

M O O N
by SIMAUDIO

The Sound of a New Era



Technical White Paper
Voice 22



At Simaudio, we are proud to announce that for the first time, it is possible to own a complete MOON system. The MOON Voice 22 Loudspeaker completes the realization of our dream to offer an all-MOON music system. In 2016, we created the ACE all-in-one music player, and whilst it met our desire for a comprehensive music product, we still needed our own loudspeakers to truly deliver the MOON sound. The Voice 22 is the culmination of exhaustive research, and for the first time, the MOON name has its own voice.

There are many great loudspeakers on the market, and for years we have been in our sound rooms setting up, playing and listening to many well-respected high-quality loudspeakers. However, the Voice 22 is the only loudspeaker that truly conveys the MOON voice.

So many times, our team has been asked if speaker X-Y-Z can match well with MOON products. Now, for the very first time, there are speakers that have been developed with MOON amplifiers in mind. There is no doubt whatsoever about the match, whether with regard to sensitivity, impedance, or sonic presentation.

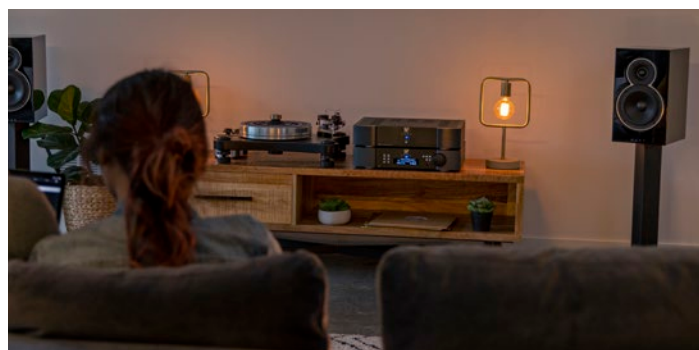
The idea is to offer a loudspeaker of audiophile quality, not just to the people in audiophile circles. These speakers are designed to satisfy anyone looking for a great all-around music system.

Just as we do with our electronics, we aimed for transparency and realism with the Voice 22. Then, taking into account the physical dimensions of the enclosure, we engineered it to preserve the scale and dynamics of real-life acoustic instruments.

We chose to develop a bookshelf speaker for the flexibility it offers in a domestic environment, and ensured it is not too small. There is a minimum acoustic output we aimed to achieve to appreciate the music. The solution is a two-way design with the right combination of traditional and innovative technologies to create an exceptional first loudspeaker. From the outside, the speaker may look relatively conventional, but there are many interesting innovations inside.

First, there are its drivers. The 155mm woofer has a cast-aluminum basket and mineral-filled polypropylene membrane. It has a soft, low-damping rubber surround for better transient response and an extended copper sleeve on the pole piece of the motor structure for lower inductance and distortion, as well as copper-clad aluminum wire to reduce its moving mass. This driver allows for a detailed midrange and strong, extended bass.

The tweeter has a 29mm dome textile membrane and a large surround. It uses a saturation-controlled motor system for lower distortion, and a non-reflective rear chamber with optimized damping for better dynamics. The mechanical structure is designed to work without a typical front plate, and is integrated into a custom waveguide, permitting a wider frequency range and lower crossover frequency than would typically be possible. The reward is a revealing upper midrange and natural sounding openness and clarity. The upper frequency range is clear and detailed, but not overly emphasized.



The waveguide is a key element that serves several purposes in the Voice 22 design. It optimizes time alignment and controls the dispersion of the tweeter, making its directivity more coherent with that of the woofer where their frequencies overlap.

Here is why...

In a typical two-way loudspeaker – using a front-mounted tweeter without a proper waveguide – the woofer, which radiates near-omnidirectionally at bass frequencies, gradually starts to beam as the frequency rises.

The signal then crosses over to the tweeter, where it again becomes less directional. As the frequency rises further, the tweeter's output eventually starts to beam. This inconsistent dispersion pattern affects tonality and creates a coloured sound. The proprietary waveguide of the Voice 22's tweeter is specially contoured to control the tweeter's lower-frequency output to match that of the woofer's dispersion characteristics at the crossover point. This eliminates irregularities in the dispersion pattern, resulting in a more homogeneous, lifelike and natural sound.

The crossover also plays an important role in the speaker's dispersion characteristics. It features a dual-layer PCB designed with carefully selected, high-quality metallized polypropylene film capacitors for optimal sound quality and long-term reliability, applying 12dB per octave 2nd order slopes at the unusually low crossover point of 1.5kHz. Combined with the waveguide controlling the dispersion, the crossover beautifully integrates both drivers to render the transition less noticeable. This is important for music appreciation, creating the perception that there is only one source, like two musicians in perfect unison.

The enclosure employs a unique patent-pending technology called CGD (Curved Groove Damping) to control the panel resonances of the loudspeaker. The mechanical characteristics of the enclosure are carefully engineered to be free of vibrations that can be audible by colouring the sound. Strategically positioned braces solidify the enclosure and enhance rigidity, and a sculpted groove filled with damping material runs through the interior walls. This makes the lengths between edges different at any point on the surface, limiting panel resonance and improving the sound, freeing it of cabinet colorations. The bass extension and definition are extremely impressive and enjoyable, especially for such a compact loudspeaker.

Finally, both for convenience and appearance, a cool and unusual feature was created for the Voice 22. We call it the Hover Base. The Hover Base lends a visually striking appearance to the enclosure, which seems to gracefully float above the furniture. It ensures that the Voice 22 may be placed on virtually any surface without leaving a mark, while adding stability to the loudspeaker and guaranteeing sound integrity. It elevates the loudspeaker and the owner's experience!

If the listening environment requires the speakers to be placed on stands, the Hover Base may easily be removed, and the speakers can be fitted to the custom-made Stand 22. The top plate fits flush into the recessed area in the bottom of the speaker enclosure and disappears. This careful integration creates a pure and uncluttered appearance.



Specifications

Tweeter : 29mm soft dome with waveguide

Woofer : 155mm mineral-filled polypropylene cone

Sensitivity : 89dB/2.83V/1m

Nominal Impedance : 6Ω

Recommended Power : 50W – 150W

Frequency Response (±3dB) : 55Hz – 24kHz

Frequency Range (-6dB) : 45Hz – 30kHz

Crossover : 1.5kHz

Dimensions (W x H x D) : 20cm x 35cm x 29cm

Weight : 10.5kg



Reasons to buy the Voice 22

For the first time, MOON has its own authentic voice

Renowned MOON sound quality

Premium materials and industry-leading technologies

Perfect partner for the MOON ACE, as well as all 200- through 300-series amplifiers

Unique patent-pending MOON technology: CGD (Curved Groove Damping)

Modern enclosure design with a classic twist recalling Simaudio's 1980 genesis

Choice of black or white modern finishes with removable magnetic cloth grilles complement any decor

A unique 'floating' appearance thanks to the Hover Base

Elegant custom-made loudspeaker stands for steady support and enhanced room-filling sound (optional)

Renowned MOON 10-year warranty