

DEVIALET
PHANTOM
ULTIMATE

AUGUST 2025

WHITE PAPER





**At Devialet, we believe in the transformative power of sound
and that exceptional audio experiences belong to everyone.**

We exist to break the boundaries of acoustics, fusing radical technology
with iconic design to awaken bold emotions and deep physical connections.

When the original Devialet Phantom speaker was born in 2015, it shattered expectations.
Enter Devialet Phantom Ultimate speaker range: the evolution of the revolution. Available in two
power levels (108 dB & 98 dB) and three rich finishes (Light Pearl, Deep Forest, Opéra de Paris),
Devialet Phantom Ultimate is fitted with Devialet's signature sound, seamless stereo pairing,
and performance-driven design. Experience music as pure emotion, just as the artist intended.

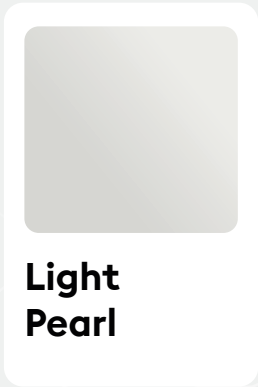
Devialet Phantom Ultimate. Alive With Sound.

Devialet Phantom Ultimate Range

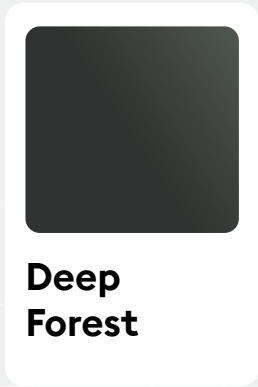


108 dB

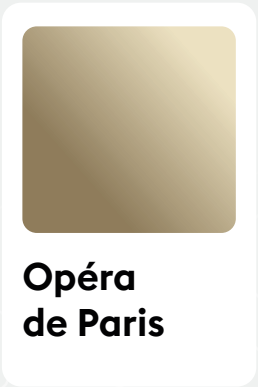
98 dB



Light Pearl



Deep Forest



Opéra de Paris



SUMMARY

WHITE PAPER

01.

DEVIALET PHANTOM PRODUCT ARCHITECTURE

- An all-in-one audiophile system
- Devialet Phantom's story, genesis, and technologies

02.

DEVIALET EXCLUSIVE TECHNOLOGIES

- ADH®
- SAM®
- PSU
- HBI®
- ACE

03.

THE DEVIALET APPLICATION & ITS ADVANCED AUDIO PARAMETERS

04.

DEVIALET PHANTOM ULTIMATE DESIGN EVOLUTION

APPENDIX

- Devialet Phantom Ultimate
108 dB and 98 dB Spec Sheets
- User Manual - Devialet Phantom Ultimate
108 dB and 98 dB



DEVIALET PHANTOM
PRODUCT ARCHITECTURE



AN ALL-IN-ONE AUDIOPHILE SYSTEM

Devialet Phantom is **Devialet's first acoustic creation**—setting a new standard for music playback at home. Over a decade after its debut, it continues to stand unmatched, remaining years ahead of its time.

DEVIALET
PHANTOM
ULTIMATE

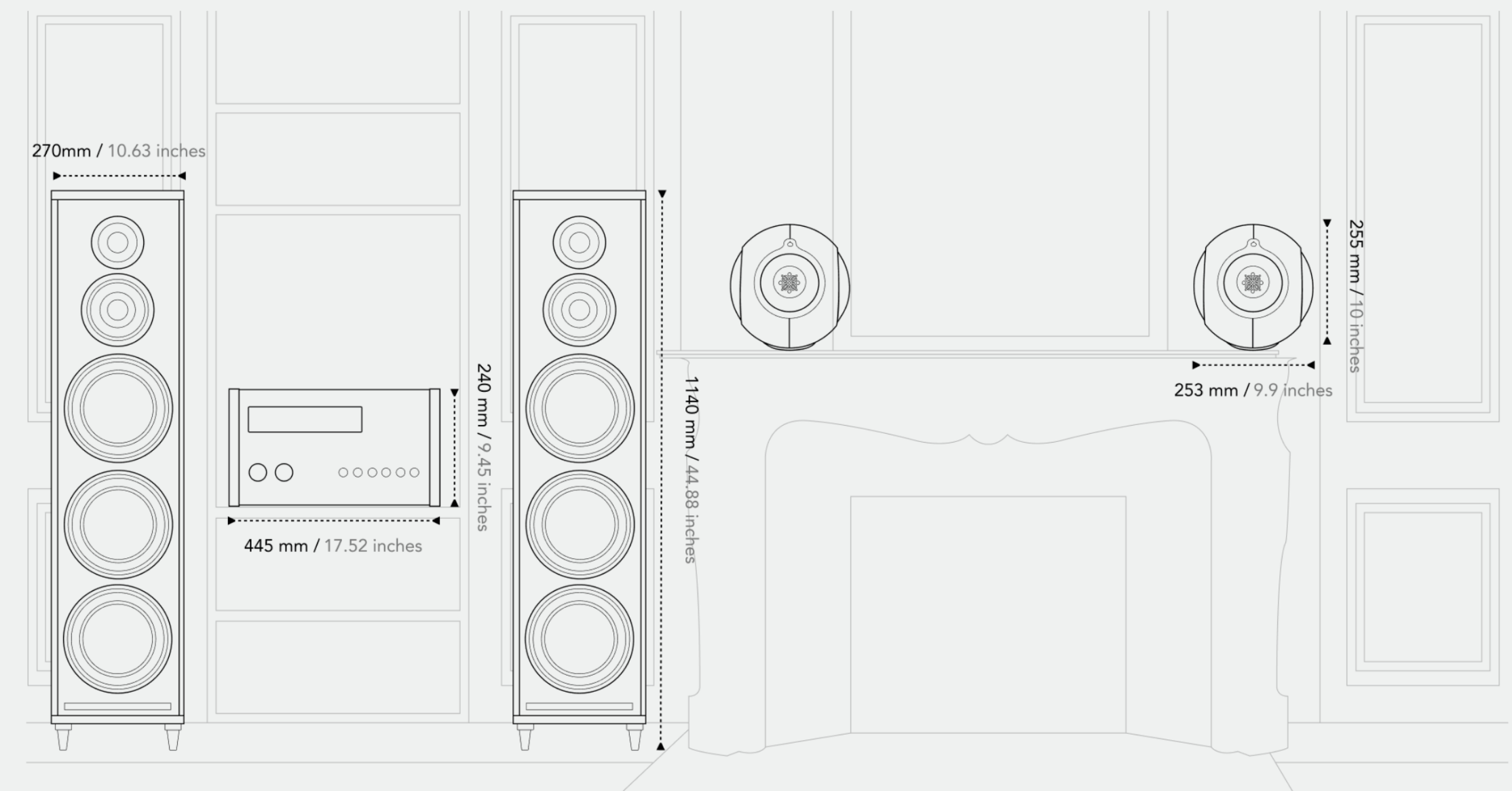


Why Devialet Phantom?

Devialet Phantom's product concept is born with the idea that **exceptional audio experience must belong to everyone** and can be provided by **a single and compact device**, easy to use and integrate in any environment.

The target was to **integrate in one device** and with **no compromise on quality** all typical components of a traditional audiophile system, namely: streamer, DAC, preamplifier, power amplifier, subwoofer.

The integration challenge was huge: to **reduce the overall system size by more than a factor of 10**, and reducing the number of devices at their strict minimum: the speakers themselves.



*This drawing shows the original integration target of Phantom:
to reduce the overall system size by more than a factor of 10*

Devialet Phantom's story, genesis, and technologies

The genesis of Devialet Phantom began from a true blank page, with no constraints other than achieving the target of compactness and performance without compromise.

The goal was to **create a sound experience** that could be immediately **recognizable** and **impressive in less than one second**, without generating any artificial “demo effect,” while allowing extended listening sessions free of auditory fatigue.

The challenge was to combine an **immediate sense of surprise** with a **long-term, addictive listening experience**. From the very beginning, this required deep thinking on the product's architecture and shape to find the ideal solution—pushing integration further than ever before in an audio product, while preserving uncompromising audiophile sound quality.

The drawings, texts, images, trademarks, logos, and audiovisual content reproduced in this document are protected by intellectual property law and are the exclusive property of Devialet. Any representation or reproduction, in whole or in part, translation or adaptation of these works without the prior consent of Devialet is strictly prohibited and may result in prosecution.

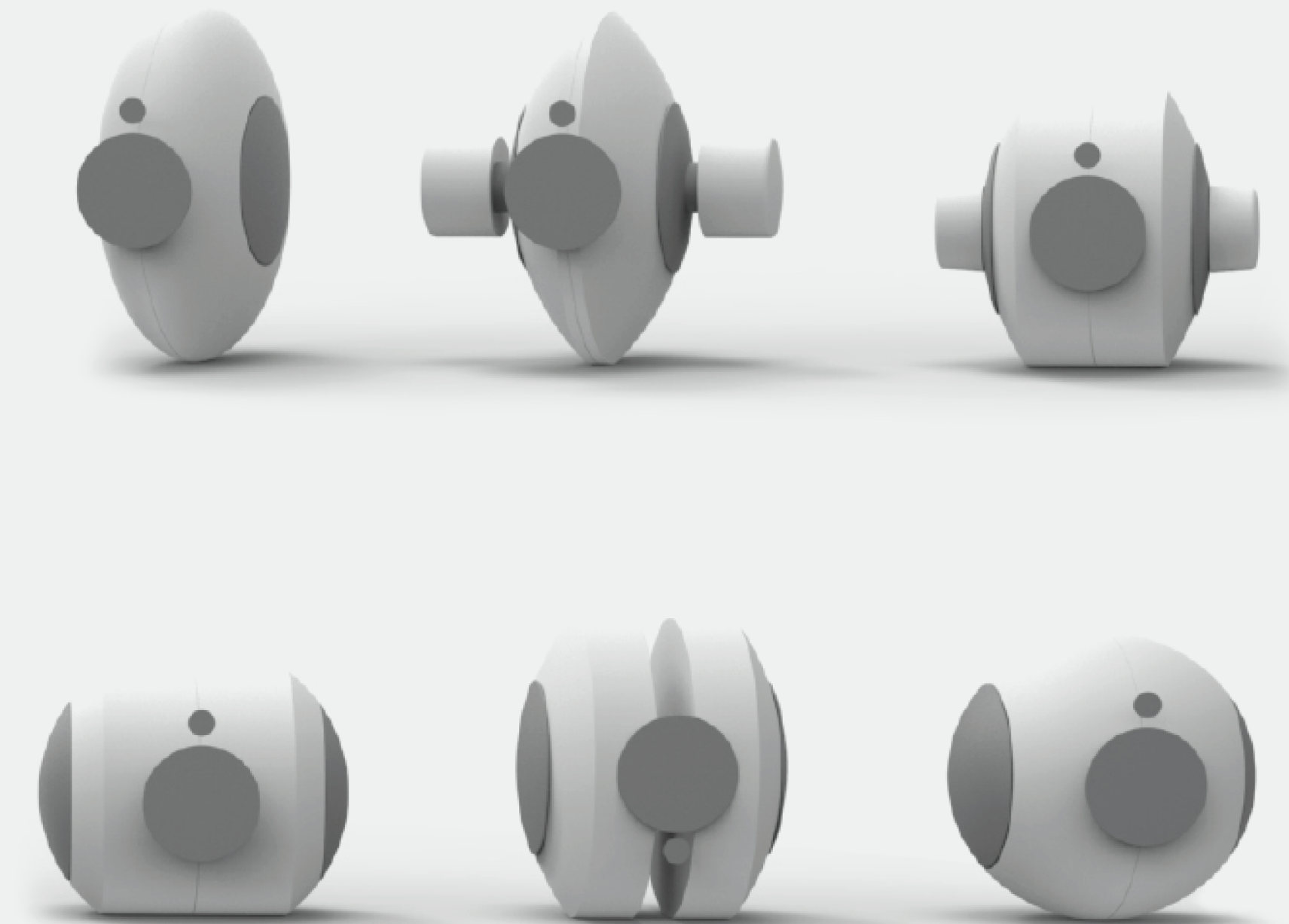


Several shapes were explored, and in the end **the purest one—the sphere**—was selected. This choice led to the development of the **ACE** and **HBI®** technologies, solving the mechanical, acoustical, and speaker limitations of traditional loudspeakers.

These three technologies perfectly complemented the electronic innovations **ADH®** and **PSU**, already developed for the D-Premier and Expert amplifiers. **SAM®**, Devialet's core DSP technology for advanced speaker modeling and control, was then created as the ideal link between all the other technologies, optimizing the audio system as a whole.

The demanding target of compactness quickly revealed itself as an advantage: for instance, it naturally addressed issues related to crossover design in traditional systems with external subwoofers placed far from the main speakers, as well as enclosure stiffness and modal behavior—critical challenges for large speakers, where panels of significant dimensions can resonate within the audio bandwidth.

The highly ambitious product definition of Devialet Phantom thus transformed the usual constraints and compromises of audio design into positive synergies, made possible by radical new technologies.



The drawings, texts, images, trademarks, logos, and audiovisual content reproduced in this document are protected by intellectual property law and are the exclusive property of Devialet. Any representation or reproduction, in whole or in part, translation or adaptation of these works without the prior consent of Devialet is strictly prohibited and may result in prosecution.



The Evolution of Devialet Phantom into Phantom Ultimate (2025)

Phantom stays true to its iconic form, yet evolves radically from within.

ENHANCED AUDIO PERFORMANCE

- **New generation of ADH®** amplification technology
- **Extended bandwidth**, pushing high-frequency reproduction even further
- **Newly engineered drivers** for Phantom Ultimate 108 dB, designed by Devialet and manufactured in Devialet's factory in France
- **Advanced sound customization** with dedicated audio modes, a 6-band equalizer, and extensive audio settings

FUTURE-PROOF CONNECTIVITY

- **New hardware and software architecture** built around the NXP i.MX8 processor and powered by DOS3 (same as Astra)
- **New high-resolution streaming protocols** such as Google Cast and Tidal Connect
- Platform ready for seamless integration of future streaming services

REFINED DESIGN AND AESTHETICS

- **Redesigned front grid** for both enhanced acoustics and a more refined appearance
- **Removal of the woofer dust cap** on Devialet Phantom Ultimate 108 dB – originally an aesthetic choice (eliminating stitching lines), which also **increased structural robustness** through a complete redesign of the mechanical architecture and a new woofer design
- **Two new exclusive finishes:** Light Pearl and Deep Forest



DEVIALET
EXCLUSIVE
TECHNOLOGIES



A D H[®]

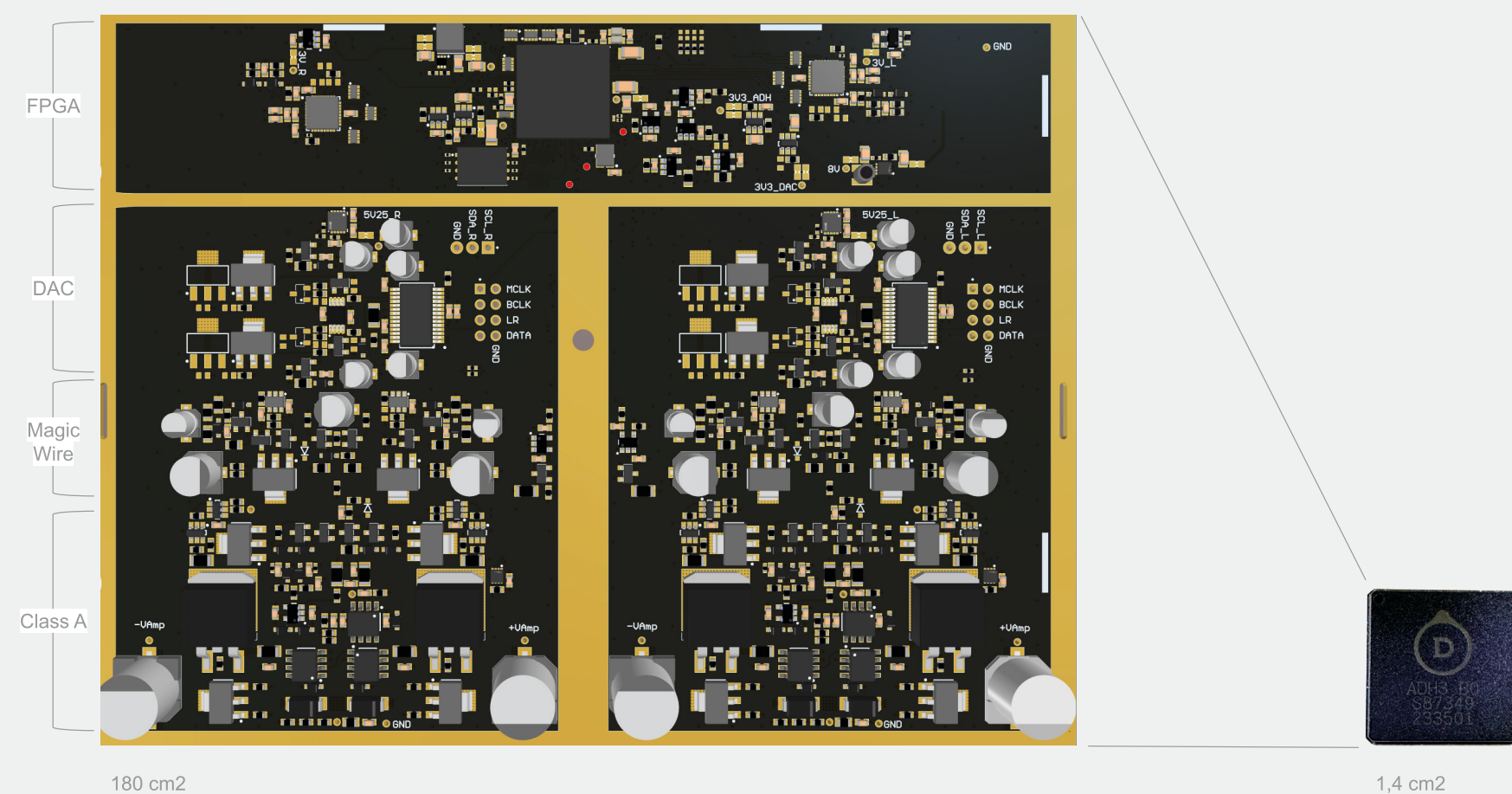
(Analog Digital Hybrid) is the **first groundbreaking technology** developed by Devialet. It is a **proprietary amplification technology** that remains at the core of the brand's audio innovation leadership, 20 years after its initial development began.



Why ADH®?

The goal of ADH® amplification technology was to achieve the **best possible amplification performance**—matching that of the finest DACs on the market—while delivering the **high power** required to listen to music at realistic levels on the best high-end passive speakers available. It also had to be contained within a **compact form factor**, enabling the creation of an iconic amplifier with a disruptive design, equally suited for lifestyle use and uncompromising audiophile applications.

The ambition behind ADH® was to **make the ultimate audio experience**—once limited to large, complex setups—**accessible** to a much wider audience.



ADH® story

Between 2004 and 2007, **three years of intensive research** were dedicated to developing a **high-power prototype** that outperformed the best amplifier technologies on the market in terms of **performance-to-size ratio**. In 2007, development of the first Devialet product began, leading to the launch of D-Premier in 2010, followed by the Expert range in 2013 and the Expert Pro in 2017.

The first ASIC (Application-Specific Integrated Circuit) **integration of ADH®** took place with Phantom in **2015**. Nearly a decade later, ADH® New Gen was introduced with **Astra** in 2024. One year later, in **2025**, Phantom Ultimate now integrates **ADH® New Gen in ASIC form**, marking a new milestone in the evolution of this technology.

The ASIC integration of ADH® for Phantom—a unique achievement in the audio industry—makes it possible to:

- Reduce the circuit footprint by a factor of more than 100 compared to discrete designs, occupying **no more than 1.5 cm²**.
- Significantly lower power consumption

This integration allows multiple **audiophile-grade amplification channels** to coexist on **a single PCB**, making it possible to design a **fully multi-amplified integrated speaker system** without compromise.



What is ADH[®] and how does it work ? Magic Wire companion Technology

The idea behind ADH[®], to achieve the objectives described above, is to **combine two existing amplification technologies—Analog (A) and Digital (D)**—to obtain the **best of both worlds**: the linearity, musicality, purity, and low noise of the most renowned analog amplifiers (Class A), together with the power, efficiency, and compactness of digital amplifiers (Class D).

A relevant analogy is a car's power steering system: the driver sets the trajectory, while a powerful motor assists in turning the wheels, making the task both effortless and more precise.

The **Analog amplifier (A)**, directly connected to the speaker, controls the **output voltage**. Acting as the master, it determines the sound quality of ADH[®] amplification. In addition to having the lowest possible distortion and noise, it is also a high-bandwidth amplifier capable of cancelling the ripple at the output of the Class D amplifier.

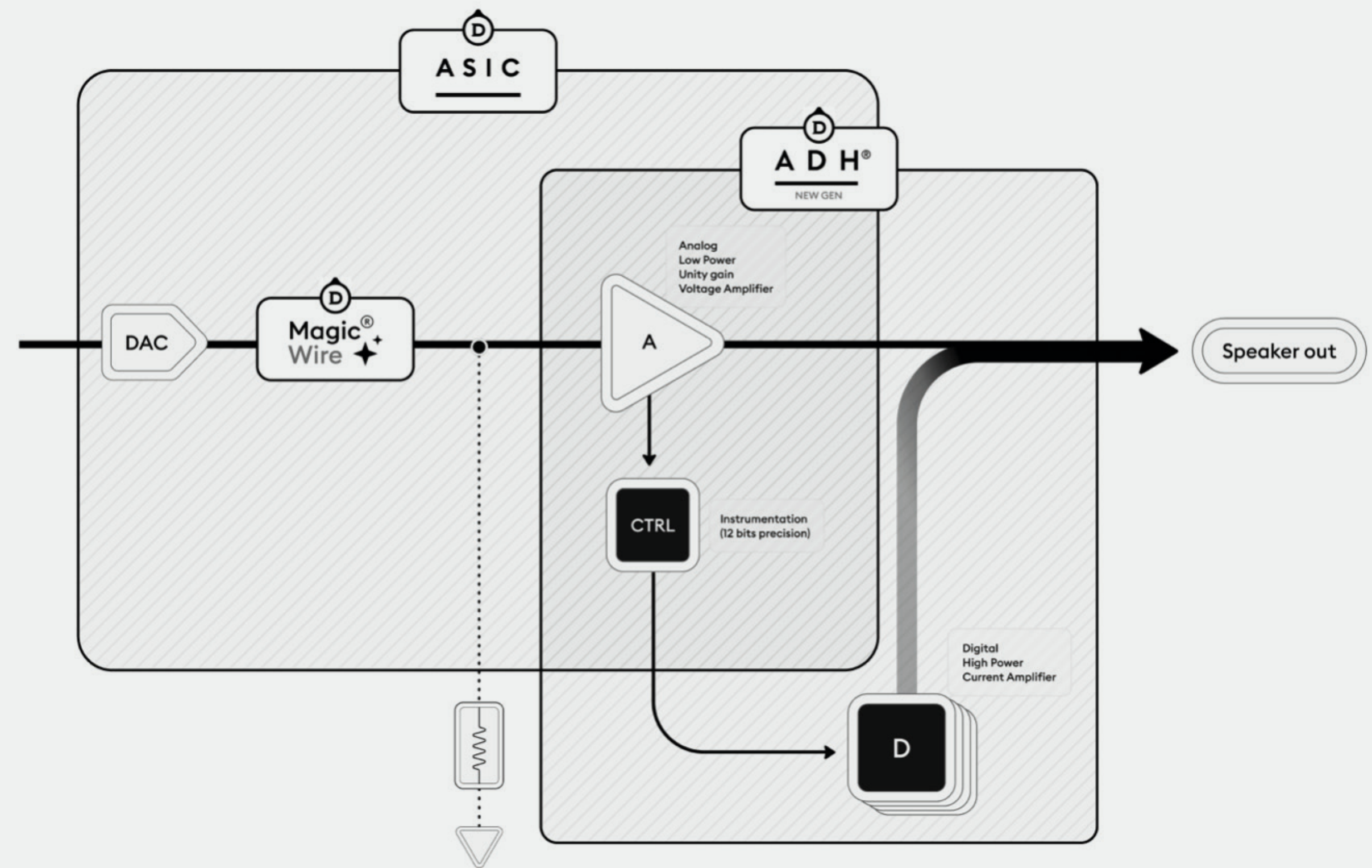
Multiple Class D amplifiers (D) are connected in parallel to supply the speaker with the **current** required to sustain the output voltage. They serve as companions to the master Class A amplifier, reducing its workload.

The **hybridization** of these two very different amplifier technologies is extremely challenging, as it requires connecting them in parallel—something that cannot be achieved directly without adding a dedicated **control loop (CTRL)** to ensure both amplifiers operate together under optimal conditions.



In order to push performance to its limits, ADH® works in conjunction with another proprietary Devialet technology, the **Magic Wire** which ensures that the audio signal at the input of the Analog amplifier is identical to the output of the high-resolution DAC.

This enables **optimal current-to-voltage conversion** through a single high-performance resistor between the Magic Wire and the Analog amplifier, which simultaneously provides the system's gain. The Analog amplifier can therefore operate at unity gain, avoiding any amplification of the DAC noise.



(A) Analog amplifier

(D) Multiple Class D amplifiers



ADH® new Gen in Phantom ultimate

With Phantom Ultimate—and **following the ADH® enhancements introduced with the Astra** launch in 2024—this key technology has been **further refined into its most integrated form** within the ASIC.

In its 2025 iteration, ADH® has been re-engineered to become more intelligent, more efficient, and more precise—particularly in the upper frequencies, where control is most critical. **What was once reactive is now predictive:** ADH® no longer merely responds to the signal but anticipates the loudspeaker's behavior in real time, optimizing performance in advance.

This evolution enables ADH® to maintain perfect synchrony between the Class A and Class D amplifiers across the entire frequency range, including the most challenging high-frequency content above 3 kHz. The result: significantly **reduced distortion, crystal-clear treble up to 35 kHz**, and an overall **improvement in energy efficiency**.

Traditionally, these two amplifiers operated together but with some latency in their coordination, especially at higher frequencies, which placed stress on the Class A stage and could result in micro-distortions. The 2025 update introduces a real-time predictive control model that dynamically aligns the Class D output with the Class A signal. This **eliminates any desynchronization**, even in fast-changing transients, allowing the analog section to perform with unprecedented freedom and stability.



2 main benefits of the new-gen ADH®?

- **Enhanced high-frequency precision:** through predictive behavior modeling, ADH® maintains complete control over the drivers even up to 35 kHz, ensuring crystal-clear definition across the full spectrum.
- **Improved energy efficiency:** by optimizing power assistance in real time, ADH® reduces unnecessary current draw, enhancing the overall efficiency of Phantom Ultimate.



S A M[®]

(Speaker Active Matching) is **the proprietary DSP speaker modeling and control technology**, at the center of all Devialet products development for more than 10 years.



Why SAM®?

The goal of **SAM®** advanced speaker modeling and control technology was **to reproduce the lowest frequencies** (<20 Hz) **in an enclosure several** orders of magnitude **smaller** than those traditionally used in passive loudspeaker designs.

The ambition behind SAM® was to create a full-bandwidth loudspeaker (<20 Hz to >20 kHz) capable of delivering **realistic listening levels in a compact form factor**, with **bass performance** surpassing that of subwoofers many times larger.



SAM® story

Three years of intensive research and development were required to bring SAM® to life. The technical challenges were so great that Devialet established an **academic research partnership** in order to leverage the latest scientific advances in control theory to overcome them.

SAM® was **originally developed for Devialet Phantom**, enabling the design and precise control of its two push-push 8-inch woofers operating within an extremely small load volume of just 3 liters per woofer—ten times smaller than what is typically used for this type of woofer.

However, the effect of SAM® was so significant that it was first deployed in the **Devialet Expert amplifiers in 2013**, prior to Phantom's official launch, to provide Devialet amplifier owners with improved bass performance based on detailed measurements and modeling of their loudspeakers.

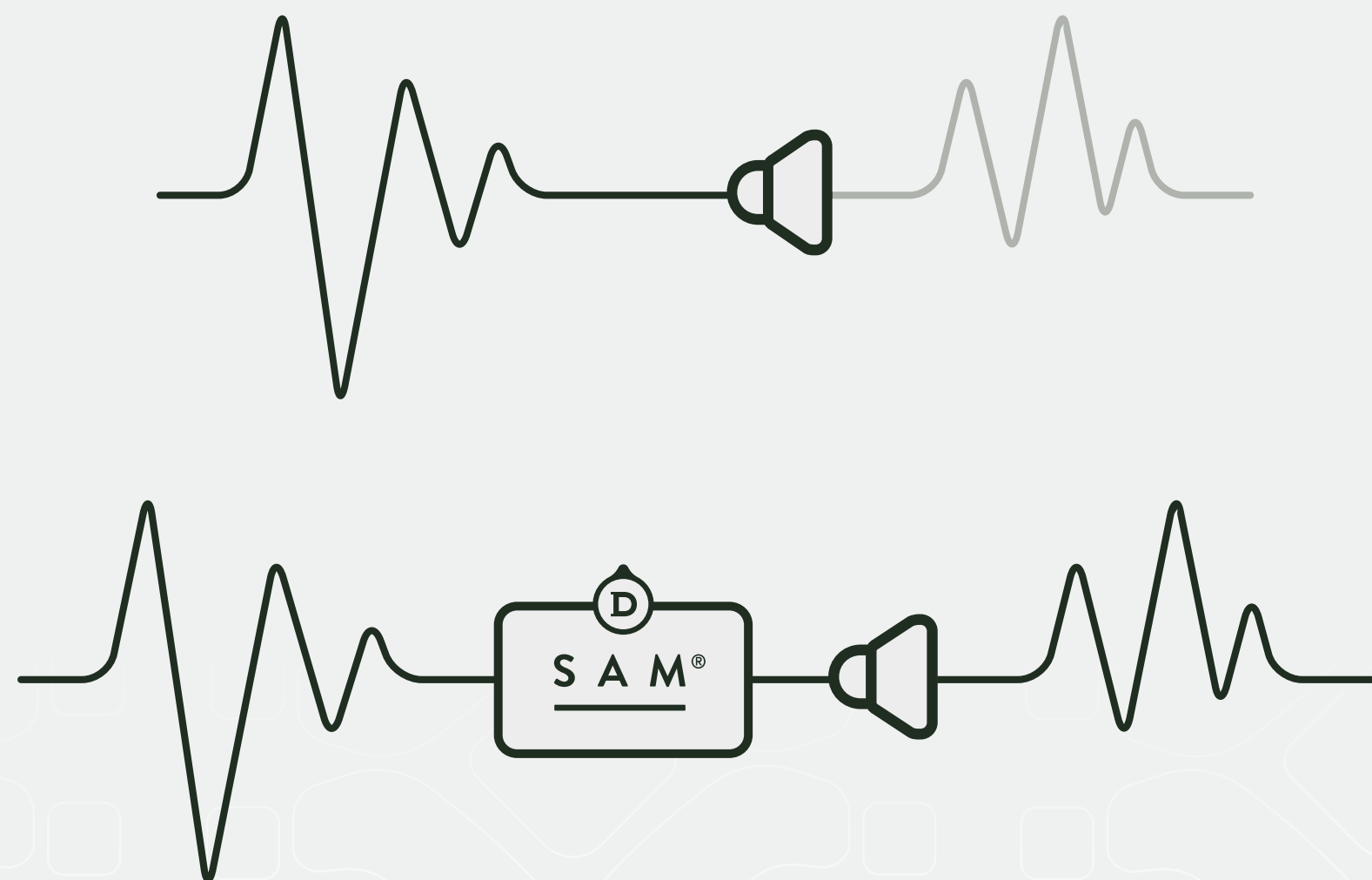
Following the release of Devialet Phantom, SAM® has been **at the heart of Devialet's licensing strategy** and is now deployed in **millions of devices worldwide**.



What is SAM® and how does it work?

At the core of **SAM®** is a **mathematical model** of an electrodynamic loudspeaker and its acoustic load, taking into account the complete physical behavior of the system—electrical, electromagnetic, mechanical, and thermal. This model makes it possible to accurately **predict and control the loudspeaker's behavior**.

Every speaker system, regardless of its size, cost, or design, has **inherent limitations** that prevent it from reproducing the electrical signal from the amplifier without degradation. These limitations are primarily in amplitude and phase across the frequency range. Conventional methods used to flatten a loudspeaker's amplitude frequency response often degrade phase accuracy and introduce distortion.



SAM® is unique in that it does not rely on standard equalization techniques such as IIR filters, or on non-linear compressors and limiters. Instead, it **inverts the system model to naturally correct both amplitude and phase**, enabling accurate time-domain signal reproduction. Membrane displacement, velocity, and acceleration are precisely controlled through the mathematical model, ensuring the **acoustic output matches the intended content with exceptional fidelity**.

SAM® is implemented in **real time in the digital domain**, operating without any additional measurements or feedback signals—relying solely on the multi-physics mathematical model of the loudspeaker system. This **open-loop approach** is essential to ensuring that no additional noise or latency is introduced in the system.

Beyond extending the system's low-frequency bandwidth—making the device sound far larger than its physical size—SAM® delivers key **audiophile benefits**: sharper and more physical bass impact, particularly on **transients**; improved perception of **tempo** and **rhythm**; enhanced imaging and detail retrieval; and **better separation of instruments**.

In addition to its role as a real-time DSP control system, SAM® is also a **powerful loudspeaker design tool**. By knowing that the drivers will be actively controlled in real time, their **parameters can be optimized beyond traditional design constraints**—one of the reasons **Devialet Phantom speakers are unlike any others**.

SAM[®] evolution in Phantom Ultimate 108 dB (2025)

SAM[®] has been further enhanced in Devialet Phantom Ultimate.

The more advanced non-linear modeling made it possible to **design entirely new woofers** and to **improve their control**, enabling even deeper bass performance—extending below 40 Hz—at all playback levels.



P S U

(Power Supply Unit) is **Devialet's custom AC/DC power architecture**, complementing ADH® and SAM®, and present since the company's very first product, D-Premier.



Why PSU?

No standard PSU on the market is able to satisfy all constraints of the highly integrated Devialet products with a small and specific form factor.

Devialet has thus developed **unique expertise** in power supply design, enabling the creation of powerful yet compact systems. PSU® serves as the **energy source for ADH® and SAM®**: to reproduce the music signal with its full dynamic range, high peak power is required, while average power consumption must remain low to prevent any risk of overheating within the system.



PSU story

Each Devialet product has thus **its own custom PSU**: the D-Premier, all Expert amplifiers, Phantom 1, Phantom 2, Dione, Astra and now Phantom Ultimate. In each product generation the performance is improved and a major step has been done for Astra which is now deployed also in Phantom Ultimate.

What is PSU and how does it work ?

PSU is the **direct link between the main AC-Input Power** of the system **and the ADH® amplifier**. It provides to the ADH® amplifier a **stable and low noise DC voltage** adapted to the needed output power and does use the unique Devialet DSP algorithms (including SAM®) to optimize the efficiency of the system.



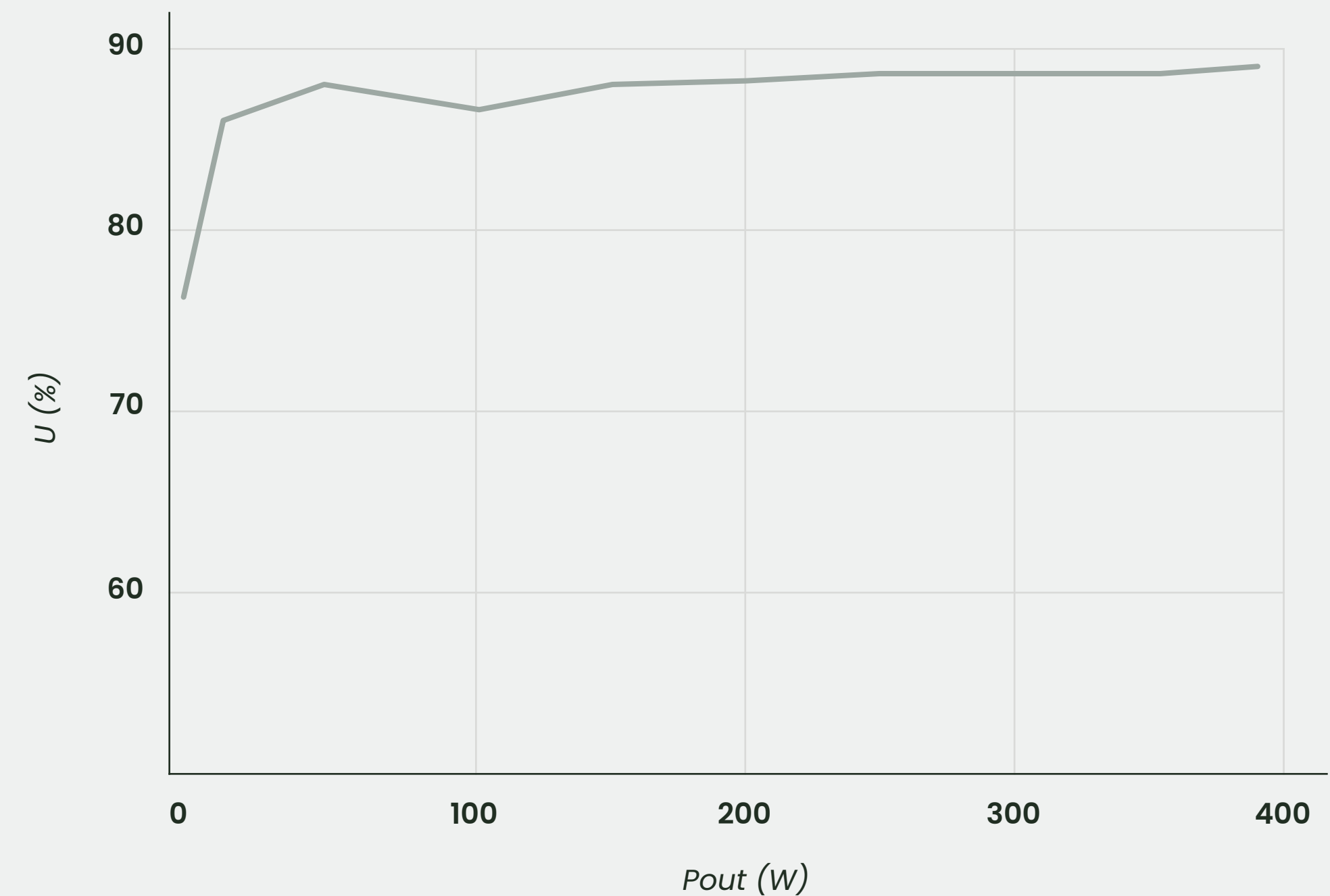
PSU evolution in Phantom Ultimate 108 dB (2025)

A **major step** in the PSU technology has been done for Phantom ultimate, leveraging the work done on Astra to improve both:

- The **efficiency**
- The **idle power consumption**
- The maximum continuous and **peak power**
- **EMC properties**

The new topology “Two-Switch Forward Converter” entirely engineered in-house allow to increase significantly the average heating of the system and power consumption when playing music.

This efficiency improvement also allows the system **to play longer at high levels.**



Phantom Ultimate 108 dB AC/DC Power Supply Unit efficiency vs continuous output power.



H B I[®]

(Heart Bass Implosion) is the combination of **proprietary mechanical and electroacoustic technologies** and know-how that enable **Phantom's extreme compactness** while delivering a unique physical sound experience.



Why HBI®?

Like SAM®, HBI® was born from the ambition to create a full-bandwidth speaker capable of **reproducing the lowest frequencies** (<20 Hz) at realistic levels, within a **compact form factor**, and surpassing the performance of subwoofers many times larger.

But compactness and low frequencies are, by the laws of physics, **antinomic**. Acoustic instruments that produce rich low frequencies are inherently large: a double bass, an organ, a grand piano, a bass drum, and so on. Similarly, loudspeakers capable of reproducing the scale of these instruments have traditionally required large drivers in very large enclosures, since a large volume of air must be displaced to generate such low frequencies.

To achieve this goal of compactness, multiple technical challenges had to be solved.

Whereas SAM® is a multiphysics system modeling and control technology implemented through Digital Signal Processing, HBI® represents the mechanical and electroacoustic solutions required to achieve this extreme level of compactness.

HBI® story

The earliest Phantom acoustics prototypes were built using standard woofers. However, **the target acoustic load of 3L per woofer** proved **unattainable**. Even **the strongest drivers available on the market imploded** during testing—hence the name Heart Bass Implosion. Their membranes and rubber surrounds fragmented into fractal shapes, sucked inward by the excessive forces caused by the unusually high internal pressure resulting from the reduced load volume.

In addition to this phenomenon, several other issues—and therefore technical challenges—emerged during the early prototyping phase. For example, with standard drivers the **electrical power required** to generate the desired low-frequency sound pressure levels was **too high to be naturally dissipated** by the enclosure.

These challenges led to the **development of proprietary technical solutions** and know-how, as industry-standard approaches proved insufficient. Instead of relying on traditional loudspeaker design rules, Devialet drew inspiration from other industries facing comparable high-constraint environments—such as micromechanics, automotive, and aerospace.



What is HBI® and how does it work ?

The starting point of HBI® is the **closed-box configuration** selected for low-frequency reproduction.

Any woofer, regardless of its quality, requires an acoustic load to prevent the cancellation of front and rear sound waves. For compact speakers such as Phantom, the most common configuration is the **vented box** (bass-reflex). This approach uses a Helmholtz resonator to boost certain frequencies, but at the cost of sacrificing the reproduction of the lowest ones, and introduces unwanted noise through the port.

An alternative is the **passive radiator**, which replaces the Helmholtz resonator with mass-spring resonators (passive membranes). While this avoids port noise, it suffers from the same limitation as the vented box—an inability to reproduce the deepest frequencies.

With the objective of **reproducing the lowest frequencies** (<20 Hz) within a **total enclosure load volume of just 6 L**, the **only viable solution** was a **closed-box architecture**, based on the Acoustic Suspension principle first described by Edgar M. Villchur in his AES paper “Problems of Bass Reproduction in Loudspeakers” (July 1957), then engineered with a series of innovative solutions.

In Villchur’s Acoustic Suspension principle, the volume of air inside the enclosure must be carefully matched to the woofer and the target frequency response. For Phantom’s target low-frequency performance, this would **normally require an air load between 100 L and 200 L**—roughly the volume of a bathtub.

Reducing this air load down to just 6 L introduces **significant consequences** for the entire system, dictated by the laws of physics:

- **Extremely high internal air pressure**, reaching unprecedented levels compared to traditional speakers, corresponding to **internal sound pressure levels above 170 dB SPL** –over 1,000 times higher than a rock concert.
- Substantially **higher power demand** to compress the spring created by the small volume of air
- Increased **mechanical vibrations**
- Severe **mechanical stress on the enclosure**, which risks deformation under such high internal pressure.

These challenges required complex engineering solutions, addressing each problem both at the architectural level and with the highest degree of detail and precision. Key issues included:

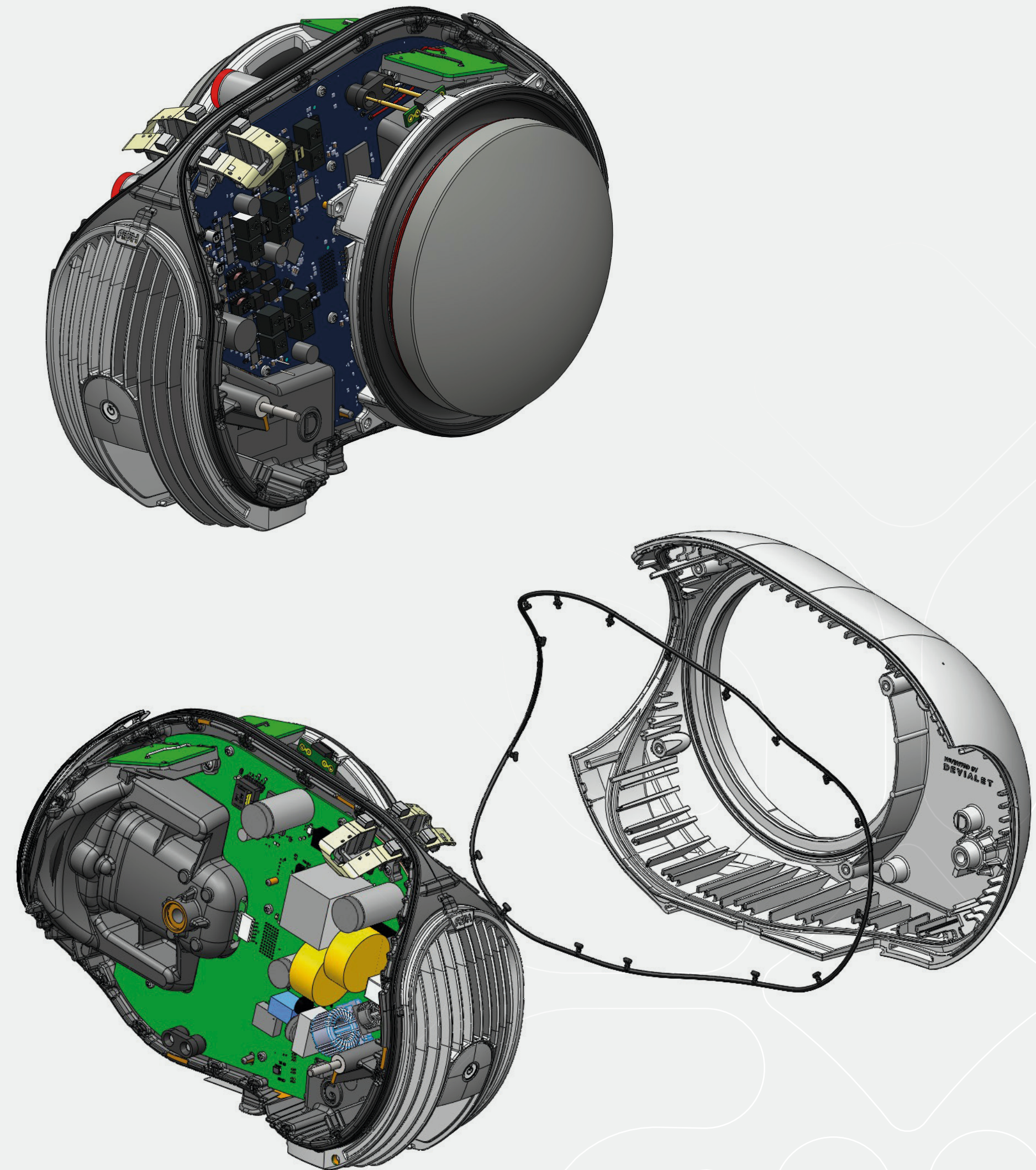
- Heat dissipation from the PCBs and drivers.
- Vibration cancellation.
- Airtight sealing at audio frequencies.
- Inaudible air decompression.
- Zero unwanted sound emission from the enclosure.

All of these had to be resolved in order to reproduce the lowest frequencies at realistic listening levels, with **ultra-low distortion** and **inaudible rub & buzz artifacts**. This is how HBI® was born.

HBI® relates to the **mechanical and electroacoustic architecture** of Phantom: the design of each mechanical component and the way they are assembled, resulting in a large number of constraints that had to be solved simultaneously, without compromise.

Key characteristics of HBI® include:

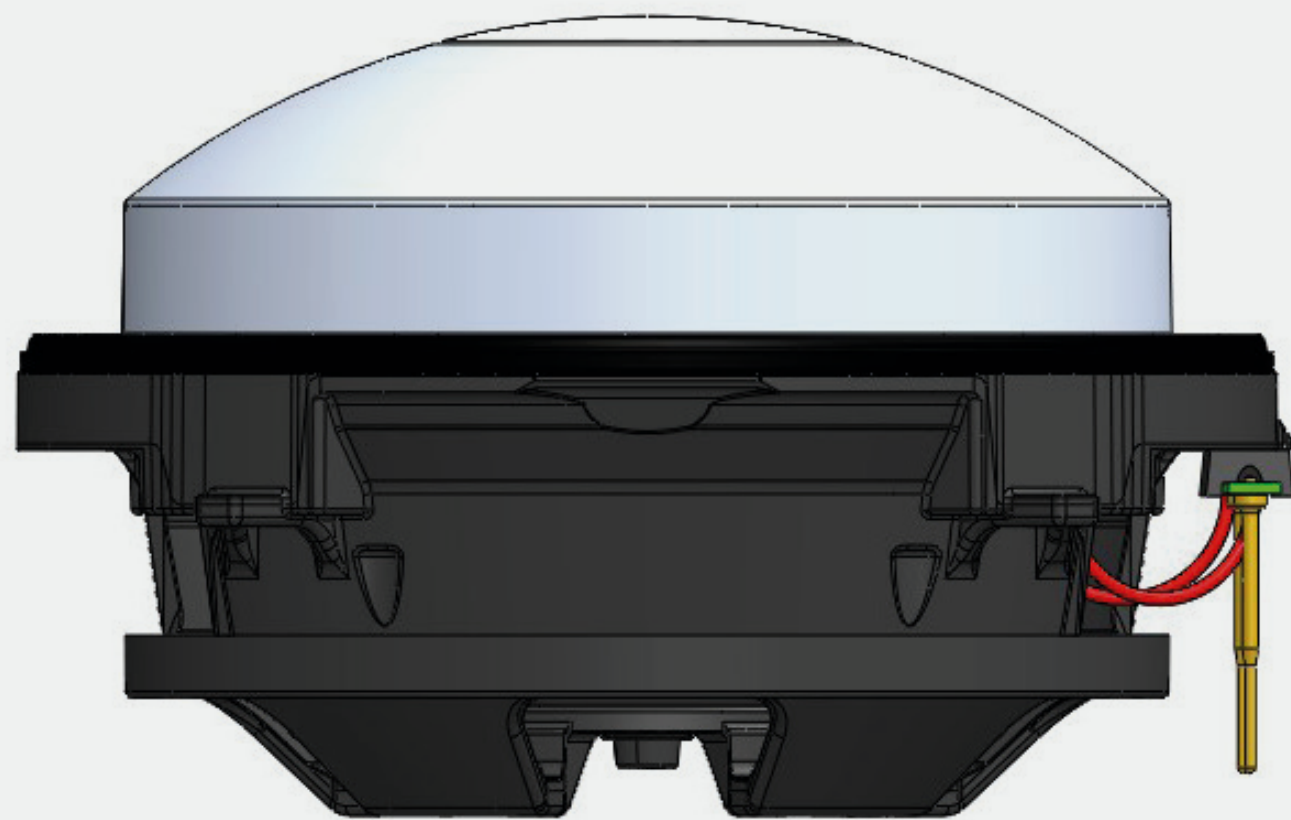
- A **unique aluminum central frame** (“âme centrale”) providing highly precise assembly of both the PCBs and loudspeaker drivers, while redirecting heat toward the rear integrated heatsink.
- **Symmetrical, force-cancelling (“push-push”) woofers.**
- **Custom shallow-profile woofers** combining high linearity, efficiency, excursion, and force factor, with low stiffness yet strong resistance to internal pressure.
- A **rigid, damped composite enclosure** with high mechanical strength, designed without flat panels to avoid resonances.
- A **unique assembly process** using custom tools to ensure perfect sealing
- A **proprietary 3D sealing joint system**, ensuring the enclosure is hermetically sealed.



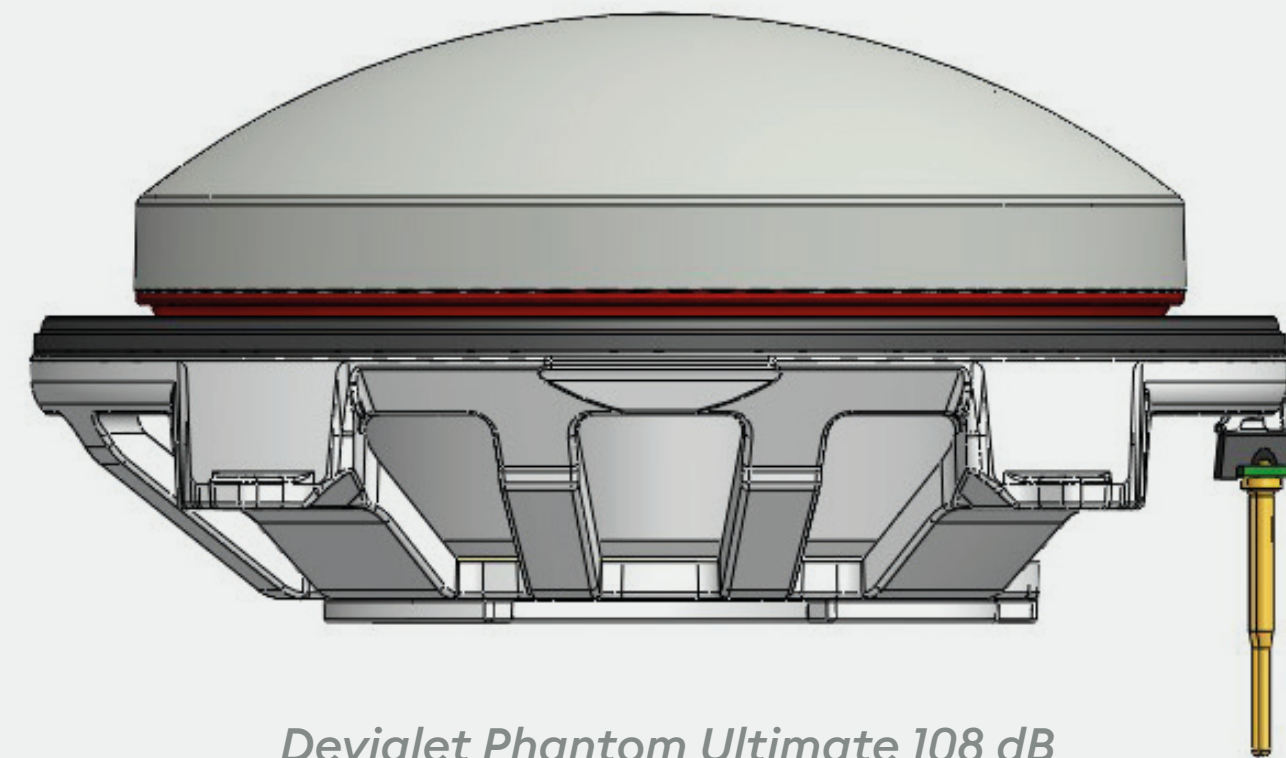
HBI® evolution in Phantom Ultimate 108 dB (2025)

Based on the same successful solutions as Phantom, Phantom Ultimate improves both product performance and aesthetics thanks to:

- **Thinner, more linear woofers** – new suspensions with lower stiffness, and a new under-hung motor design for negligible distortion even at the lowest frequencies.»
- **New woofer assembly:** removing the dust cap (present in Phantom I) creates a unified woofer design with no visible seam lines, while also improving mechanical resistance.
- **Enhanced thermal connections** – improving heat dissipation for sustained performance at all playback levels.
- Revamped speaker and enclosure **assembly process** to integrate the new woofer without a dust cap.



Devialet Phantom I



Devialet Phantom Ultimate 108 dB

A C E

(Active Cospherical Engine) is the foundation of Phantom's unique **acoustic architecture** and its iconic **shape and design**.



Why ACE?

The goal of the ACE acoustic architecture was to **create an ideal sound source**, free from diffraction effects, with **optimal directivity**.

The ambition was to design a speaker with the **widest possible sweet spot**, ensuring a coherent and continuous sound experience regardless of the listener's position.



ACE story

During the early phases of Phantom's development, various product shapes and acoustic architectures were explored, and the spherical shape was not part of the initial drawings (see Phantom Genesis section above). The decision to **adopt a shape as close as possible to the ideal sphere** was made later to **optimize both acoustic and design performance**, whatever the technical and industrial challenges this entailed. ACE required the invention of new technological solutions and the design of custom speakers to make this vision possible.

The goal was to be as close as possible to the theoretical pulsating sphere and the ideal spherical enclosure described by Harry F. Olson in his November 1951 AES paper, "Direct Radiator Loudspeaker Enclosures," while adapting it for a full-bandwidth, size-limited speaker.

ACE demonstrates that **aesthetic and technical constraints are not contradictory**. With innovative technological solutions, it is possible to **enhance both** performance and design, creating an iconic device without compromise.

What is ACE and how does it work ?

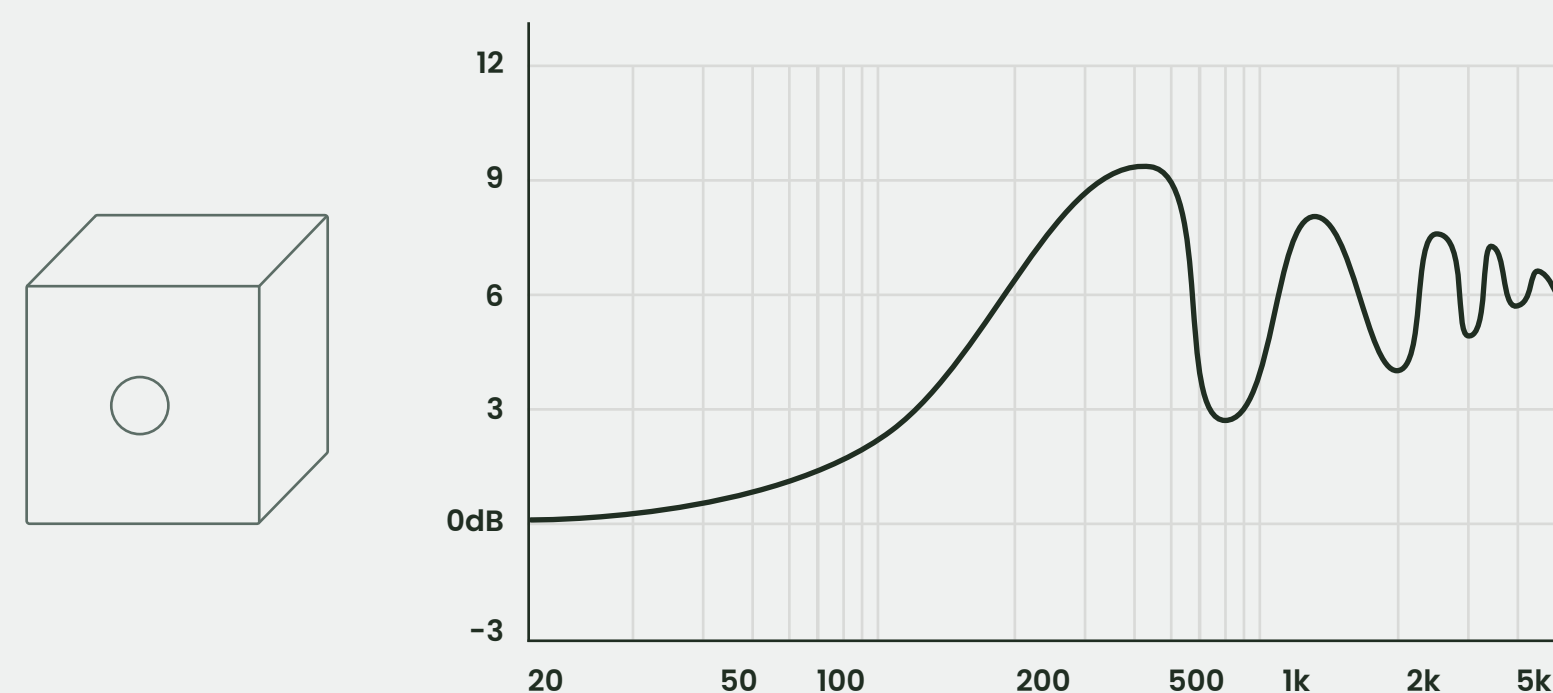
Traditional squared speaker enclosures generate many irregularities in the frequency response due to the diffraction of sound waves.

The only way to completely eliminate these effects is to use a spherical enclosure, with the speaker membranes in continuity with the sphere. The sphere must also be as small as possible.

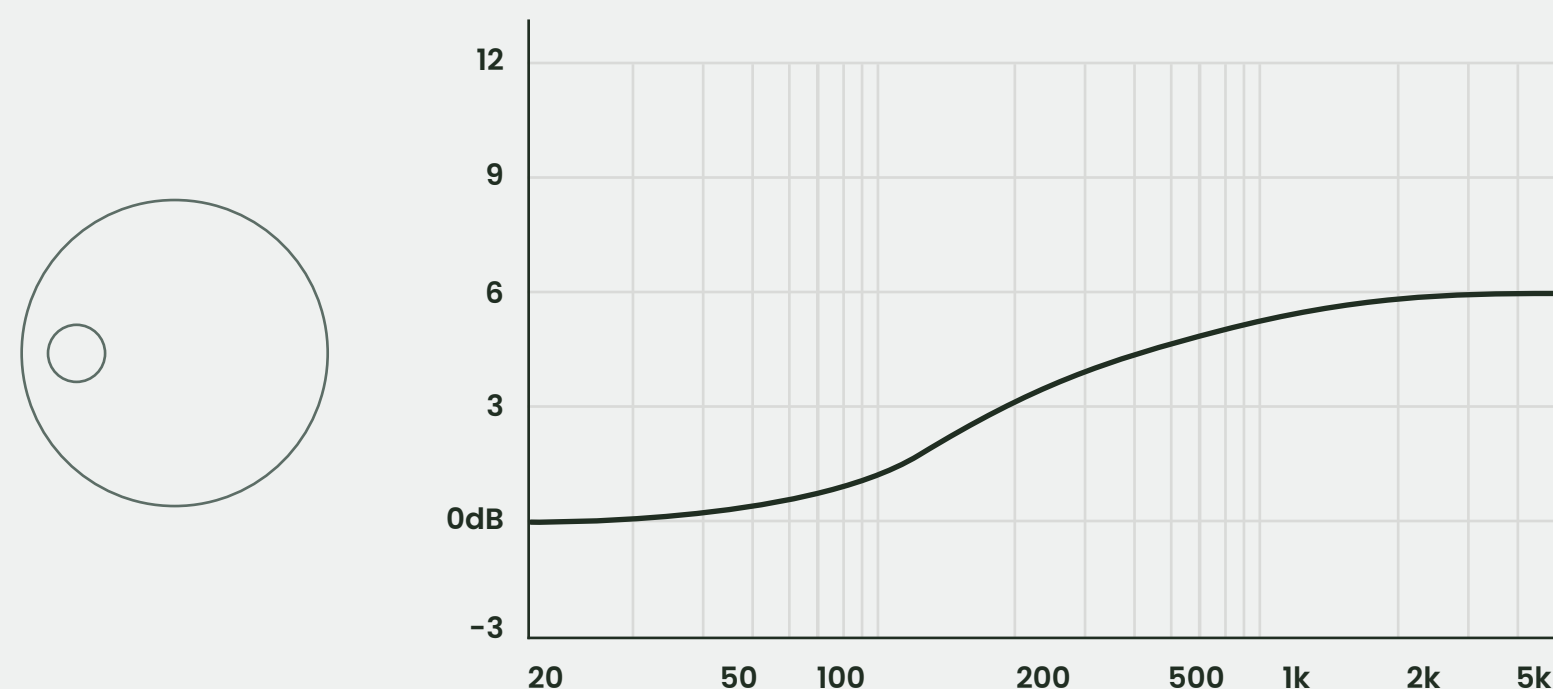
But eliminating diffraction and optimizing directivity must be achieved alongside other requirements. The targets—**full-range reproduction** from the lowest frequencies below 20 Hz to the highest above 20 kHz (to capture all instruments with their nuances and details) and **high maximum SPL levels** for a realistic live sound experience—impose significant constraints. A **multi-way speaker architecture** with dedicated woofers, midrange, and tweeter is therefore required to fully cover bass, midrange, and high frequencies.

As a result, four speakers must be integrated into a compact 253 mm sphere—an enclosure size where conventional designs rely on a two-way midwoofer + tweeter in a vented box, which suffers from poor directivity, limited maximum SPL, and weak bass below 50 Hz.

Diffraction Effect of a Cube

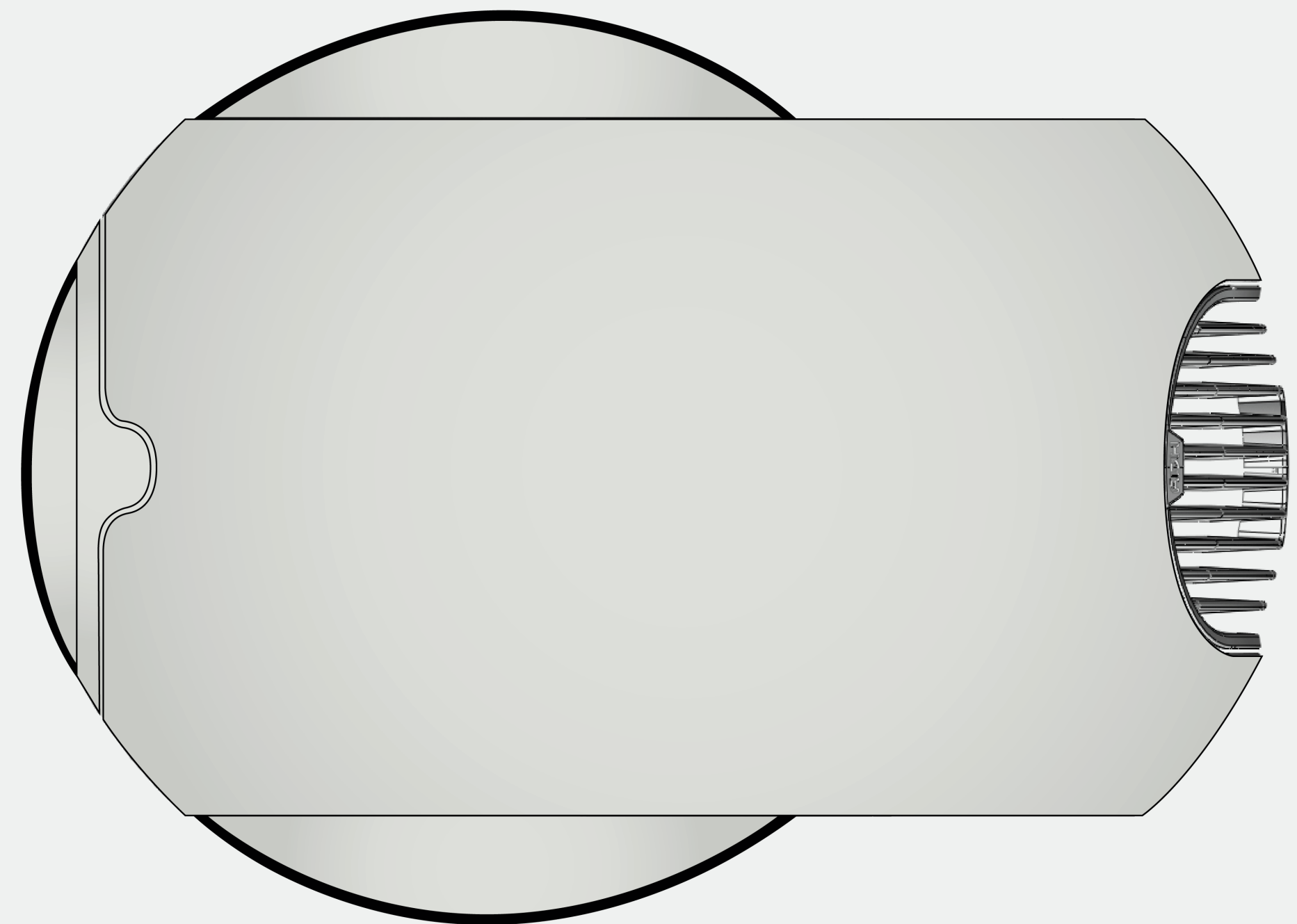


Diffraction Effect of a Sphere



ACE is **Phantom's acoustic architecture**: the enclosure shape, the type and placement of each speaker—all defined by multiple constraints that had to be solved simultaneously without compromise.

- Olson's principle dictates a **spherical enclosure**, with the speaker membranes in perfect continuity with the sphere.
- Ergonomics, design, and everyday usability limit the maximum sphere diameter to **253 mm**.
- Reproducing the lowest frequencies at realistic levels requires **two 8" woofers in a push-push configuration** (see HBI® section).
- Achieving the high SPL target of 108 dB requires a three-way architecture .
- The uniformity of directivity in all directions requires with an annular dome-shaped midrange, continuous with the sphere, and a coaxial tweeter positioned in front of it—unlike traditional coaxial speakers.



Cospherical speaker membranes

THE DEVIALET APPLICATION & *ITS ADVANCED AUDIO PARAMETERS*



A redesigned experience

The **Devialet app** interface has been revamped to offer a more modern and **intuitive experience**, in line with the design of the products themselves. More than a remote control—it is becoming an **essential part of the Devialet listening journey**.

With this new generation of Phantom, the app becomes a **powerful tool for personalization**. Users can now fine-tune their experience through **dedicated audio modes (Music, Movie, Podcast)**, and access **detailed audio settings** to adapt sound playback to their preferences and environment.

The app also introduces **new streaming protocols**, including **Google Cast** and **TIDAL Connect**, in addition to existing integrations like AirPlay®, Spotify Connect, Roon Ready®, Bluetooth®, and UPnP. Whether you're on iOS or Android, you can now stream music in high quality, with even more flexibility.

A **new communication protocol** based on **IP Control** makes product setup faster, smoother, and more reliable. Whether configuring a solo Phantom or a stereo pair, the process is now more seamless than ever.

Firmware updates and performance improvements continue to be delivered directly through the app, ensuring our products stay up to date with the latest enhancements.



Three main Audio Modes

01. MUSIC MODE

Features **Devialet's distinctive sound signature**, with deep bass and crisp highs. Optimized for rich, high-fidelity music playback

02. FILM MODE

Designed for **movies and video content**, this mode enhances dynamic effects, improves dialogue clarity, and adds a sense of immersion

03. PODCAST MODE

Ideal for **voice content** like podcasts or talk shows, this mode ensures speech intelligibility and consistent volume

Additional Mode: Monitoring Mode (Neutral)

A flat frequency response that delivers a **neutral sound and disables dynamic processing**. Ideal for studio-style listening or for creating your own custom settings.

Optional Overlay Mode: Night Mode

Night Mode can be activated on top of any main audio mode. It **reduces low-frequency content** and **smooths volume fluctuations** to allow for more discreet listening at night or in quiet environments. When Night Mode is enabled, a dedicated tuning is applied on both Bass Reducer and AVL™.



6-band Equalizer

Devialet Phantom Ultimate is equipped with a **six-band Accurate Graphic Equalizer** built into the audio signal's pre-processing stage. This tool lets users fine-tune the sound by adjusting the frequency response of the output.

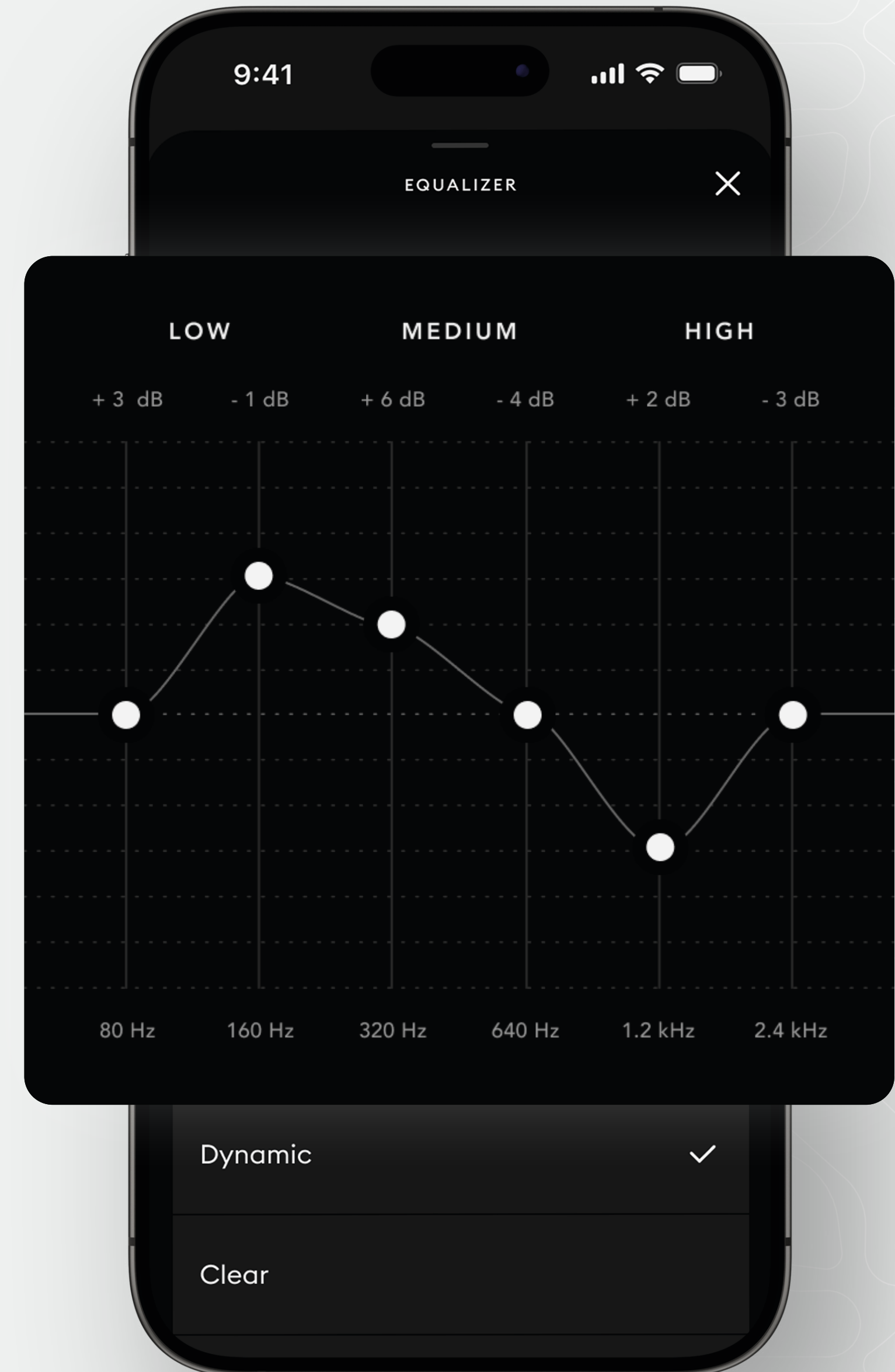
Key features of the EQ:

- Six frequency bands: 80 Hz, 125 Hz, 350 Hz, 1 kHz, 3.5 kHz, and 10 kHz
- Users can modify the gain level for each band to shape the audio to their preferences
- Gain adjustable from -6 dB to +6 dB

Available EQ presets include:

- **Default (Flat):** 0 dB gain on all bands
- **Soft**
- **Clear**
- **Dynamic**
- **Custom:** full manual control within the available gain range

These presets are available in all audio modes but **a different preset can be selected for each mode**, allowing for personalized sound profiles depending on the listening context.



Additional Audio Settings

Several sound processing features are linked to the selected audio mode and can be adjusted/toggled via the app:

- **ADAPTIVE VOLUME LEVELING (AVL™)**

Reduces volume gaps by boosting softer sounds, helping to keep audio levels consistent –especially useful for movies or dialogue.

Enabled by default in Movie and Podcast modes. Disabled in Monitoring and Music.

- **BASS REDUCER**

Lowers the level of **low-frequency** audio content, useful in sensitive listening environments.

Disabled by default in all modes.

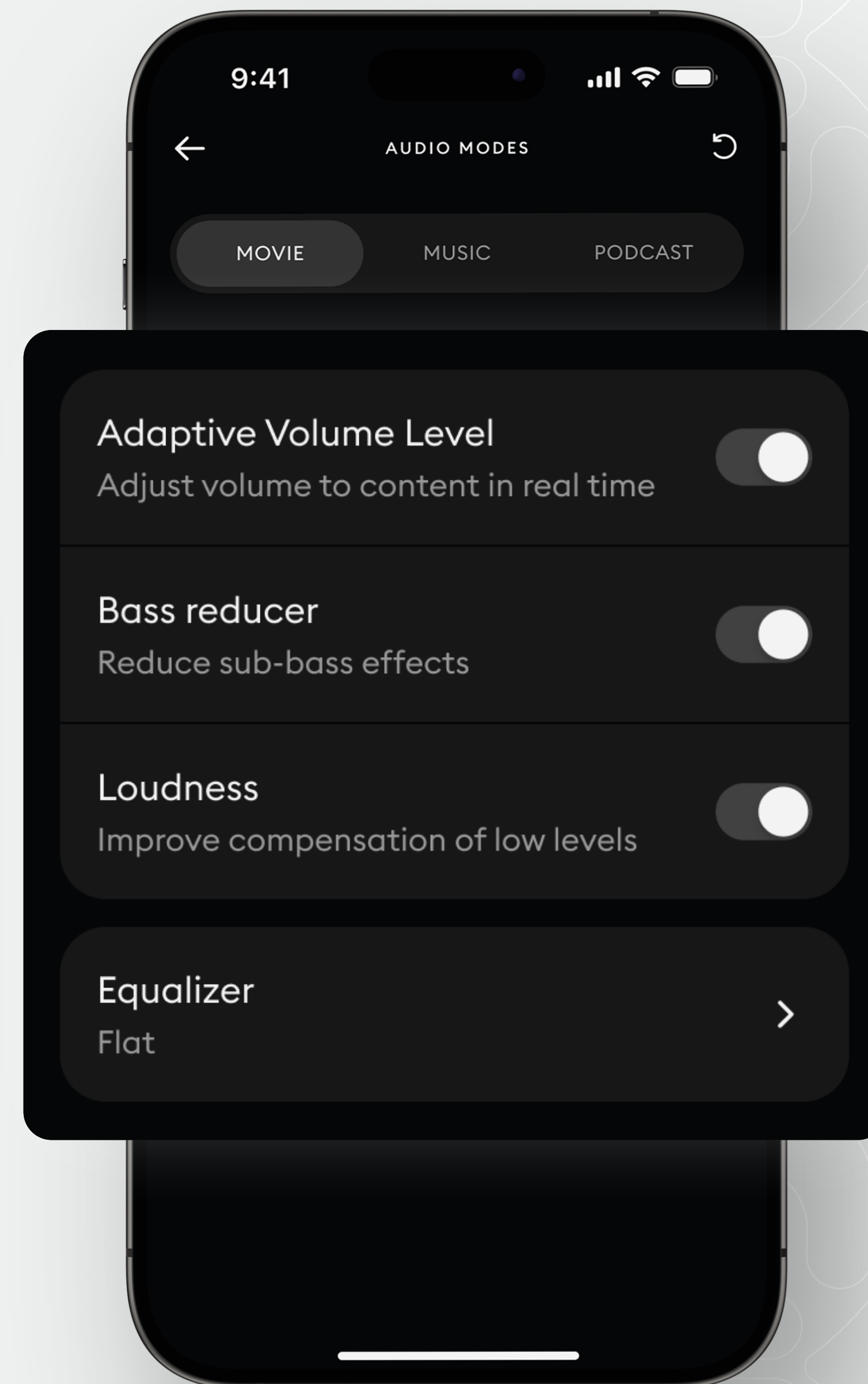
- **LOUDNESS**

Enhances bass and treble perception **at low volumes** by compensating for how human hearing works.

Enabled by default in Music, Movie, and Podcast modes. Disabled in Monitoring

- **BALANCE**

For stereo systems, this allows users to **shift the sound balance** between the left and right speakers.



DEVIALET
PHANTOM ULTIMATE
DESIGN EVOLUTIONS



Product interface

Devialet Phantom Ultimate features **four intuitive touch controls**—volume up, volume down, play/pause, and Bluetooth®—for a seamless and tactile listening experience.

A **LED indicator** on top of the speaker shows its status: off, booting (flashing), and on (solid white).



Tweeter grid

The redesigned tweeter grid combines aesthetics and function.

Inspired by 18th-century French gardens and Chladni wave patterns, it retains the signature arabesque and floral design while refining the overall look.

The grid's **improved opening ratio** (+13%) also enhances **acoustic transparency**, delivering even more detailed high-frequency reproduction.





Dust cap removal

By removing the dust cap, the Design team initiated a **complete woofer redesign**, making it both **sleeker** and **more robust**.

This innovation went hand in hand with a full rethinking of the assembly process and production lines.



APPENDIX



Devialet Phantom Ultimate 108 dB

Preview	Configurations	Mono / Stereo (paired with another unit)
	Finishes and versions	Light Pearl Body: ultra-mate painting - PANTONE 9102C Side panels: brillant mirror polished - PVD PANTONE METAL 8380C Deep Forest Body: ultra-mate painting - RAL DESIGN 140 20 05 Side panels: brillant mirror polished - PVD PANTONE METAL 8523C Opéra de Paris Body: ultra-mate painting - RAL 9016 Side panels: gold leaf gilding - Moon Gold - Ateliers Gohard
	Exclusive technologies	ADH® next-gen, SAM®, HBI®, AVL™, DAC Magic Wire®, Devialet ASIC Devialet Operating System DOS 3
	Transducers	1x Tweeter aluminium dome (new-gen) 1x Medium aluminium dome (new-gen) 2x Woofers ABS dome (new-gen)
	Materials	Composite body Internal shell: Glass-fiber reinforced Polycarbonate External shell: ABS Central core: Aluminium
	Mobile app	Devialet (iOS and Android)



Devialet Phantom Ultimate 108 dB

Performances	Total amplification power	1100 W
	Maximum Acoustic Pressure	108 dB SPL @ 1m
	Bandwidth	14 Hz - 35 kHz (+/- 6 dB)
	Background noise	0 dBSPL @ 1m
	Inputs	Up to 24 bit / 192 kHz
	DSP	32 bit / 96 kHz
	Processor	SoC NXP i.MX 8M Nano 4 x 1.5 GHz
Connectivity	WiFi	WiFi 6 802.11a/b/g/n/ac/ax 2x2 MIMO (2.4 GHz and 5 GHz)
	Ethernet	RJ45 Ethernet 100/1000 Mbps
	Interspeaker connection	Devialet DOS 3 sync. protocol (96 kHz / 24 bit)
	Inputs	1x TOSLINK® (optical)
	Streaming services	AirPlay Google Cast Spotify Connect Tidal Connect UPnP Roon Ready (RAAT)
	Bluetooth	Bluetooth 5.3 A2DP and AVRCP profiles SBC and AAC codecs



Devialet Phantom Ultimate 108 dB

General Information	Power supply	100-240 V-50/60Hz
	Power consumption	Off: < 0.5 W Standby: < 2 W
	Dimensions	Speaker: Width: 246 mm / 9.7 in Depth: 342 mm / 13.5 in Height: 255 mm / 10.0 in Packaging: Width: 287 mm / 11.3 in Depth: 446 mm / 17.6 in Height: 280 mm / 11.0 in
	Weight	Speaker 11.1 kg / 24.5 lbs Packaging : 12.3 kg / 27.1 lbs
	What's in the box	Devialet Phantom Ultimate 108 dB Power cable Documentation



Devialet Phantom Ultimate 98 dB

Preview	Configurations	Mono / Stereo (paired with another unit)
	Finishes and versions	Light Pearl Body: ultra-mate painting - PANTONE 9102C Side panels: brillant mirror polished - PVD PANTONE METAL 8380C Deep Forest Body: ultra-mate painting - RAL DESIGN 140 20 05 Side panels: brillant mirror polished - PVD PANTONE METAL 8523C Opéra de Paris Body: ultra-mate painting - RAL 9016 Side panels: gold leaf gilding - Moon Gold - Ateliers Gohard
	Exclusive technologies	ADH® next-gen, SAM®, HBI®, AVL™, DAC Magic Wire®, Devialet ASIC Devialet Operating System DOS 3
	Transducers	1x Full-range aluminium dome 2x Woofers aluminium dome
	Materials	Composite body Internal shell: Glass-fiber reinforced Polycarbonate External shell: ABS Central core: Aluminium
	Mobile app	Devialet (iOS and Android)



Devialet Phantom Ultimate 98 dB

Performances	Total amplification power	400 W
	Maximum Acoustic Pressure	98 dB SPL @ 1m
	Bandwidth	18 Hz - 25 kHz (+/- 6 dB)
	Background noise	0 dBSPL @ 1m
	Inputs	Up to 24 bit / 192 kHz
	DSP	32 bit / 96 kHz
	Processor	SoC NXP i.MX 8M Nano 4 x 1.5 GHz
Connectivity	WiFi	WiFi 5 802.11 a/b/g/n/ac 2x2 MIMO (2.4 GHz and 5 GHz)
	Ethernet	RJ45 Ethernet 100/1000 Mbps
	Interspeaker connection	Devialet DOS 3 sync. protocol (96 kHz / 24 bit)
	Inputs	1x TOSLINK® (optical)
	Streaming services	AirPlay Google Cast Spotify Connect Tidal Connect UPnP Roon Ready (RAAT)
	Bluetooth	Bluetooth 5.2 A2DP and AVRCP profiles SBC and AAC codecs



Devialet Phantom Ultimate 98 dB

General Information	Power supply	100-240 V~50/60Hz
	Power consumption	Off: < 0.5 W Standby: < 2 W
	Dimensions	Speaker: Width: 157 mm / 6.2 in Depth: 219 mm / 8.6 in Height: 168 mm / 6.6 in Packaging: Width: 210 mm / 8.3 in Depth: 285 mm / 11.2 in Height: 250 mm / 9.8 in
	Weight	Speaker 4.3 kg / 9.5 lbs Packaging : 5 kg / 11 lbs
	What's in the box	Devialet Phantom Ultimate 98 dB Power cable Documentation



User Manual - Devialet Phantom Ultimate 108 dB

01

**PLUG IN YOUR
DEVIALET PHANTOM ULTIMATE**

Use the supplied power cord to turn it on.

Wait for the start-up sound:
your product's LED turns green.

Your product is now ready to be configured.



02

**DOWNLOAD THE DEVIALET APP
TO CONFIGURE YOUR DEVIALET
PHANTOM ULTIMATE**

This is a required step to use your product.

Create an account or log in to get started.
Follow the on-screen instructions to connect
your product to your Wi-Fi network and configure it.



Google Play and Google Cast are trademarks of Google LLC.
Apple and AirPlay are trademarks of Apple Inc.,
registered in the U.S. and other countries and regions.

03

**PLAY
YOUR MUSIC**

Use your favorite streaming app to connect
your Devialet Phantom Ultimate directly
through one of the available protocols.

You can also stream music from your
mobile to your Devialet Phantom Ultimate
with Google Cast or Apple AirPlay.



Want to set up two
products in stereo?
Watch our video tutorials here



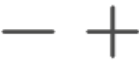
User Manual - Devialet Phantom Ultimate 108 dB

TOUCH CONTROLS



Bluetooth®

- Long press (2 seconds): enable Bluetooth pairing. Then go to the Bluetooth settings on your mobile and select your Devialet Phantom Ultimate



Volume

- Press: increase or decrease volume
- Long press: quickly adjust the volume

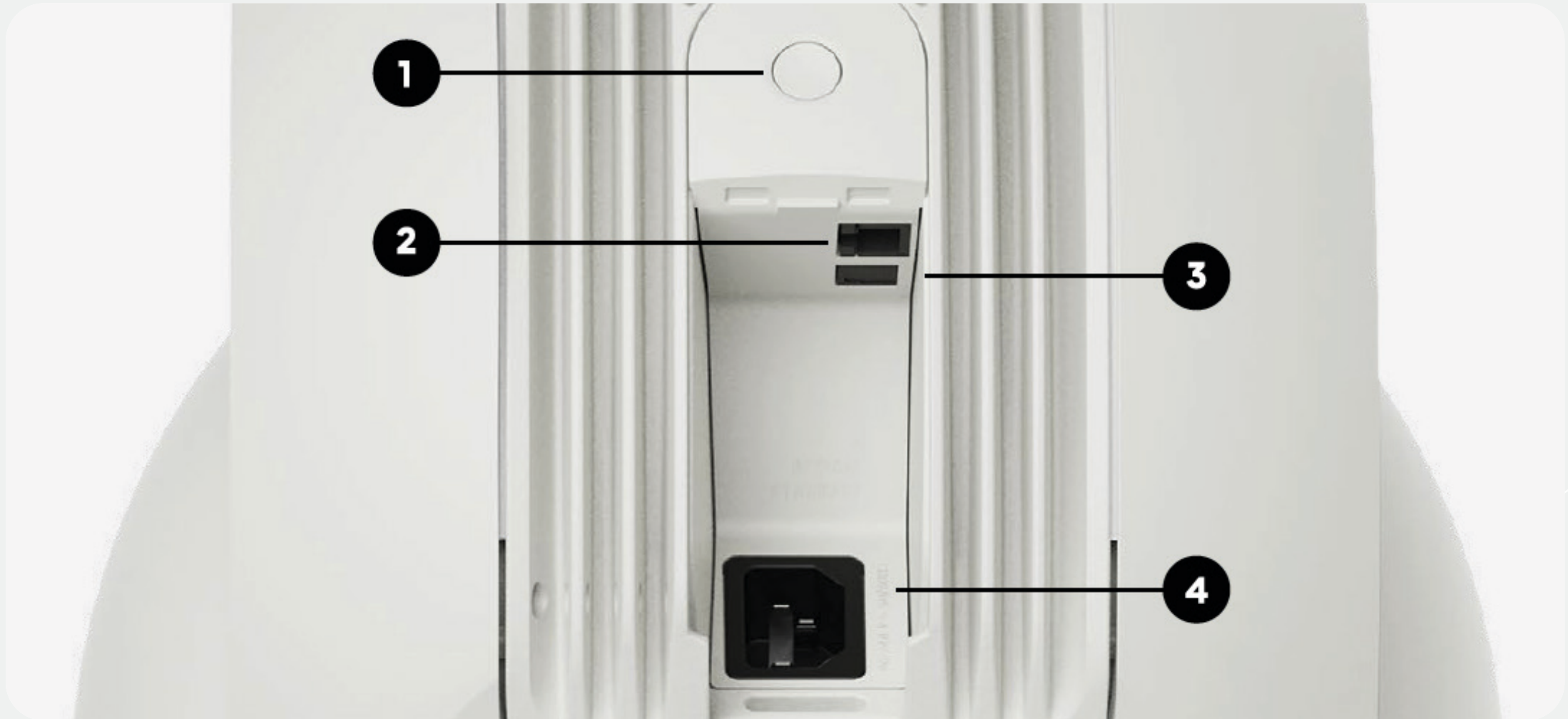


Play / Pause

- Press: play or pause
- Press (x2): next track
- Press (x3): previous track

PRODUCT STATUS LED

- ◉ Flashing white: startup in progress
- Solid white: default
- ◉ Flashing blue: Bluetooth pairing in progress
- Solid blue: Bluetooth connected
- ◉ Flashing green: connecting to Wi-Fi
- Solid green: awaiting configuration
- ◉ Flashing orange: failed connection between speakers
- Solid orange: network error
- Solid magenta: reset to factory settings



PLUGS & CONNECTIVITY

- 1 On / Off button**
 - Press: power on
 - Long press (2 seconds): power off
 - Long press (7 seconds): reset to factory settings
- 3 Optical Input**
 - Connect to your TV, Blu-ray player, and more

- 2 Ethernet**
 - Connect to your router using an Ethernet cable for greater network stability
- 4 A/C Input**
 - Plug to a power socket



User Manual - Devialet Phantom Ultimate 98 dB

01

PLUG IN YOUR DEVIALET PHANTOM ULTIMATE

Use the supplied power cord to turn it on.

Wait for the start-up sound:
your product's LED turns green.

Your product is now ready to be configured.



02

DOWNLOAD THE DEVIALET APP TO CONFIGURE YOUR DEVIALET PHANTOM ULTIMATE

This is a required step to use your product.

Create an account or log in to get started.
Follow the on-screen instructions to connect
your product to your Wi-Fi network and configure it.



Google Play and Google Cast are trademarks of Google LLC.

Apple and AirPlay are trademarks of Apple Inc.,
registered in the U.S. and other countries and regions.

03

PLAY YOUR MUSIC

Use your favorite streaming app to connect
your Devialet Phantom Ultimate directly
through one of the available protocols.

You can also stream music from your
mobile to your Devialet Phantom Ultimate
with Google Cast or Apple AirPlay.



Want to set up two
products in stereo?
Watch our video tutorials here



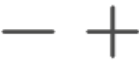
User Manual - Devialet Phantom Ultimate 98 dB

TOUCH CONTROLS



Bluetooth®

- Long press (2 seconds): enable Bluetooth pairing. Then go to the Bluetooth settings on your mobile and select your Devialet Phantom Ultimate



Volume

- Press: increase or decrease volume
- Long press: quickly adjust the volume

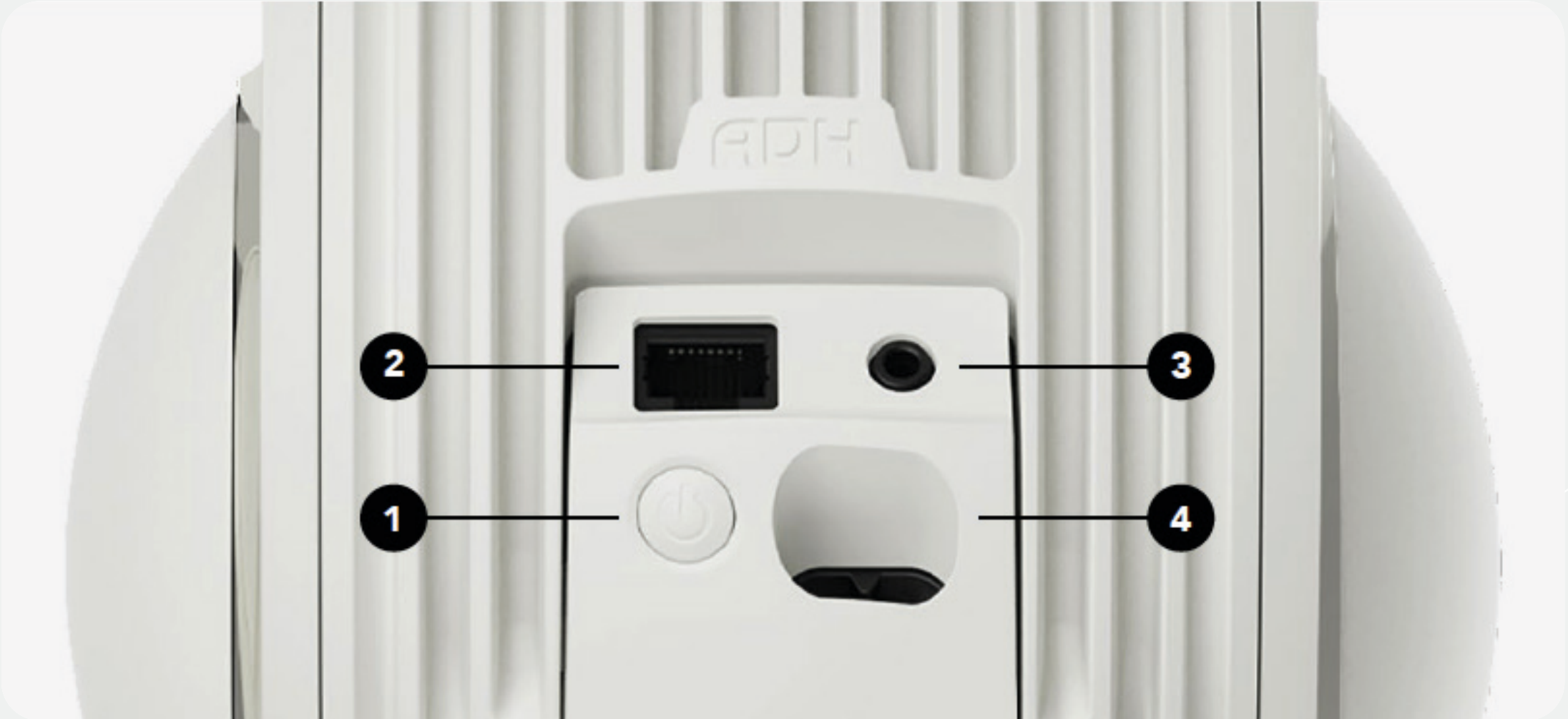


Play / Pause

- Press: play or pause
- Press (x2): next track
- Press (x3): previous track

PRODUCT STATUS LED

- ◉ Flashing white: startup in progress
- Solid white: default
- ◉ Flashing blue: Bluetooth pairing in progress
- Solid blue: Bluetooth connected
- ◉ Flashing green: connecting to Wi-Fi
- Solid green: awaiting configuration
- ◉ Flashing orange: failed connection between speakers
- Solid orange: network error
- Solid magenta: reset to factory settings

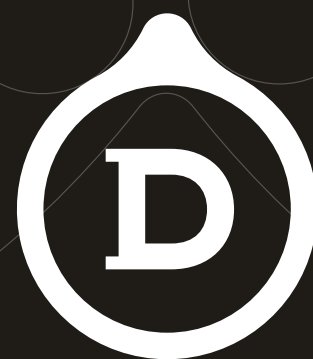


PLUGS & CONNECTIVITY

- 1 On / Off button**
 - Press: power on
 - Long press (2 seconds): power off
 - Long press (7 seconds): reset to factory settings
- 3 Optical Input**
 - Connect to your TV, Blu-ray player, and more

- 2 Ethernet**
 - Connect to your router using an Ethernet cable for greater network stability
- 4 A/C Input**
 - Plug to a power socket





DEVIALET