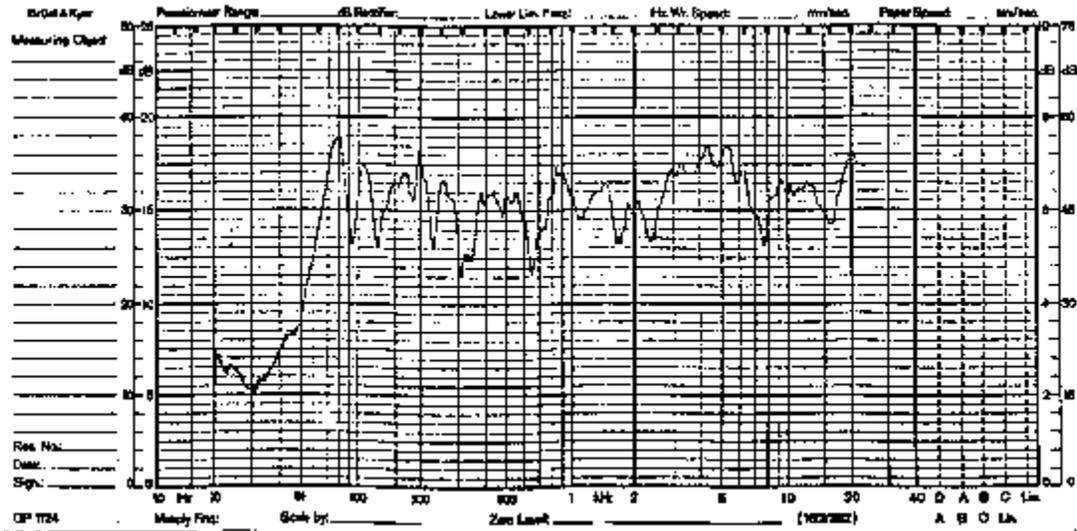
C1= 220 uF
C2= 3.3 uF
C3= 330 uF
L1= .55mH
L2= 5.5mH
L3= 1.5mH
R1= 8 ohms

Woofer resistance = 8
LFT panel resistance = 5.6

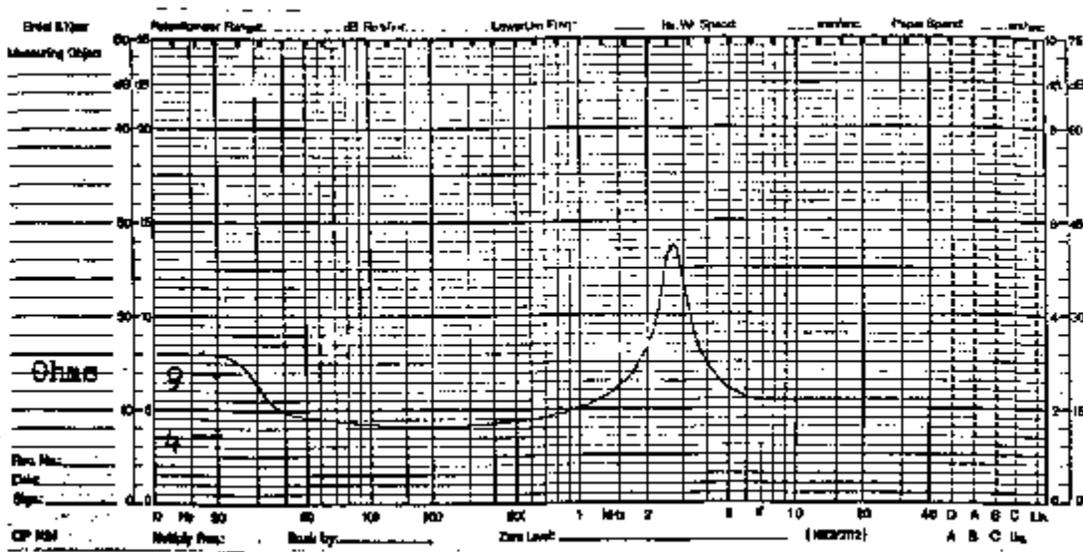


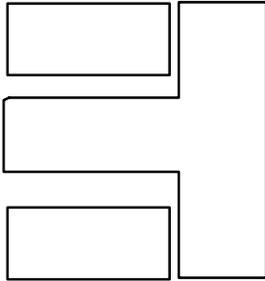
Note: If additional low frequency output is desired for your application an additional 10 watt-8 ohm resistor can be placed in parallel with R1. This resistor is located on the back of the woofer. Contact the factory for the resistor or if you have any questions regarding this.

The LFT-11 Measured Frequency Response



The LFT-11 Impedance Curve





**Eminent Technology LFT-11
Warranty Form**

Name		
Address		
City	State	Zip
Home Phone Number		
Dealer Purchased From		
Dealer Address		
City	State	Zip
Date Purchased		
Serial Numbers _____ (L) _____ (R)		

Please complete this form and return to :

**Eminent Technology Inc.
P.O. Box 6894
Tallahassee, FL 32314
USA**