

Introducing  
**THE NEW  
PERSPECTIVE**  
in hearing care

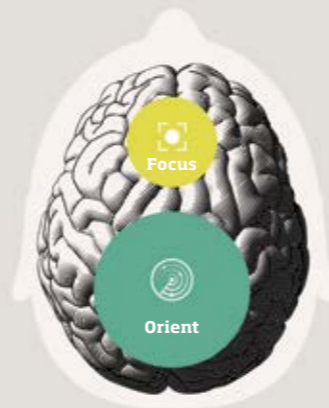


# Turning complexity into clarity requires the full perspective



Patients are constantly presented with sound scenes that are dynamic, complex and unpredictable. It's the brain's role to handle this complexity, to hear and to help create meaning from it all.

Developing life-changing technology to support the way the brain naturally processes sound has always been at the core of Oticon's BrainHearing™ philosophy. New independent research\* reveals that the hearing center consists of two subsystems: Orient and Focus. Both work together to provide the brain a good neural code which allows it to make sense of sound. This latest research also reveals that people with hearing loss can handle access to more – more information from the sound scene presented in a holistic and balanced way.



Taking our BrainHearing technologies to the next level, we've created a hearing aid that **works more like how the brain works**, because it learned through experience. Oticon More™ is the world's first hearing aid that uses a fully trained, on-board Deep Neural Network (DNN) to process the sound scene in a more precise and balanced way. This precise approach provides the brain with optimized input from all types of meaningful sound, giving patients **better speech understanding with less effort and the ability to remember more**.

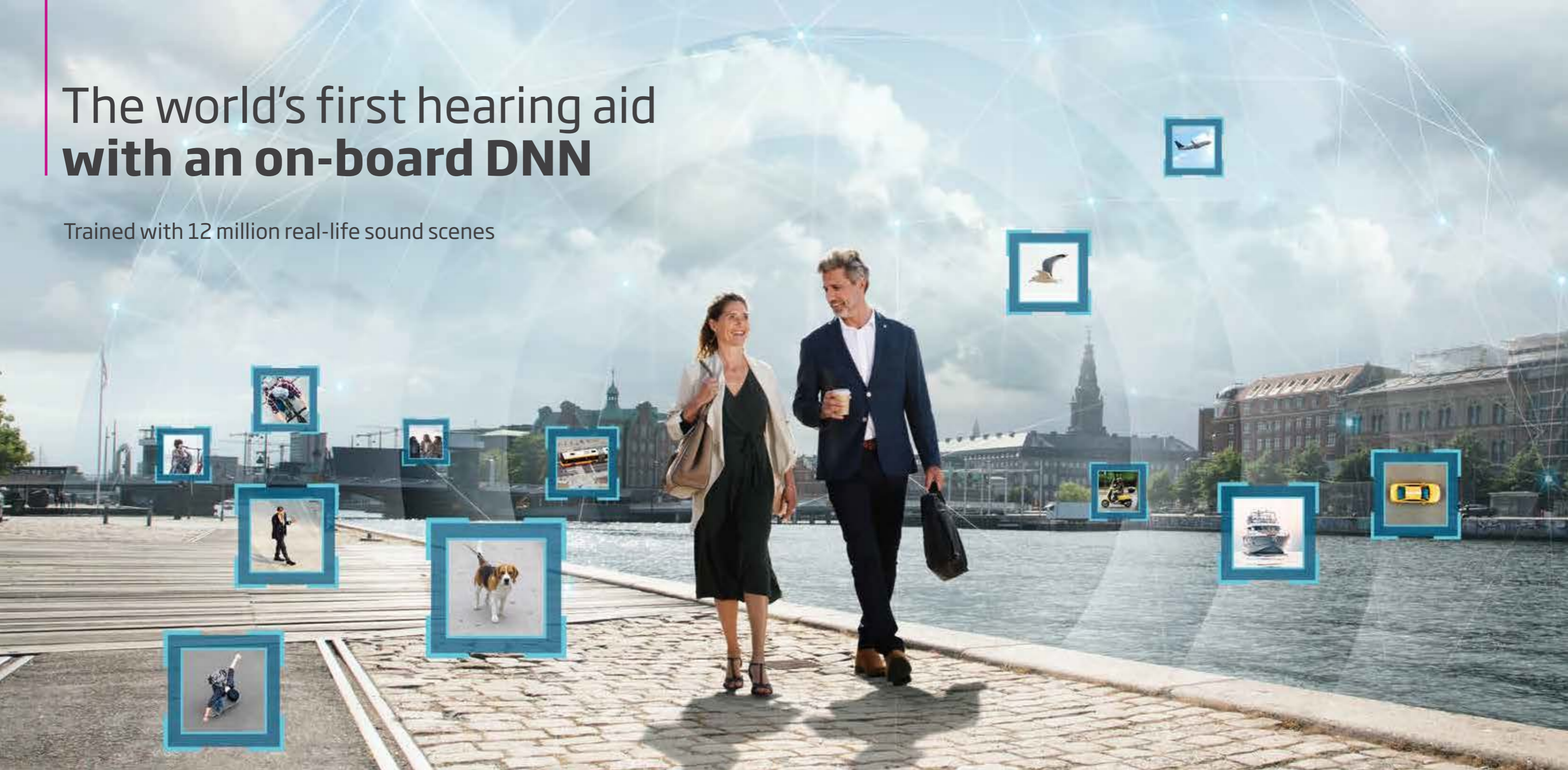
**Introducing Oticon More – the new perspective  
in hearing care**



\* O'Sullivan J, Herrero J, Smith E, et al. Hierarchical encoding of attended auditory objects in multi-talker speech perception. *Neuron*. 2019;104(6):1195-1209.  
Hausfeld L, Riecke L, Valente G, et al. Cortical tracking of multiple streams outside the focus of attention in naturalistic auditory scenes. *NeuroImage*. 2018;181:617-626.  
Puvvada, KC, Simon JZ. Cortical representations of speech in a multitalker auditory scene. *Journal of Neuroscience*. 2017;37(38):9189-9196.  
See also Man B, Ng E. 2020. BrainHearing–The new perspective. Oticon Whitepaper.

# The world's first hearing aid with an on-board DNN

Trained with 12 million real-life sound scenes



Oticon More utilizes the intelligent capabilities of a highly intelligent Deep Neural Network trained to learn the way the brain does naturally. Embedding a DNN in a modern hearing aid is a significant technological achievement, given the necessary power and space requirements. And it represents the next step in our BrainHearing journey.



Taking a new perspective, we broke out of the lab and went into the real world with a 360° spherical microphone to collect **12 million sounds** from real life. We then used these real-life recordings as the foundation for training the DNN. By training it to exactly the right level, the DNN is able to seamlessly handle virtually all of the sound scenes of the world with unparalleled precision.

With this integrated intelligence, Oticon More has learned to recognize all types of sounds, their details and how they should ideally sound—all in order to optimally support the brain.

**Oticon More was trained to learn from the sounds of the world, the way the brain does.**

# Helping patients jump into life's amazing complexity

With access to a full, precisely balanced sound scene

New independent research shows that the brain needs access to all sounds—not just speech—in order to work in a natural way. And now, research using innovative methods proves Oticon More delivers just that.

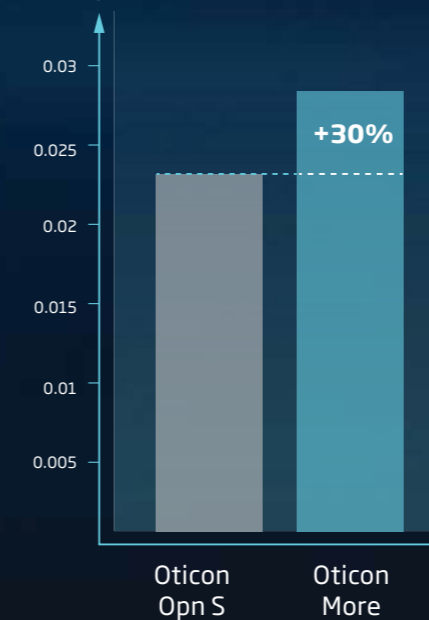


To measure how Oticon More affects the brain's ability to make sense of sound, we used EEG testing to track patients' brain activity. Based on the strength of the EEG signal, the research showed that MoreSound Intelligence™ technology in Oticon More makes the full sound scene 60% clearer for patients.\*\*

This ability to represent all relevant sounds in the brain is crucial for a patient's ability to navigate in environments that are dynamic and complex. By delivering a full sound scene, Oticon More helps ensure a good neural code is being created for the brain, which in turn gives the brain's orient and focus subsystems the best conditions to work optimally.

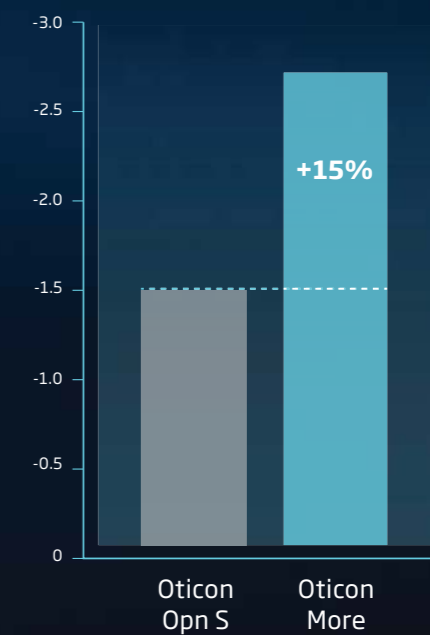
MoreSound Intelligence is proven to make the full sound scene **60% clearer\*\***

EEG strength in orient subsystem



Bar graph corresponds to SNR of 70% intelligibility

dB SNR



## Better speech understanding with less effort

Because Oticon More gives the brain access to more sound, it makes it easier for the brain to understand speech.

At the same time, Oticon More is also proven to reduce listening effort, enabling people to remember even more of what's being said.\*

When compared Oticon Opn S™, our best hearing aid until now, EEG testing shows Oticon More:

- Delivers 30% more sound to the brain\*
- Increases speech understanding by yet another 15%\*

\* Santurette, S., Ng, E. H. N., Juul Jensen, J., & Man K. L., B. (2020). Oticon More clinical evidence. Oticon Whitepaper.  
\*\* EEG testing with MoreSound Intelligence in on vs off setting, from Santurette et al.

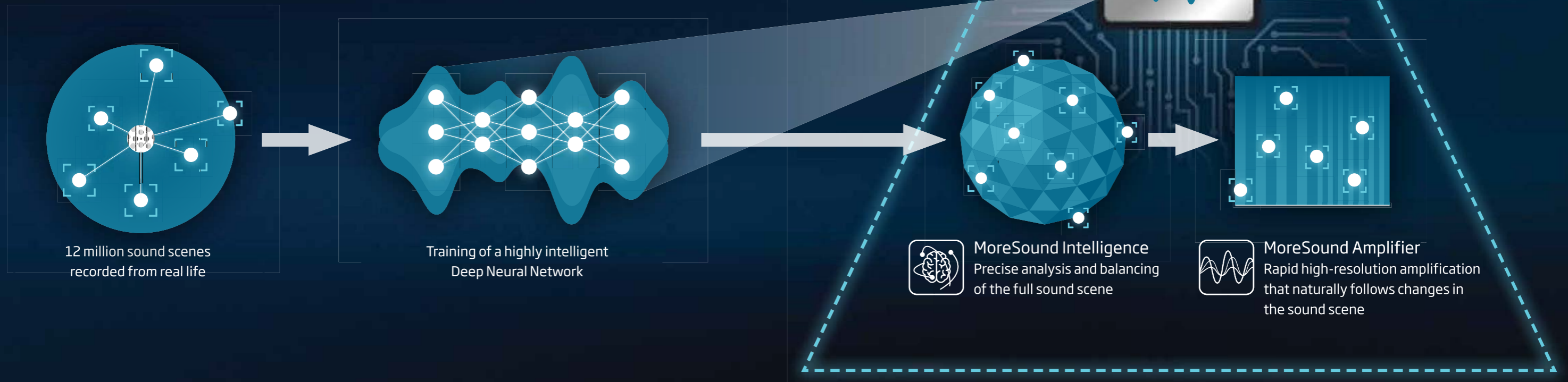
# A fundamentally new approach to sound processing

To deliver a full and balanced sound scene, we have completely redefined the way we process sounds. We recorded sounds from real-life and used them to train a highly intelligent, embedded Deep Neural Network that is the foundation for the sound processing technology in Oticon More.

This approach enables us to launch two new groundbreaking features built to ensure the full sound scene is processed and amplified precisely: MoreSound Intelligence™ and MoreSound Amplifier™.

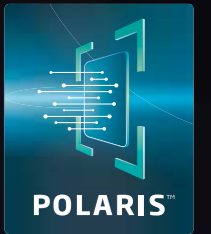
MoreSound Intelligence occurs first and processes the sound environment with surgical precision to provide clear contrast and balance for all sounds. Next, MoreSound Amplifier takes the information and precisely amplifies the sounds in a way that makes it easy for the patient to orient and focus.

**This is, quite simply, a leap into the future.**



New Polaris™ platform

# Delivering the full perspective demands **our most intelligent platform ever**



The world's first platform featuring an embedded Deep Neural Network

The Polaris platform is the backbone of Oticon More and was built specifically for hearing aids. This focused approach allows it to constantly run a highly trained DNN, while powering all the technologies in Oticon More with more speed, precision and capacity than was ever possible before\*.

**16x**

more capacity to execute advanced algorithms\*\*

Intelligent use of industry-leading  
**64-channel processing**

**Twice**

the computation capacity and speed\*\*

**2x**

precision in 1.5-5kHz frequency bands\*\*

**On-board**

Deep Neural Network processing

\*Brændgaard, 2020b.  
\*\*Compared to Velox 5 platform.



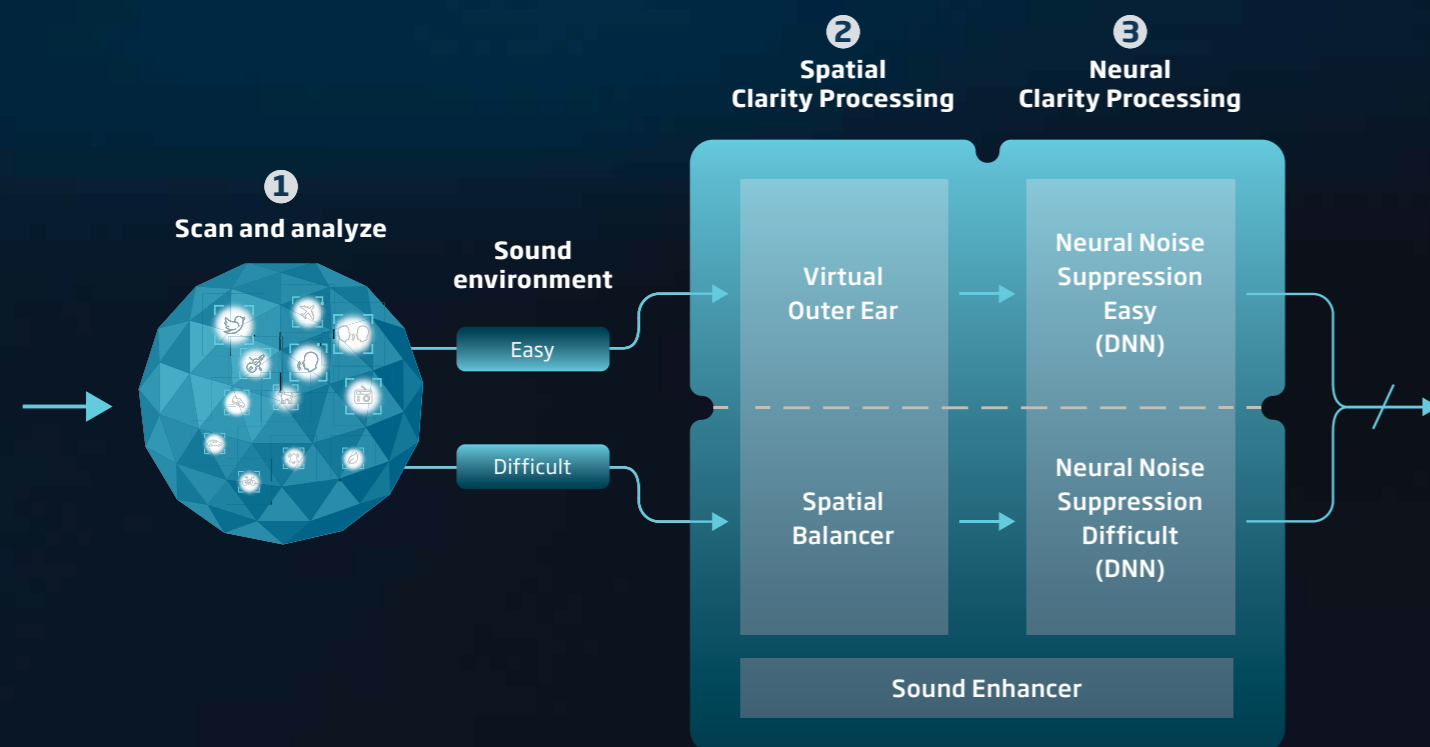
# A quantum leap in signal processing

Access the full sound scene with clear contrast and balance

Oticon More features a groundbreaking technology, MoreSound Intelligence, that makes it easier for the brain to separate sounds and focus on what is important. MoreSound Intelligence consists of three parts: Scan and Analyze, Spatial Clarity Processing and Neural Clarity Processing. All three parts work together to provide the brain a more precise and natural representation of all sounds in the environment. This helps the brain orient and focus better with clear information that makes it easier to make sense of sound for improved speech understanding.

## 1 Scan and analyze

- Scans the full sound scene 500 times per second to capture a precise analysis of all sounds
- Calculates the signal-to-noise ratio and noise levels to determine the complexity of the environment
- Benchmarks level of complexity against patient's personal listening preferences established in Genie 2



For additional information on MoreSound Intelligence, please see Brændgaard, M. 2020. MoreSound Intelligence. Oticon Tech Paper.

## 2 Spatial Clarity Processing

Once the environment is scanned and analyzed the information is passed over to Spatial Clarity Processing. Spatial Clarity Processing includes two main technologies: Virtual Outer Ear and Spatial Balancer.

The complexity of the environment and the patient's personal listening preferences determines which is active. In easy environments Virtual Outer Ear is active and in more complex environments Spatial Balancer takes over.



### Virtual Outer Ear

- Active in easy environments
- Helps recreate natural spatial cues provided by the pinna
- Models the filtering of real human pinnae to ensure the sound scene is reproduced based on accurate and natural spatial information
- Includes the choice of three different true-to-life pinna models that can be chosen based upon patient's needs



### Spatial Balancer

- A more powerful feature for more difficult environments
- Quickly balances distinct sound sources in the environment, even when they are moving
- Makes sure meaningful sounds remain accessible and stay balanced precisely against dominating noises around the user

## 3 Neural Clarity Processing

With Neural Clarity Processing, sound is processed by the Deep Neural Network (DNN) embedded on the chip. It uses this highly intelligent on-board DNN to process sound instead of algorithms written and developed by engineers.

The DNN:

- Trained with 12 million real-life sound scenes to learn how to process sounds more like the brain does
- Precisely analyzes intricate details of virtually all sounds, to find complex patterns in a sound scene
- Knows how to represent sounds naturally and with clarity, with better contrast and balance.



### Sound Enhancer

Working with both Spatial Clarity and Neural Clarity processing, Sound Enhancer provides more details or more comfort in difficult situations based on user preference by dynamically adding sound detail.

- Gives extra gain for speech sounds in the 1-4 kHz regions in difficult situations

MoreSound Amplifier™

# Dynamic, balanced and seamless amplification system

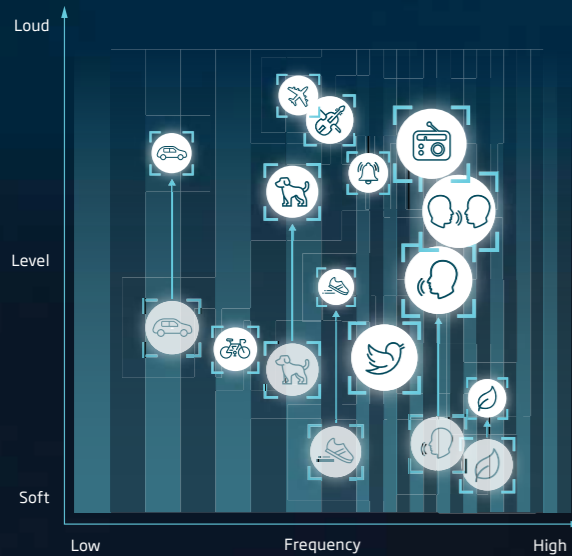


Making the full sound scene audible while maintaining contrast and balance

The MoreSound Amplifier in Oticon More is a trailblazing balanced amplification system that seamlessly adapts its resolution and speed to the nature of the sound scene at hand. And it works precisely and quickly to ensure that important details and dynamics are made audible and available, while maintaining the fine contrast and balance among sounds.\* This ensures the brain has access to the important information it needs to make sense of sound and focus quickly on what is most important.\*\*



MoreSound Amplifier



## MoreSound Amplifier includes:

- Six-times increase in resolution for more precise amplification
- Adaptive speed pilot designed to make sound scene audible while maintaining the contrast and balance between sounds
- Constant prioritizing of 4-channel or 24-channel paths based on incoming signal

\*Brandgaard 2020b. The Polaris Platform  
\*\* Santurette & Behrens, 2020.



# Next-generation connectivity to smartphones

## Direct streaming from iPhone® and Android™ devices

### Oticon More

- Features Bluetooth® Low Energy technology and offers an extensive range of connectivity options to support a high-quality listening experience in everyday situations
- Is a Made for iPhone hearing aid and compatible with the new Android protocol for Audio Streaming for Hearing Aids (ASHA) - making it possible to stream directly from iPhone, iPad®, iPod touch® and Android devices\*



Made for iPhone | iPad | iPod

Works with android

## A wide range of connectivity options



### ConnectClip

Use ConnectClip as a remote microphone, as a remote control, or to turn the hearing aids into a wireless headset. ConnectClip enables streaming from any Bluetooth device and enables comfortable hands-free calls.



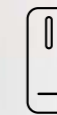
### TV Adapter

Use TV Adapter to stream sound from the TV directly to Oticon More hearing aids



### Remote Control

Adjust volume, switch programs, or mute the hearing aids with the touch of a button



### EduMic

Use EduMic as a one-to-many remote microphone or to stream audio from computer, tablets, and more



## Oticon ON app – Easy and discreet control over the hearing aids

The Oticon ON app lets patients personalize their listening experience via the new streaming equalizer that enables them to fine-tune the sound when streaming music or a movie. It also allows them to adjust volume, switch programs, check battery level and more – all from the palm of their hand.



## Oticon RemoteCare – Convenient online appointments with your patients

With Oticon RemoteCare you can connect remotely with your patients to conduct follow-up appointments and routine adjustments. It saves them time by allowing hearing aid adjustments to be conducted from the comfort of their own home.



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\*Android devices need to support ASHA to allow direct streaming to Oticon More. Please visit [oticon.com/support/compatibility](https://oticon.com/support/compatibility) for more information.

# The state-of-the-art rechargeable solution full of options

The new Oticon More miniRITE R is a discreet lithium-ion-based rechargeable style that provides a full day of battery life,\* including streaming, after just three hours of charging. Oticon More includes a choice of performance levels, comes with a t-coil, and covers hearing loss ranging from mild to severe.



Oticon More miniRITE R is compatible with miniRITE Charger 1.0

**NEW miniFit OpenBass dome**  
Easier open fittings with improved sound in low- and mid-frequencies



## Improve speech understanding



**MoreSound Intelligence™**  
Access to all relevant sounds in a clear, complete and balanced sound scene



**Sound Enhancer**  
Dynamic gain primarily for speech, given in complex environments



**MoreSound Amplifier™**  
Rapid high-resolution amplification that follows changes in the sound scene



**Spatial Sound™**  
Improves ability to locate the most interesting sounds



**MoreSound Optimizer™**  
Optimal gain and open fittings, without feedback risk



**Soft Speech Booster**  
Improves soft speech understanding without turning up the volume



**Virtual Outer Ear**  
Three realistic models of the ear pinna to provide better spatial balance

## Enhance sound quality



**Speech Rescue™**  
Makes high frequency sounds more audible



**Clear Dynamics**  
Better sound quality with less distortion in loud environments

## Maximize listening comfort and personalization

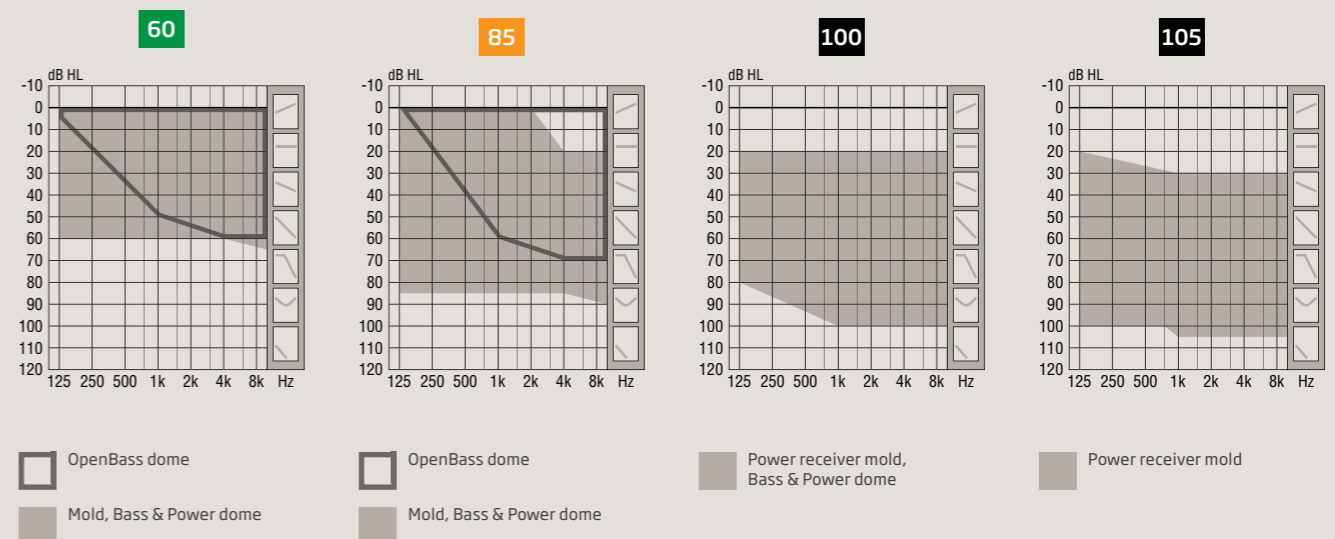


**Wind Noise Management**  
Improves access to speech in situations with wind noise



**Tinnitus SoundSupport™**  
Relief sounds for tinnitus patients

## Covering a wide range of hearing loss



\* Lithium-ion battery performance varies depending on hearing loss, lifestyle and streaming behavior.

life-changing  
**technology**

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