



*Simply
The
Most
Amazing
Subwoofer
I've
Ever
Tested.*

*There
Might
Be
Better
Subwoofers
On
The
Planet,
But
I Haven't
Heard
Them.*

*For
The
Ultimate
In
Gut
Wrenching
Bass.*

Nova

Power From The Heavens

***SuperNova
Powered
Subwoofers
Operation
Manual
&
Technical
Guide***

**2003
EDITORS'
CHOICE
PLATINUM
AWARD**

INNOVATIONS 2000

DESIGN & ENGINEERING AWARD

DESIGN & ENGINEERING AWARD

DESIGN & ENGINEERING AWARD

DESIGN & ENGINEERING AWARD

***Earthquake Sound Corporation. 2727 Mc Cone Avenue, Hayward, CA 94545.
www.earthquakesound.com***

On A Personal Note...

Dear Valued Customer,

Welcome to the eclectic world of Earthquake High Fidelity sound systems; you are about to experience the SuperNova subwoofer. This system is designed to dramatically enhance your enjoyment of music and films at home, by adding power and impact to low frequency sound effects.

Earthquake Sound Corporation is located in the heart of the Silicon Valley. It specializes in manufacturing high end Home and Car audio products ranging from the smallest driver to the loudest subwoofer system. In its dedication to excellence, Earthquake has maintained extensive programs in research and development to provide you with the highest quality audio products.

This owners manual is designed to better acquaint you with the SuperNova subwoofer system, and to guide you through the phases of system design and application. It is imperative that you read this manual in its entirety. EARTHQUAKE technicians and staff are looking forward to answer any questions you might have, please call (1-800-576-7944).



CAUTION: the SuperNova is capable of generating high sound pressure levels. You should exercise caution when operating this subwoofer system. Long term exposures to high levels of sound pressure will cause permanent damage to your hearing. Sound pressure levels exceeding 85dB can be dangerous with constant exposure. Set your audio system to a comfortable loudness level. The SuperNova subwoofer system is designed to generate high levels of low frequencies (110 dB to 128 dB at 15 Hz to 20 Hz) and this will transmit a tremendous amount of vibration into walls, shelves and the structure; thus causing sheet rock flexing, glass and other objects to fall off shelves. Earthquake Sound Corporation does not assume liability for damages resulting from the direct use of the SuperNova, and urges users to play the SuperNova in moderate levels.

Joseph J. Sahyoun - Vice President and inventor of the SLAPS - proudly showing off a SLAPS12 at one of the SuperNova assembly lines.



Safe & Proper Handling Of Your SuperNova.

The SuperNova subwoofer system weighs over 80 Lbs. It is considerably heavy for an average person to carry or maneuver. To prevent injuries, and eliminate any possible damage to your SuperNova, we encourage you to employ the help of a friend when unpacking the unit; further we suggest the following:

- #1. Always wear a back support belt when carrying / lifting the SuperNova.
- #2. If possible, get someone to help you move the SuperNova around.
- #3. Do not apply pressure or push against the face of the speaker; this will cause irreparable damage to the cone and suspension.
- #4. When carrying the SuperNova, make sure that the speaker is on the other side, away from your chest (eliminating the chance of pushing against the face of the speaker).
- #5. Do not drop the SuperNova, or subject it to sudden shocks. This will damage the external finish and weaken the enclosure, creating air leaks.
- #6. Avoid exposing the SuperNova to moisture. Water will damage the wood structure as well as the amplifier and speakers.
- #7. Cleaning the SuperNova is best done using soft cloth; if needed, use mild detergent with water. Like with any other electrical unit, always unplug the SuperNova before cleaning it.

Unpacking Your SuperNova

Always wear a back support, and get someone to help you carrying / lifting the SuperNova.



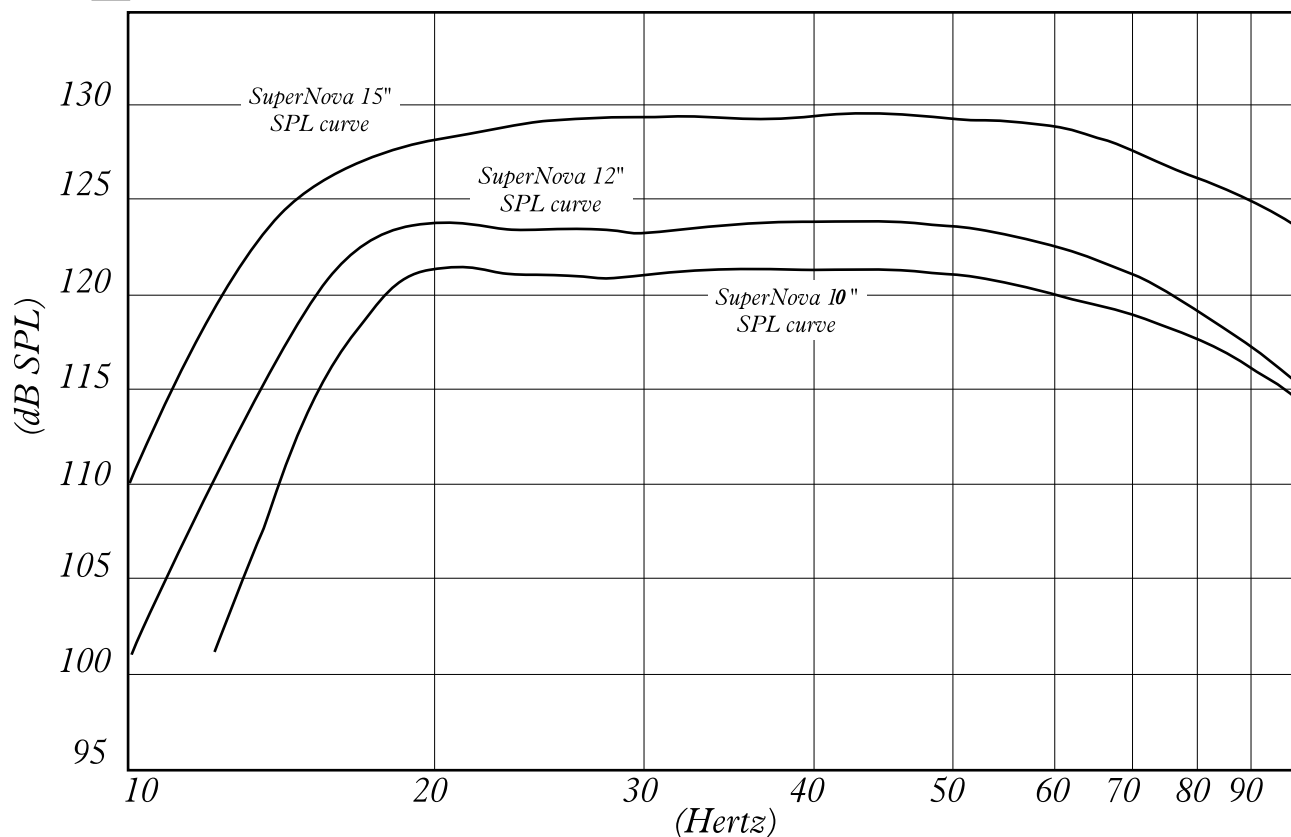
Do not apply pressure or push against the face of the speaker. When carrying the SuperNova, make sure the speaker is on the other side away from your chest.

SuperNova Performance & Birth Certificate.

Date: / / .

- ☐ SuperNova 10"
- ☐ SuperNova 12"
- ☐ SuperNova 15"

Serial Number



QUALITY CONTROL LOG.

CABINET.

Constructed by

Inspected by

Inspected for

SPEAKERS.

Active driver assembled by

Passive driver assembled by

Speakers inspected by

AMPLIFIER.

Power supply module assembled by

Amp/preamp modules assembled by

Assembled and bench tested by

FINAL ASSEMBLY.

Assembled and bench tested by

Visual inspection performed by

Sound room test performed by

Packaged by

Connecting Your SuperNova..

Low level -RCA- audio input connection:

This is the best way to drive an audio signal into the SuperNova subwoofer. Today, all signal processors (5.1/6.1 and more advanced ones) come equipped with built-in pre-amplifier outputs (RCA) that include a subwoofer output.

Generally, the SUB/OUT is in mono format. As shown in the photos across, connect the SUB/OUT from the processor to the SuperNova using a "Y" connector to feed both RCA inputs of the SuperNova.

We strongly recommend that you use the best available RCA connectors and cables. High quality cables are normally triple shielded, and the connectors are gold plated with forceful grasping (refer to Earthquake line of accessories- SI superior Interconnect - at www.earthquakesound.com).



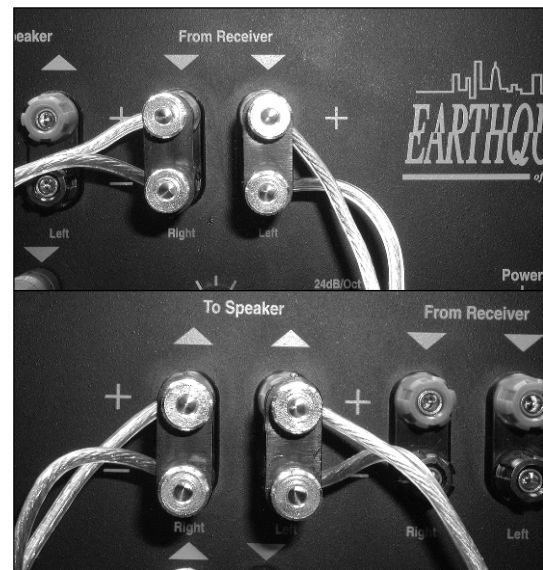
RCA connection from Processor to SuperNova using a "Y" connector.

High level audio input connection:

This is the least desired way to drive an audio signal into the SuperNova subwoofer. Older stereo systems are not equipped with pre-amplifier audio outputs, normally they come with stereo speaker outputs (left & right).

Using "banana" plugs, connect the speaker outputs to the corresponding SuperNova high level inputs (marked "FROM RECEIVER").

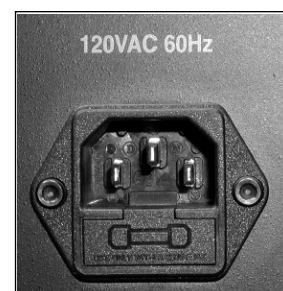
In this configuration, the front stereo speakers (towers) can be powered up by connecting them to the SuperNova speaker outputs (marked "TO SPEAKERS"). The amount of power (watts) driven into the stereo speakers (towers) is identical to the amount of power (watts) fed into the SuperNova from the stereo system (ratio 1:1).



High level audio input going into the SuperNova, and speaker output from SuperNova into front stereo speakers (towers).

AC power connection:

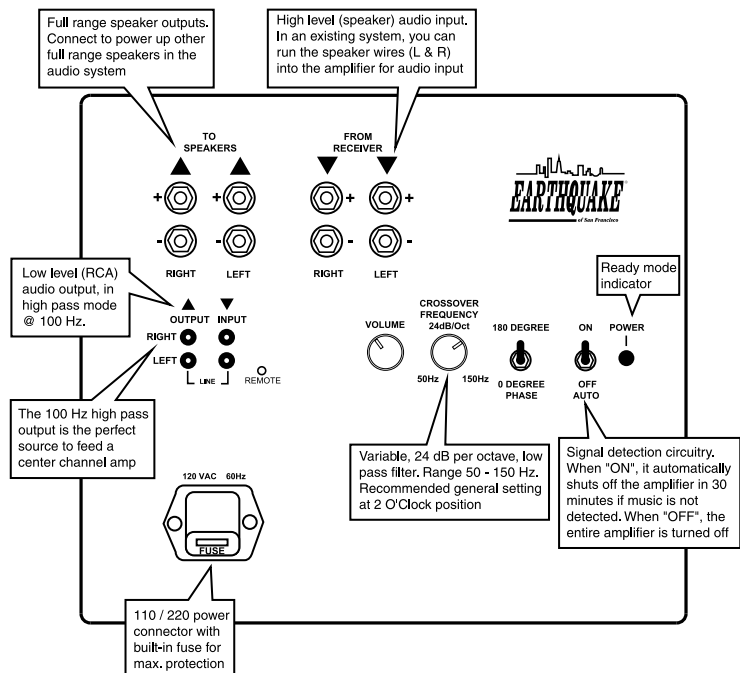
The SuperNova subwoofer is available in two models: 110V and 220V/24. The power socket is fused to protect the amplifier from surges. Do not overfuse, replace the fuse with identical value.



What Makes A SuperNova?

The SUPERNOVA subwoofer is hand assembled using high density fiber boards, the cabinet is crafted to exact tolerance for near nil vibration. The SUPERNOVA's unsurpassed performance stems from:

Class "D" Amplifier



- * 580 watts class "D", high efficiency (99%) power amplifier.
- * Optical Distortion Limiting circuitry (ODL). A patented process that converts the analog audio signal to light and optically couple it to the driver stage. When users set the gain too high, the ODL prevents the amp from clipping; thus limiting distortion to near nil levels.
- * 24 dB / Octave variable filter from 50 Hz to 150 Hz.
- * Vari-position remote control sensor, it allows users to position the remote eye anywhere in the room.

Magma Active Subwoofers

Every component of a MAGMA driver is designed for accurate reproduction of bass and sub-bass frequencies. With a massive moving structure, the MAGMA operates with extremely low distortion and impressive transient response. Its performance is attributed to a non-conventional motor structure design, that integrates components such as:

- * Double stacked, high-gauss magnets, with a total height of 1.5 inches.
- * Over 7 inch (D), epoxy coated super spider. Chill-plated for long lasting linear performance.
- * 3" diameter, high temperature voice coil, with 1,85" copper winding (height).
- * 1.5" thick, single layer, thermally pressed poly-ether foam surround.

The MAGMA structure allows for extreme excursions (19 to 21mm) without physical deformation or running out of Reactive Electromagnetic Coupling.



What Makes A SuperNova?

SLAPS

Beside its many advanced features, the SuperNova is armed with the Symmetrically Loaded Audio Passive System - SLAPS (patented by Earthquake Sound Corporation). The SLAPS is capable of moving more than 4" peak to peak at 15Hz. More air movement translates to higher SPL; the new passive system adds in excess of 5dB at 15Hz, that is more than twice as loud at that frequency.

How is that possible? Current passive woofer technology relies upon non linear, limited movement suspension. In contrast, the SLAPS employs dual (identical) suspensions, allowing the passive driver to move the same amount of air in either direction. Further, the components used to build the suspension allow for long excursions with no physical deformation or limitations.



SLAPS used in SuperNova are tuned by adding mass to the structure of the passive radiator. Steel cylinders are used to tune the SLAPS to the desired frequency.

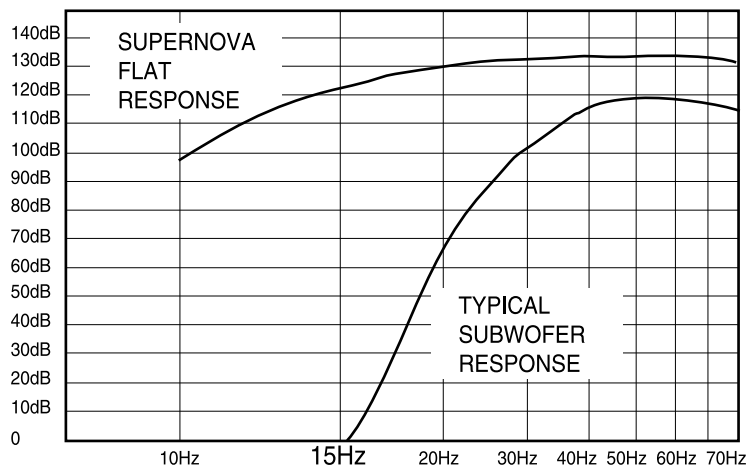


THX Standards... One Octave Lower!

The SuperNova performance exceeds THX requirements of 105 dB at 30 Hz by far... In flat mode, it achieves 123 dB at 30 Hz and reaches upwards of 128 dB when the bass boost from an audio processor (source) is used. More impressive is its capability to dish out 108 dB at 15 Hz and near 100 dB at 10 Hz - as shown in the graphs below. Keep in mind that typical subwoofer systems fail to reproduce frequencies below the 20 Hz mark.

Brace yourself and everything else in the room... This SuperNova will extend the already flat, accurate, and on-time low frequency response to deeper levels where no other subwoofers have gone before. It can put out enough bass energy to fill even large rooms with sonic rumbling.

The SuperNova delivers an impressive amount of features aimed at fulfilling the promise of ground-shaking bass, as suggested by its name.



Setting Up Your SuperNova.

The SuperNova is a "true subwoofer, it must never be operated above the subharmonic / harmonic frequency range. The SuperNova frequency response is limited by the built-in crossover (with an upper end of 150 Hz); however, in most applications, the crossover should not be set above 80Hz. It is equipped with a fourth-order Linkwitz-Riley filter which will block vocals from interfering with its performance.

When setting up the SuperNova as a part of a home audio system, users must understand that the subwoofer requires different settings: one for music, and one for playing movie tracks. In order to set up the SuperNova for music, users must recognize the frequency response of their existing speakers (tower & surround sound) and the limitations of these speakers, i.e. the diameter (size) of the speakers and the SPL.

For music setting:

- 1- Position the SuperNova in the corner of the living room.
- 2- Turn the unit around to expose the controls.
- 3- Turn on your audio system, and switch your surround sound processor to "MUSIC" mode, and equalize the rest of your audio system.
- 4- Connect the SuperNova to the processor, using high quality (triple shielded) RCA cables.
- 5- Set the crossover to 150Hz - maximum position, volume at minimum (0).
- 6- Gradually raise the main volume knob (between the 10 O'clock to 2 O'clock) position, optimizing for the subwoofer performance. That is when the Optical Compression Circuitry works best, allowing the amp maximum output with minimal distortion.



VERY IMPORTANT: some of the newer audio processors come equipped with high level voltage on the RCA subwoofer outputs. In such case - even with the Supernova volume level under the 10 O'clock position - you might experience some clipping (overwhelm the Supernova input capability). We suggest that you feed an audio signal into the Supernova through (using) ONE (1) RCA input instead of using both the RCA inputs of the SuperNova.

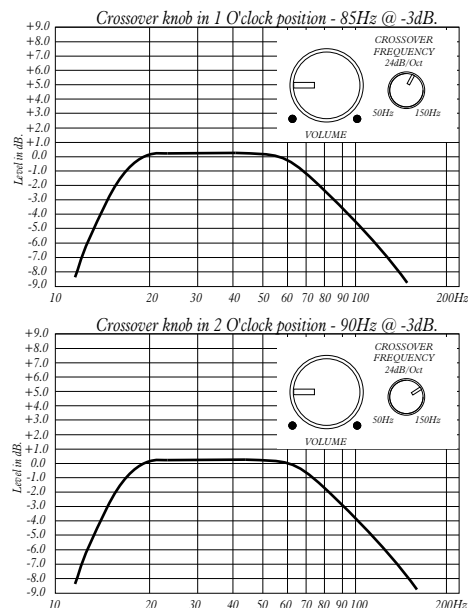
7- With the crossover open to 150Hz, you will hear vocals coming out of the subwoofer. Gradually reduce the crossover point until vocals are eliminated (typical crossing point of 80Hz).

To control the volume level of the SuperNova, use the surround sound processor output controls; do not use the main volume knob on the SuperNova (keep it between 10 & 2 O'clock position). Once you set up the proper mix of low frequencies and subharmonic response, that does not encroach on the rest of the speakers. Now you are ready to set up the SuperNova for home theater use.

For movie viewing:

The SuperNova can be set up to your liking. There are no rules of thumb to how much bass is required. Often, users like to feel the overwhelming bass, it brings the actions and events closer to real life. When viewing movies, a 10dB gain above music setting is often pleasant, it brings movie viewing close to life.

If you desire to have a crossover setting for music, different than the setting for movie viewing. We suggest to cross the SUPERNOVA at higher frequency setting, and use the processor to control the desired lower crossing point.



Corner Loading = + 9 Decibels Of Free Power.

Fact: Subwoofers reproduce frequencies with wavelengths that are long in relation to the dimensions of most living rooms. Standing waves will boost or cancel various frequencies due to the interaction with the room boundaries. Moving a subwoofer in a room will change what you hear in the listening position a lot.

For maximum bass reinforcement, the SuperNova subwoofer system should be placed in the corner of your living room, with the subwoofers facing the wall. This creates acoustical coupling with the walls, which in turn leads to a 9 decibels of boost in the overall response of the SuperNova. Keep a 3" clearance between the subwoofer and the walls.

Fine tuning the SuperNova requires adjustments to the crossover point, volume control and the phase switch. These controls are located on the side of the enclosure. For ease of tuning we recommend that you turn the SuperNova around to expose the controls, and place it in position (corner). Set your stereo system to a moderate listening level and adjust the SuperNova accordingly. The SuperNova is equipped with a 24 dB / Oct. Low pass filter designed to eliminate vocals from entering the system. When tweaking, gradually reduce the crossover point setting to eliminate vocals from seeping into the amplifier.

Positioning Options.

Consider that room permissibility plays a big role in positioning. One thing is certain, achieving a perfect subwoofer setup in your living room will require time and experimentation.

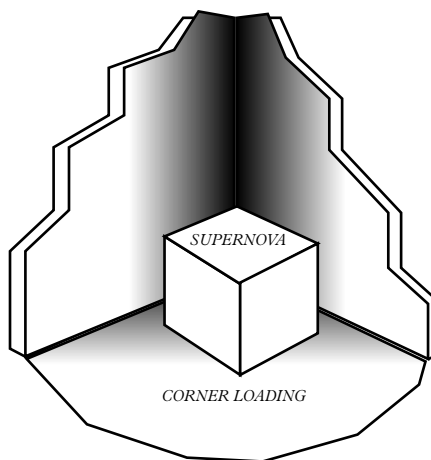
When used for special effects reinforcement (10Hz to 40Hz range), the SuperNova fares well in corner loading position; as corner loading naturally boosts the subharmonic frequencies by 9 decibels.

Used with music (10Hz to 100Hz), it is recommended that the SuperNova is placed in a corner, yet it can be placed in a centered position.

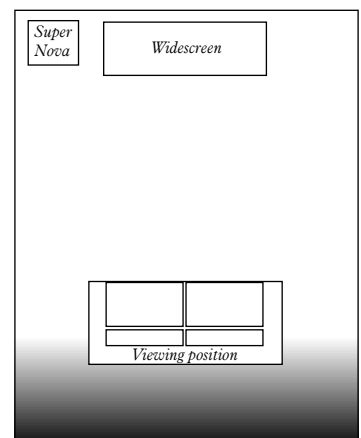
By using two SuperNova subwoofer systems (one in each corner), corner loading effects can be achieved without disturbing the balance of front stereo images.



Corner Loading will give you an added 6 to 9 decibels of sound pressure; also it reduces the level of vocals - if present - emitted from the subwoofer. We recommend that the active subwoofer face the listener, while the passive faces the wall (corner). Keep a clearance of 5" to 7" between the SLAPS and the wall - remember that the SLAPS can travel up to 4".

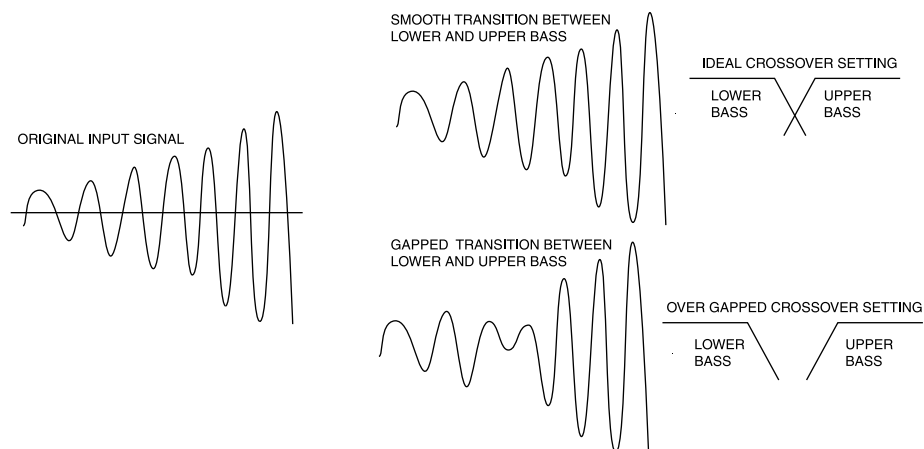


Corner Loading is recommended for movies and sound tracks effects.

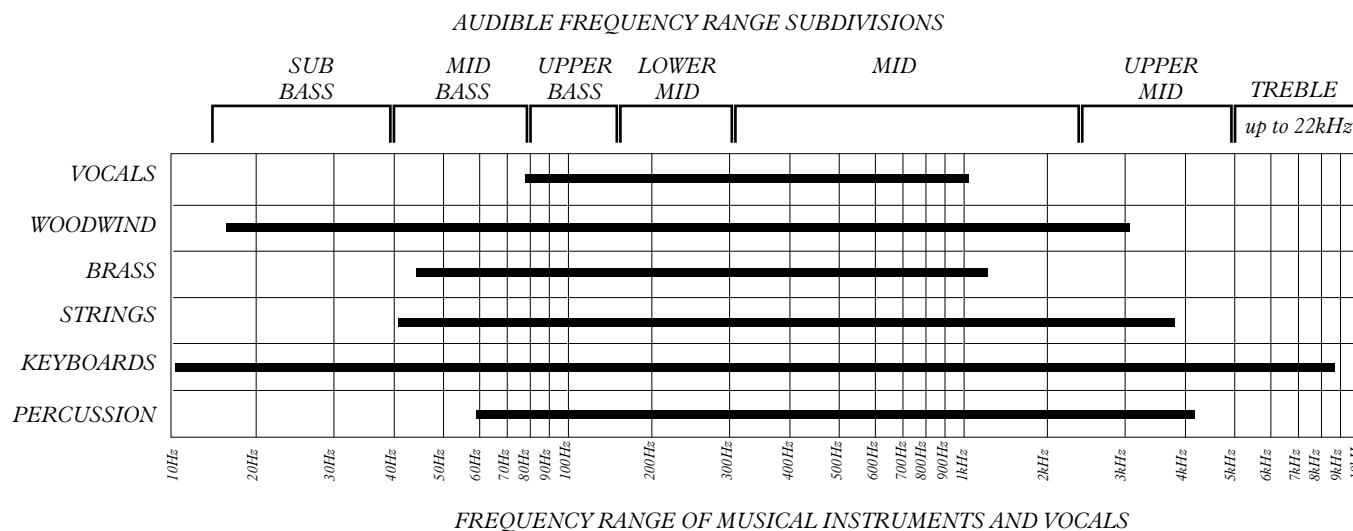


Seamless Transition Between Subwoofer and Speakers.

The fine tuning process includes creating a smooth transition of music between the SUPERNOVA and the next speaker in line : usually a woofer or a large midrange. As shown in the graph across; a smooth transition between lower and upper bass is directly relative to the crossover setting and the capability of the next speaker in line to reproduce low frequencies.



Audible Frequency Range Of Musical Instruments & Vocals.



Independent Test Report:

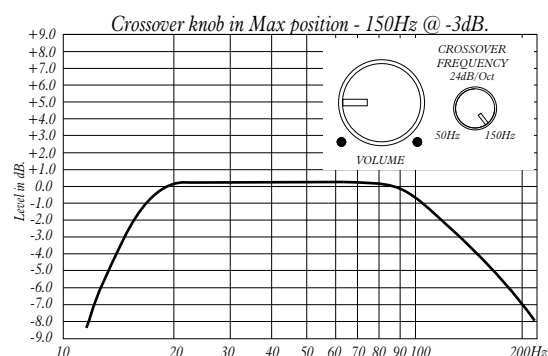
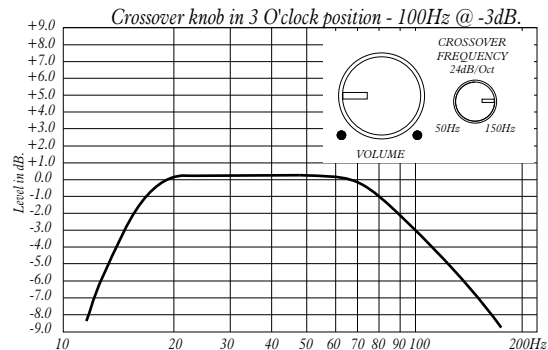
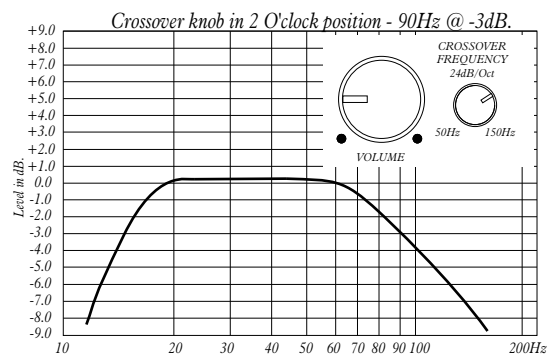
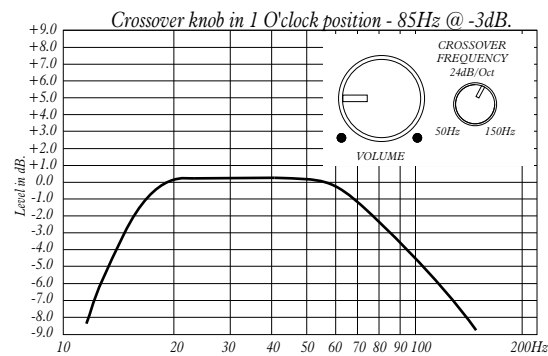
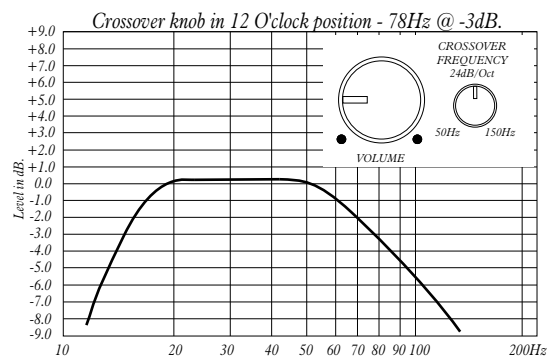
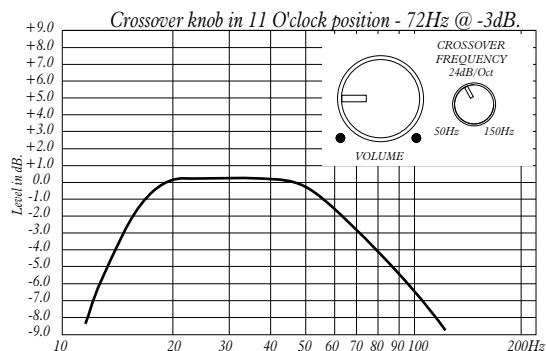
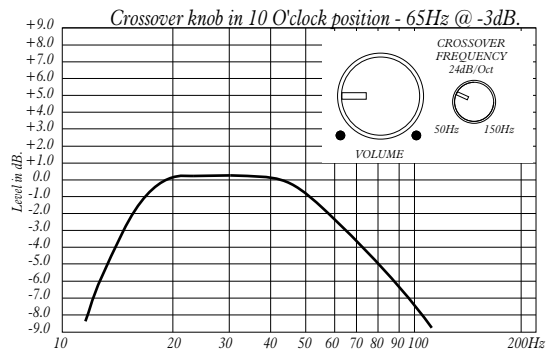
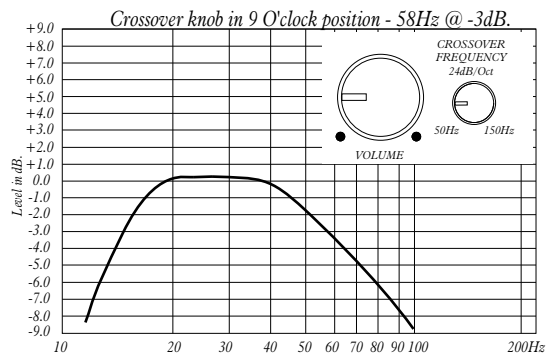
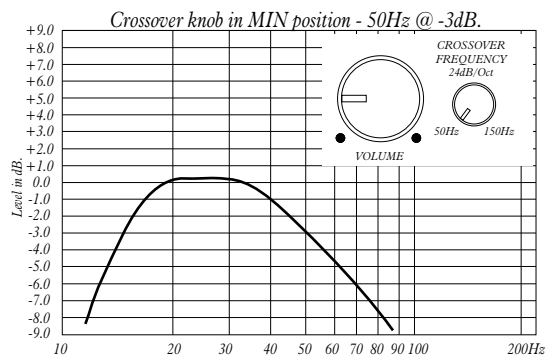
dB measurements as tested by WIDESCREEN REVIEW, Buyer's Guide, 2000.

	MODEL	DRIVER	dB@40Hz	dB@35Hz	dB@30Hz	dB@25Hz	dB@20Hz	dB@18Hz
EARTHQUAKE	MKII-15	15"	117	117	116	115	102	98
B & W	4000-ASW	15"	115	115	115	114	102	N/A
BAG END	S-18E	18"	110	112	110	108	100	N/A
TRIAD	PLATINUM	18"	N/A	110	N/A	106	92	90
VELODYNE	F-1800R	18"	112	112	113	110	98	N/A
ENERGY	ES-18XL	18"	114	112	112	106	98	90
PARADIGM	SERVO-15	15"	112	110	110	106	96	90
BAG END	INFRA-18	18"	108	108	106	102	90	N/A
EARTHQUAKE	MKII-12	12"	113	113	113	106	98	
M & K	MX-5000	12"	N/A	110	N/A	106	92	
VELODYNE	HGS-12	12"	106	105	108	102	90	
LINN	AV5150	12"	N/A	110	N/A	104	N/A	

Low Pass Filter Settings.

The SuperNova frequency response is limited by the built-in filter (with an upper end of 150 Hz); for most applications, the crossover should not be set above 80Hz. It is equipped with a fourth-order Linkwitz-Riley (24dB per octave) filter which will block vocals from interfering with its performance.

When fine tuning the SuperNova, set the crossover to 150Hz as a starting point, you will hear vocals coming out of the sub; gradually reduce the crossover point until vocals are eliminated.



Five (5) Years Limited Warranty.

Earthquake warrants the original purchaser that all Factory Sealed New Audio Products be free from defects in material and workmanship, under normal and proper use, for a period of five (5) years from the date of purchase (as shown on the original bill of sale with serial number affixed/written on it). The five (5) years warranty period is valid only if the product is properly installed by an Earthquake authorized party, and the warranty registration card is properly filled out and sent to Earthquake Sound Corporation. If the product is installed by a non-authorized party, a ninety (90) days warranty period applies.

(A) Five (5) years limited warranty plan coverage guidelines:

- First year: Earthquake pays for labor, parts, and ground freight (only in US mainland, not including Alaska and Hawaii) back to customer.
- Second year: Earthquake pays for labor and parts only, customer must pay freight both ways.
- Third, fourth & fifth year: Earthquake pays labor only. Customer must pay for parts and freight both ways.

(B) Warning:

Products (sent for repair) that are tested by Earthquake technicians and deemed to have no problem, will not be covered by the five (5) years limited warranty. Customer will be charged a minimum of one (1) hour of labor (ongoing rates) plus shipping charges back to customer.

(C) Earthquake agrees to repair or replace - at our option - all such defective products/parts subject to the following provisions:

- Defective products/parts have not been altered or repaired by other than an Earthquake factory approved technician.
- Products/parts are not subjected to negligence, misuse, improper use, or accident, damaged by improper line voltage, used with incompatible products, or have its serial number or any part of it altered, defaced or removed, or have been used in any way that is contrary to Earthquake's written instructions.

(D) Warranty Limitations:

Earthquake warranty does not cover products that have been modified or abused. Including but not limited to the following:

- Damages to speaker cabinet and cabinet finish due to misuse, abuse, or use of improper use of cleaning materials/methods.
- Bent speaker frame, broken speaker connectors, holes in speaker cone, surround & dust cap, burnt speaker voice coil.
- Fading, deterioration of speaker components & finish due to improper exposure to elements.
- Bent amplifier casing, damaged finish on the casing due to abuse, misuse, or improper use of cleaning material.
- Burnt tracers on PCB.
- Product/part damaged due to poor packaging or abusive shipping conditions.
- Subsequent damage to other products.

A warranty claim will not be valid if the warranty registration card is not properly filled & returned to Earthquake with a copy of the sales invoice.

(E) Service Request:

To receive product/s service, contact Earthquake service department at (510) 732-1000 and request an RMA number (Return Material Authorization), items shipped without a valid RMA number will be refused. Make sure you provide us with your complete/correct shipping address, a valid phone number, and a brief description of the problem you are experiencing with the product. In most cases, our technicians might be able to resolve the problem over the phone, thus eliminating the need to ship the product.

(F) Shipping Instructions:

Product/s must be packaged in its original protective box/s to minimize transport damage. Shipper claims regarding items damaged in transit must be presented to carrier. Earthquake Sound Corporation reserves the right to refuse product improperly packed. Original bill of sale must accompany product returned for service. We encourage you to include with the package a written description of the problem. Ship product to: Earthquake Sound Corp. 2727 Mc Cone Avenue, Hayward, CA 94545. Ph (510) 732-1000. You are responsible for the cost of shipping the product to Earthquake Sound Corporation.

(G) Disputes Resolution:

All disputes - between clients and Earthquake Sound Corporation - resulting from the five (5) years limited warranty policy must be resolved according to the laws & regulations of the county of Alameda -California.

Earthquake Sound Corporation.
2727 Mc Cone Avenue,
Hayward, California 94545.
Ph (510) 732-1000.
Fax (510) 732-1095
www.earthquakesound.com

Warranty Registration Card.

Required Information:

First name: _____

Last name: _____

Street address: _____

City: _____ State: _____ Zip: _____

Phone number: (_____) _____

Model number: _____

Date of purchase: _____

Purchase price: _____

Serial number: _____

Dealer name: _____

Dealer address: _____

City: _____ State: _____ Zip: _____

Signature: _____ Date: _____

Voluntary information:

Birth date: _____ Married: _____ Single: _____

How did you learn about our product? _____

Your Comments: _____

Cut along dotted line & return to Earthquake Sound Corporation. 2727 Mc Cone Avenue, Hayward, CA 94545.

From: _____

Place
Stamp
Here

To: Earthquake Sound Corporation.
2727 Mc Cone Avenue,
Hayward, California 94545.
Ph (510) 732-1000.

