

The Clarity 2.5

Technical Information



If you're reading this it's because you are looking for more in depth and technical information regarding the Clarity 2.5 tower speakers. That being said, I would like to preface this article by stating that this is technical information only and it's intended to give you more insight into what makes these speakers so great. We understand that it's hard to pick out a set of speakers before you can hear them so we're hoping this will shed a little more light on them before you buy. Feel free to contact our Support Team if you have any questions that are not answered in this document and we will do our best to answer them. We at Stereo Clarity value your business and would like to thank you for your continued support!

Steven Solazzo

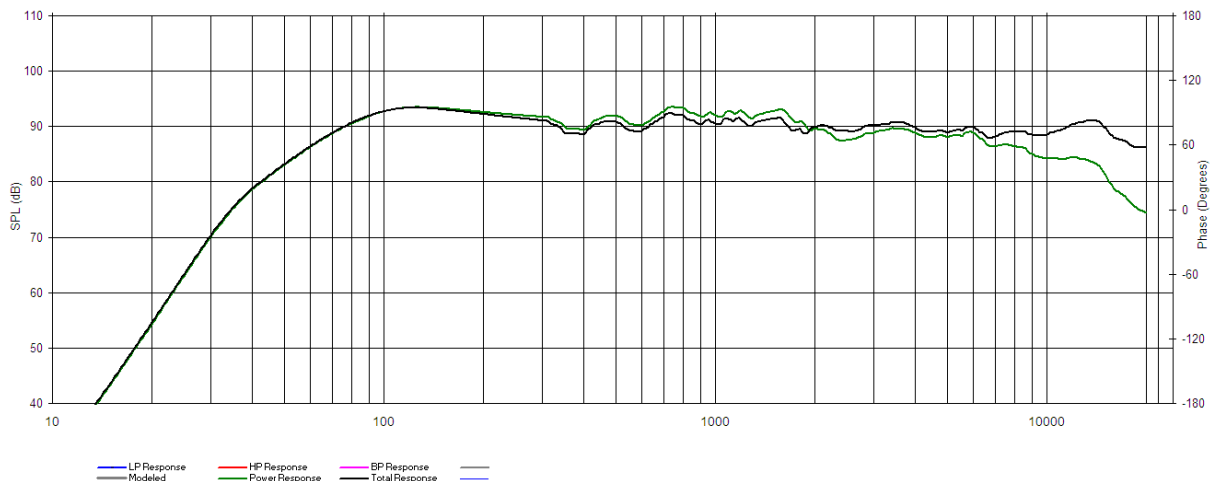
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Introduction

A loudspeaker assembly is only as good as the sum of its parts. However, good parts alone will not yield a great loudspeaker. Only the combined synergy of carefully picked parts, in the right alignment, could give you sound this good. It's with this in mind that we'll start by explaining our choice in parts with the tweeter assembly, woofers next, and then we'll move onto the cabinet design.

Tweeters

The tweeters employ a special planar design that uses an extremely thin diaphragm sheet to produce sound. In the past, most planar tweeters were made using Mylar® as the diaphragm material. The diaphragm utilized in the Clarity 2.5 is made from a special material from Dupont called Kaladex®. It's lighter, has much higher heat limits, and is significantly more durable. The radiating area of the tweeter is quite large but because of the benefits of the Kaladex® material, the moving mass is very low. This yields a tweeter with a very wide frequency range allowing it to mate well with the woofer. The frequency response of the tweeter extends well past the upper range of human hearing (20kHz if you have exceptional ears) which might seem like a waste but it is actually quite important. If a tweeter strains out of its range (even if that range is inaudible) the harmonic distortion is still present in the lower octaves. In short, a tweeter that can play higher will have less of this harmonic distortion creating crisper sound. Furthermore, as frequency increases, the radiating area on a planar tweeter narrows creating a very wide dispersion pattern. Wide dispersion is the key to creating a speaker with excellent power response. The power response curve of the Clarity 2.5 (shown below) is extremely flat and is one of the reasons the set recreates such a natural sounding stage.



Woofers

Not to be outdone by the tweeter, the woofers are an equally special link in our strong chain of components. The woofers are a 6.5" midbass that boast a die cast basket instead of a stamped steel frame. Stamped baskets are typically quite weak and are very prone to resonance issues. A die cast basket offers improved structure and rigidity which provides the proper framework for an excellent sounding driver.

Visually it's apparent the woofers are a bit different. The santoprene surround has a fine cross hatching that is raised. This helps smooth out the hump in response most 6.5" drivers exhibit around 1khz due to diffraction. The moving mass of the driver is an absurdly low 7 grams. This greatly improves detail and clarity by keeping the inertia of the moving parts to a minimum. Proper venting under the spider prevents frequency anomalies due to backpressure from the spider on the motor.

Attention to detail is shown in the motor design as well. A vented pole piece improves heat dissipation from the voice coil and also reduces frequency anomalies from pressure build up in the magnetic gap. To reduce distortion, shorting rings have been employed in the motor. A sensitivity of 92db is achieved as a result of all these technologies working together.

Crossover

The entire system is what integrates all these great parts together so their combined synergy rewards you with sound reproduction true to the original live performance. The crossover network is a 2.5 way design with the middle woofer taking care of the midrange duty. This keeps the drivers reproducing the mids and highs very close together to eliminate path length discrepancies. All crossovers are hand built, in house, with polypropylene capacitors.



Cabinet

The cabinet is a hand built work of art. We have all natural wood finishes available with a variety of stain colors and over 50 vinyl laminate covering choices. All surfaces are $\frac{3}{4}$ " thick ply wood instead of lesser grade particle board. Ply is both stronger and lighter than particle board. Each cabinet is internally braced with ribbing along the broadest surfaces and two full width braces running the entire perimeter of the cabinet. The result is a tremendously stiff cabinet that will not resonate or negatively color the lower octaves of the music. A 3" diameter port would have sufficed for most manufacturers but it was decided that port chuffing of any kind was not acceptable (at any power level) so a 4" diameter port was chosen to ensure flawless reproduction. The cabinet is tuned to 48hz. You can expect in room response (depending on placement) to start rolling off around 37hz.



The cabinet includes solid die cast spike feet. Keeping the system rigidly spiked to the floor aids in low end response and keeps them stable in the case of a carpeted floor. The cabinet hardware also includes high quality, nickel plated, two way binding posts that resist corrosion and form an airtight seal to the cabinet. Open cell foam is used to dampen the upper and lower chambers of the cabinet to minimize any internal standing waves. Each cabinet is crowned with a stainless steel laser engraved Stereo Clarity emblem on the front as well as a serial number on the rear.