

● **OTICON | Opn Play**



Oticon redefines child-friendly hearing care



Introducing a
breakthrough
in pediatric
hearing care

oticon
PEDIATRICS

Let every child open up to the world even in complex learning environments



Introducing the new Oticon Opn Play

Powered by the new, revolutionary Velox S platform, Oticon Opn Play unleashes the full potential of the open sound paradigm. It represents a whole new way for children to hear sounds and thereby increase speech understanding in noise. This provides better conditions to meet developmental needs and the day-to-day challenges of growing up.

Building on the success of Oticon Opn, Oticon Opn Play is designed for children with hearing loss. With access to 360° sound from the sound environment, Oticon Opn Play helps children of all ages open up to the world.

As well as opening up the world, Oticon Opn Play allows children to benefit from the prescribed gain without the risk of feedback* taking speech understanding to an even higher level.

Oticon Opn Play represents a breakthrough in pediatric hearing care that has never been possible until now.

“
My daughter age 6 was complaining of headaches at school and having to take breaks from the classroom... **As soon as she went to school with the Opn, she no longer asked for breaks from the classroom** and said the noise is a lot more manageable.

Kate, mother of Emma, age 6

“
Opn changed my life a lot. Hanging out with friends and not knowing what theyre talking about, that was always the worst. With Opn hearing aids I dont have that problem.

Carlo, age 18, Oticon Opn user

* For prescribed fittings, according to best practice.
** Compared to the Inium Sense platform.
*** Compared to the Velox platform.

2 These testimonials represent the opinion of the concerned individual only and may not be representative of the experience of others. The testimonials are not paid and may not be indicative of the future performance or success of any other individuals.

Faster data processing than ever before



Velox S is the fastest, most advanced platform we have ever developed. It fuels Oticon Opn Play with unprecedented computation power to create a life-changing experience for children.

- 50 times faster data processing than ever before**
- Outstanding resolution with 64 frequency channels
- Full environment analysis more than 100 times per second
- Increased memory enabling groundbreaking improvements***
- New detectors monitor changes in the acoustic environment with 56,000 measurements per second, enabling the OpenSound Optimizer
- New signal processing algorithms for proactive feedback management
- New design for optimized rechargeable battery performance

Children live and learn in a beautifully chaotic world

Being able to make sense of sound is crucial to children's development and growth



Children's brains are often described as sponges, soaking up information around them. More than 80% of what they learn comes through incidental learning. Children live, learn and interact in exceptionally diverse listening environments, and the differing characteristics of each make all of them challenging.*

Sounds from children's constantly changing world come at them from 360°. Their brains process this continuous stream of information to help them make sense of the world around them and learn.

Children with hearing loss are at a disadvantage as the brain receives only parts of the speech signal and this may be distorted. They may find it far more difficult to distinguish speech from noise compared to children with

normal hearing. To compensate, they apply extra effort to try and fill in what they miss, which often causes feelings of being overwhelmed, isolated and fatigued as they struggle to keep up and understand.**

Traditional **omni directional technology overloads young minds** in noisy environments

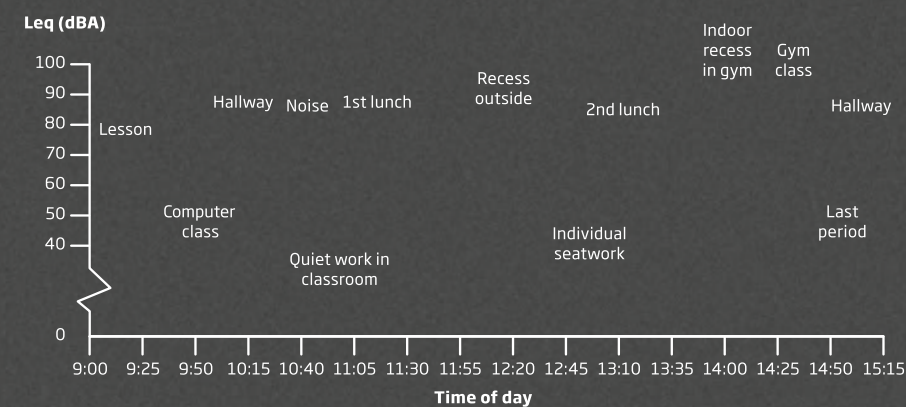
Restricting the child from optimal conditions to learn



Learning new words in noise is challenging for children whether they have a hearing loss or not.* For children with hearing loss, this becomes even more difficult.

Traditional fixed omnidirectional technology gives children with hearing loss unorganized access to all sounds around them including noise. This makes it hard for them to separate speech from noise and make sense of sound.

The brain must then work far harder to understand conversation in noise, overloading the child and restricting them from optimal conditions to learn in noisy environments.



The 2011 Cruckley et al study shows the high and varying level of noise throughout a typical school day. This is why children with hearing loss need help to support them in these conditions.

Word learning

In order to learn new words, children with hearing loss require more repetitions than their normal hearing peers.**

Learning new words is related to the quality of the auditory signal. Studies show that word learning is supported by better noise reduction schemes** and extended bandwidth.***

* Riley, K. G., & McGregor, K. K. (2012). Lang Speech Hear Serv Sch, 43(3).
 ** Pittman, A. (2011). J Speech Lang Hear Res, 54(5).
 *** Pittman, A. L. et al. (2017). Trends Hear, 21.

Traditional directional technology closes down sounds



and restricts opportunities to learn

In noisy environments, traditional directional technology gives children access to the speaker directly in front of them while closing down other sounds. This stresses the brain as such a narrowed and artificial environment does not provide the stimuli it needs. In addition, since children don't always orient themselves to the speaker,* sounds of interest from behind the child or even to the sides will be attenuated. This reduced availability of

sounds can restrict the opportunities to learn via incidental learning as it restricts children's ability to overhear speech coming from any direction.** Similarly, traditional directional technology limits awareness of environmental sounds, which is extremely important for children's auditory development and safety in their everyday environment.

* Ricketts, T. A., & Galster, J. (2008). J Speech Lang Hear Res, 51(2).
** American Academy of Audiology Clinical Practice Guidelines Pediatric Amplification June 2013.

Open up to a breakthrough in pediatric hearing care



Better hearing starts with the brain

Oticon defies convention and works in a different way than simply compensating for damage in the ear. In order to deliver what the brain needs to make sense of sound, our hearing aids are built on the philosophy that better hearing starts with the brain. This is BrainHearing. Oticon Opn Plays always-open approach gives the brain access to a balanced soundscape and supports the natural way it makes sense of sound even in difficult listening environments. This gives children the freedom to choose who and what to listen to, so they no longer have to live with the restrictions of traditional technology.

Breaking with traditional technology and giving children full access to a rich, balanced soundscape

The open sound paradigm experienced with Oticon Opn Play is powered by Oticons Velox S platform and takes pediatric hearing care to a new level. Velox S offers outstanding speed and resolution, enabling Oticon Opn Play to quickly and precisely analyze the soundscape, and follow and differentiate between sound sources.

Oticon Opn Play gives children the support they need to choose which sounds to pay attention to naturally. It also takes a giant step forward in improving speech understanding in complex listening environments and in maximizing incidental learning by allowing access to multiple speakers. With a more complete soundscape around them, Oticon Opn Play provides children with the best conditions possible to grow, thrive, live and learn.

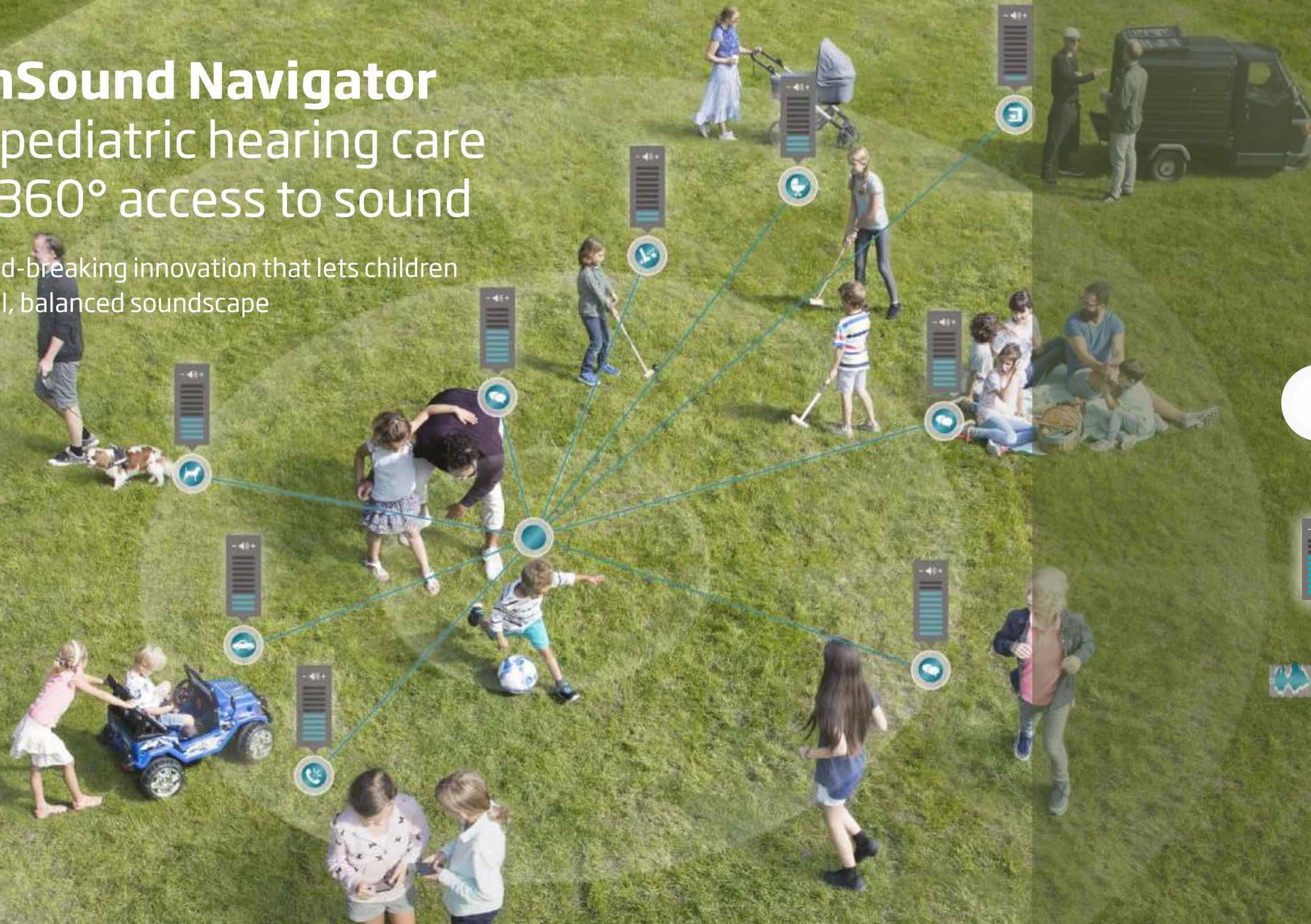


TwinLink Two communication systems in one hearing solution

Oticon Opn Play is the first pediatric hearing aid to feature two dedicated communication systems. One provides outstanding binaural processing (Near Field Magnetic Induction), the other, streamer-free connectivity with devices. All this is delivered without compromising battery consumption and size.

OpenSound Navigator now pediatric hearing care with 360° access to sound

The ground-breaking innovation that lets children enjoy a full, balanced soundscape



OpenSound Navigator

Three steps to the open sound experience in a split second

1: Analyze

Scans the full 360° sound environment more than 100 times per second to identify noise and separate it from speech.



2: Balance

Rapidly reduces the levels of loud noise coming from specific directions, while preserving speech.



3: Noise removal

Rapidly attenuates remaining diffuse noise, even between individual words.



OpenSound Navigator gives children access to the full soundscape across simple and complex listening environments, constantly optimizing learning opportunities. It works so fast and precisely that it can attenuate unwanted noise even between words in an open soundscape. Spatial Sound LX ensures a more precise localization of sound which is enabled by an increase in binaural communication capacity of more than 200%.*

Data exchange at streaming speed gives the brain the cues it needs to pinpoint the position of all distinct sounds. Together, with the OpenSound Navigator, Spatial Sound LX delivers the open sound experience that allows children to differentiate between sounds, locate sounds and listen to the things they are curious about or interested in.

OpenSound Navigator delivering on best practice

According to best practice guidelines in pediatric amplification, it is crucial to give children as much of the auditory environment as possible, in particular speech. It is also crucial to provide the best opportunities for learning and language development.** Oticon Opn Play featuring OpenSound Navigator accommodates best

practice by providing the optimal signal-to-noise ratio across varying listening environments. As the child grows and their listening demands change, Oticon Opn Play hearing aids can be adjusted and personalized to continuously provide the optimal support for the individual child.

Up to 25% more speech cues to the brain



Eliminate fitting compromises with the OpenSound Optimizer

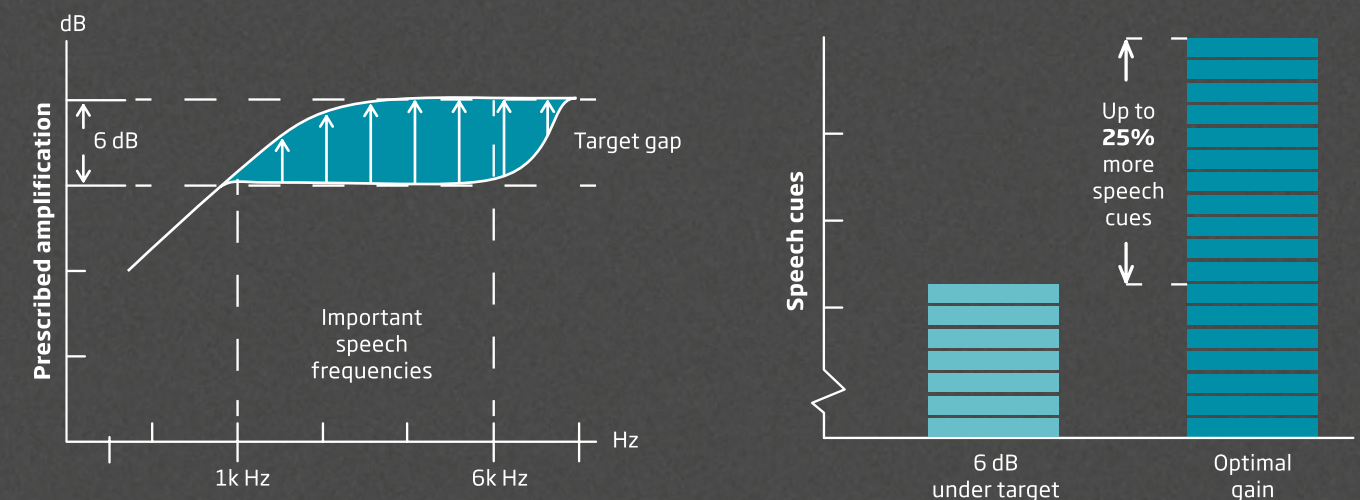
Children's hearing aid fittings are often unable to meet the prescribed gain due to the risk of feedback.* Hearing care professionals are often restricted in their fitting and forced to make compromises due to the limitations of conventional technology.

You want to give optimal gain to every child. Older children should benefit from the comfort of an open fitting to avoid own voice problems and occlusion, but this is often not possible due to the risk of feedback. Similarly, for younger children, the risk of feedback is often present due to small and growing ears. As a result, either sound clarity or audibility are compromised due to reduced gain or comfort from closed fittings.

The OpenSound Optimizer changes all this. It analyzes amplified sound at an astonishing 56,000 times/sec so it can detect and prevent feedback proactively, even before it occurs. This enables you to fit the child with up to 6 dB more gain, providing either more open fittings or stable gain for closed fittings without the risk of feedback. The OpenSound Optimizer represents a breakthrough in accessing speech details with more natural sound and increased comfort.

A well-fit hearing aid maximizes audibility and hence moderates the risks of delays in language development.** Due to the limitations of conventional technology, clinical practice today allows for a target deviation of 5 dB, often leading to children being under fit. The result is that the brain is deprived of speech cues crucial to its ability to make sense of sound.

By amplifying speech with up to 6 dB more gain for an open fitting or by enabling more stable gain for a closed fitting, Oticon Opn Play provides the brain with up to 25% more speech cues.***



OpenSound Optimizer

from feedback management to feedback prevention



All children are born curious and with boundless energy, but for children with hearing loss, curiosity, everyday rough and tumble as well as their growing ears have always run the risk of causing annoying feedback.

OpenSound Optimizers proactive feedback prevention system allows children to play, hug, interact and wear hats and helmets without feedback.

Old world

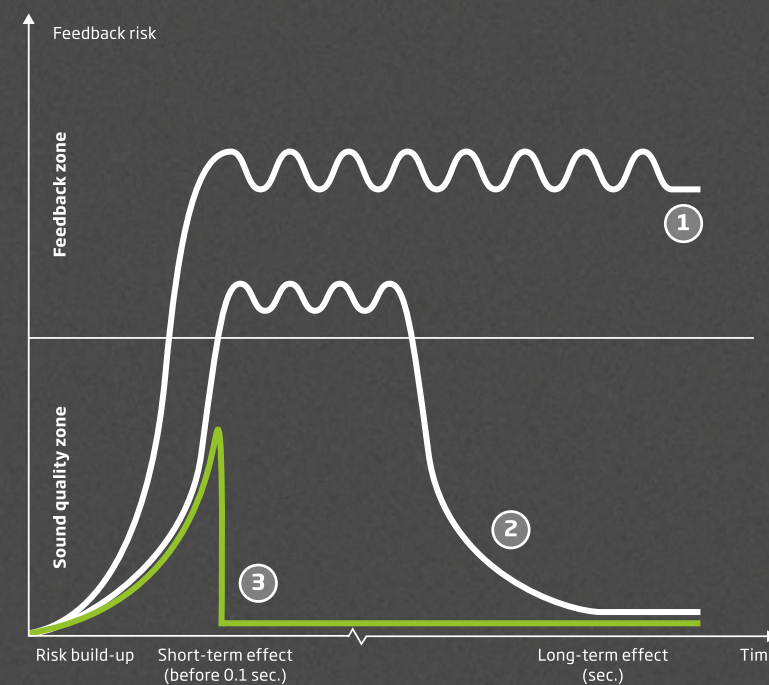
Traditional anti-feedback systems take about a second to detect and react to the build-up of feedback

Because of the limitations of current technology, the management of feedback has been a long-term challenge for the hearing aid industry. Too slow to react when feedback builds, these traditional and reactive technologies manipulate the sound signal and reduce gain in order to manage the feedback loop and return to stable gain. The result is not only a discomfort when feedback rises, or the compromise on sound quality and speech understanding it also affects the brains ability to naturally focus on the surrounding sounds.

New world

30 times faster detectors and a patented breaker signal in the OpenSound Optimizer prevent feedback from occurring*

At Oticon, we do not accept this compromise. Driven by new, ultra-fast detectors, the OpenSound Optimizer can prevent feedback, even before it occurs. By applying a unique and patented feedback breaker signal, designed to take the brains perception of sound into account, Oticon Opn Play delivers up to 6 dB more stable gain, thus preserving audibility and quality of sound.



1 Hearing aid without feedback management

No anti-feedback system, no detectors: Audible and uncomfortable feedback rises and persists, dramatically reducing speech understanding.

2 Hearing aid with conventional technology

Traditional anti-feedback with slow detectors: With this reactive technology, feedback rises and becomes audible. Utilizing gain reduction and other measures, the hearing aid slowly returns to stability. Audibility, sound quality and speech understanding are compromised.

3 Oticon Opn Play

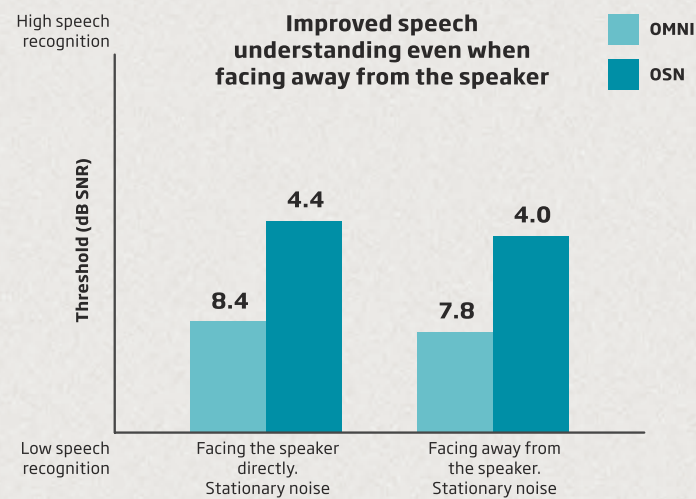
OpenSound Optimizer with ultra-fast detectors: Proactively identifies feedback risk and engages breaker signal in risk areas before feedback builds and affects sound quality. Audibility and speech are preserved.

OpenSound Navigator is proven to provide up to 30% improved speech understanding

and allows better opportunities for incidental learning



A study at Boys Town National Research Hospital sought to establish whether OpenSound Navigator (OSN) improved childrens speech recognition in noise and whether OpenSound Navigator allows access to multiple talkers, thereby supporting incidental learning. This study compared OpenSound Navigator to traditional omni directionality.



A speech recognition test in noise was used to see whether children would receive comparable benefit with OpenSound Navigator when the listener faced the speaker directly as well as away from the speaker.

When compared with omni directional mode, test results showed that OpenSound Navigator offered an average of 4 dB SNR (up to 30%) improvement in speech recognition in both test set-ups.

Access to multiple speakers supporting incidental learning

The same study examined whether OpenSound Navigator preserves competing speech coming from different directions behind the listener.

As expected, OpenSound Navigator and omni directional mode resulted in comparable speech recognition performance. This shows that OpenSound Navigator preserves competing speech, allowing access to multiple talkers and thereby supporting incidental learning for children.

Open sound experience with less effort

enhancing learning opportunities



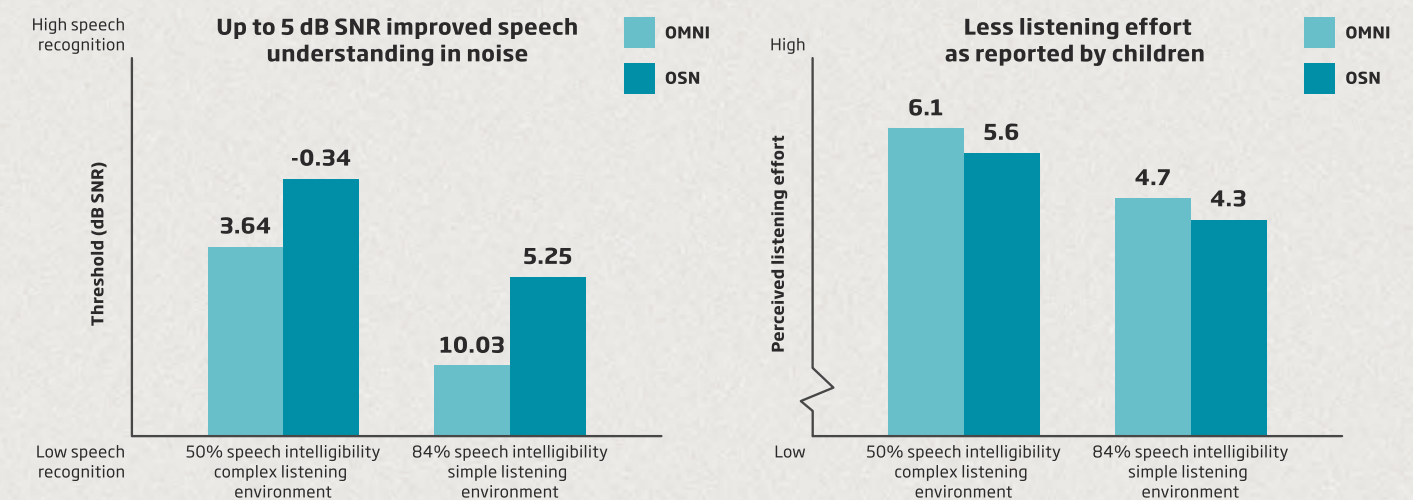
A study on listening effort for children with hearing loss showed that OpenSound Navigator improves speech understanding with less effort compared to traditional omni directionality.

A study at VU University Medical Center in Amsterdam looked into the effect of OpenSound Navigator on speech understanding and listening effort in noise for children with hearing loss between the ages of 12-16 years. The level of effort the children used in different listening conditions was assessed using pupillometry and self-perceived effort level in a speech perception task.

The test simulated two listening environments, complex and simple, comparing OpenSound Navigator and omni directional mode.

The results showed that OpenSound Navigator improved speech understanding, compared to omni directionality, across listening conditions by up to 5 dB SNR.

Subjectively, the children perceived significant less effort while listening to speech in noise with OpenSound Navigator activated. In addition, the objective measures of listening effort showed a tendency that OpenSound Navigator slightly reduces the average pupil response in simpler environments, indicating less listening effort. Less listening effort allows children to spend more effort on relevant classroom learning, such as acquiring new skills and knowledge.



Oticon Opn Play connects to more experiences and learning opportunities



A full range of easy-to-use solutions for the classroom

Classroom settings and teaching methods have become even more diverse and demanding, and children with hearing loss struggle to keep up with what is happening around them. When distance and background noise is added to the equation, remote microphone technology can support children when hearing aids are not enough, in gaining clear access to the teachers voice.

Oticon Opn Play offers a broad range of classroom connectivity options to ensure technology does not stand in the way of smoothly integrating the student with hearing loss in various school systems. It allows the child to hear what the teacher is saying loud and clear, at a distance and in the typical classroom with poor signal-to-noise ratios.

Remote microphone options that enhance communication

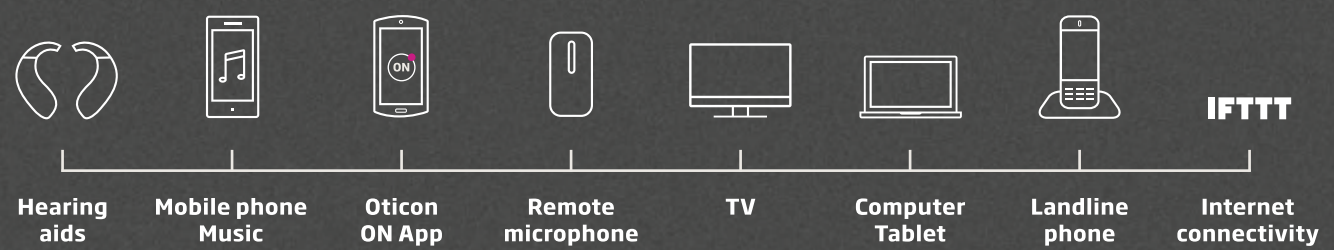
Completely integrated solution with the built-in 2.4 GHz Bluetooth low energy receiver in Oticon Opn Play, enables the hearing aids to seamlessly connect with Oticons ConnectClip. The ConnectClip remote microphone enhances communication in difficult environments, and in addition enables children to stream directly from electronic devices.

Oticons dedicated Amigo R12G2 FM receiver integrates smoothly with the design of the Oticon Opn Play BTE PP. This design integrated solution allows connection to current Amigo FM transmitters.

Oticon Opn Play BTE PP ensures full compatibility with existing classroom solutions through the FM 10 adapter. The student can attain a universal ear-level solution by attaching any universal receiver to the FM 10 adapter.

Oticon Opn Play models with telecoil ensure compatibility with Oticon Amigo transmitters through the Oticon Amigo Arc FM neckloop receiver. This universal neckloop solution offers FM compatibility that can be shared between students and only requires one FM receiver per student.

Let children connect easily to the world around them



Extensive connection capabilities

Oticon Opn Play connects seamlessly with smartphones and tablets and is a Made for iPhone® hearing aid. With the optional ConnectClip it turns into a high-quality headset, giving access to wireless streaming for music, movies, phone calls and more from smartphones, tablets and laptops.

The ConnectClip microphone option is also ideal in challenging environments with poor signal-to-noise ratios as it enhances communication with friends or between parents and their children where distance or noise are involved, such as in the car, at the playground and in a stroller.

Empower parents and children with Oticon ON App

Oticon Opn Play is very much a hearing aid of its time, giving children easy access to a connected world



Easy fingertip control

Oticon ON App empowers children and parents with a wide range of features and functionalities that add to the outstanding audiology of Oticon Opn Play. It allows them to easily control and monitor the hearing aids by adjusting volume levels and streamed sound, and switching between programs, settings and more. The app is available for both iPhone and Android smartphones and connects directly to the hearing aids using Bluetooth®.

The app also offers a find my hearing aid feature, a client information and education guide, and links to hearing aid instructions.

Connected to the Internet

With Oticon Opn Play, children and parents can take advantage of the If This Then That (ifttt.com) Internet-based service. IFTTT offers a number of ways to enhance use of Oticon ON app with Oticon Opn Play, including being notified when hearing aid batteries are low, to being pinged when a text is received and much more. The possibilities will only grow over time.

Empowering teens with OpenSound Booster

The ground-breaking OpenSound Navigator is designed with flexibility so you can better meet childrens individual hearing requirements. In the Oticon ON App, OpenSound Booster activates a new very high setting for OpenSound Navigator that can provide even more help in noisy everyday situations when needed the most. This empowers older children and teens with greater control over their hearing.

HearingFitness for children

HearingFitness technology uses the Oticon ON App to help improve how children use their Oticon Opn Play hearing aids in the real world. HearingFitness encourages children to take control of their hearing health and get out into stimulating sound environments.

Designed to stand up to the test of childhood

Offering the best hearing care without
compromising safety and wellbeing



Robustness

Oticon Opn Play hearing aids have been designed with children's active lives and safety in mind.

IP68 Certified

Oticon's IP68-certified intelligent mechanical design includes water, dust and debris barriers. Hearing aids are nanocoated to repel water and offer protection against water in mechanical casings and electrical enclosures. They are water ingress tested in one meter of water for two hours and able to withstand humidity and varying temperatures.

Tamper-resistant battery drawer

Essential protection is provided to help keep the battery out of the reach of inquisitive fingers.

LED light for complete peace of mind

The LED indicator on Oticon pediatric hearing aids is a renowned feature that gives those people caring for and teaching the child visual confirmation that the battery is functioning properly.

Free of allergens

As well as meeting international standards on safety and biocompatibility, to minimize allergies, we have excluded more than 200 potentially harmful materials including phthalates. Our hearing aid cases are painted with biocompatible paint and are completely hypoallergenic which also applies to accompanying decorative stickers.

Flexible and easier fitting

Now you can fit optimally to prescribed target, verified by Verifit® LINK



The OpenSound Optimizer makes it easier to fit to target than ever before. Without the restrictions of handling feedback when it comes to creating a stable, comfortable listening experience, you have full fitting freedom. Up to 6 dB more gain gives you the needed fitting flexibility to reach prescribed audibility, whether in an open or closed fitting. This way, hearing aids are optimally fitted to give every child the maximum benefit of Oticon Opn Play. And, because it also optimizes the fitting procedure, you will have more time for counselling.

Up until now, Genie 2 REM AutoFit has been compatible with Interacoustics, MedRx and other manufacturers. Now, in an industry first, it can also integrate with Audioscans Verifit using VerifitLINK. This enables you to conveniently complete real ear verification of Oticon Opn Play hearing aids by automatically matching hearing aid output to targets in order to support seamless compliance with current amplification guidelines. This individualizes the fitting to the child's ear acoustics ensuring consistent audibility* and optimal outcomes.**

* McCreery, R. W. et al. (2013). *Ear Hear*, 34(6).
** Tomblin, J. B. et al. (2015). *Ear Hear*, 36(Suppl 1).

Powered by outstanding BrainHearing technology

The features behind pediatric hearing cares new groundbreaking hearing aid



Velox S
Oticon's latest and fastest processing platform ever that unleashes the full potential of the open sound paradigm.



TwinLink
Uncompromising binaural information exchange for direct streaming to hearing aids and binaural processing simultaneously.



OpenSound Navigator
Analyzes, balances and attenuates noise to support better speech understanding and learning across environments.



OpenSound Optimizer
Gives children more stable gain, more open fittings without the risk of feedback.



Spatial Sound LX
Helps children to locate, follow and shift focus to the sounds they need to hear, including those vital to safety, when parents call for their attention e.g. in traffic.



OpenSound Booster
Boosts the OpenSound Navigator with more support when needed.



Speech Guard LX innovatively draws on two forms of amplification non-linear and linear. This effectively safeguards the dynamic properties of the speech signal, making them audible, comfortable and clear for children. Speech Guard LX is unique in the application of a linear window that reacts slowly when dynamic changes are small, but adapts rapidly at the instant of larger dynamic changes. This approach ensures that the signal is audible when it comes straight after loud sounds, and improves children's speech understanding in noise while also improving their ability to complete complex auditory tasks.*



Speech Rescue LX is the unique frequency lowering approach that Oticon employs to help children hear high frequency sounds like s and th, which are important to speech development. It rescues high frequency sounds where inaudible speech cues are located by copying them, thus preserving high frequency stimulation, and adds them to the frequency range the child can hear. In doing so, these speech cues are not lost, so children can hear more speech sounds and increase their speech understanding.**

* Pittman, A. L. et al. (2014). J Am Acad Audiol, 25(9).
** Kirby, B. J. et al. (2017). J Am Acad Audiol, 28(9).

Oticon Opn Play comes in a unique and wide range of styles and colors



A full days power. Every day.

The new Opn Play miniRITE R offers a state-of-the-art rechargeable lithium-ion solution in an elegant and discreet design, eliminating the hassle of handling and replacing batteries every few days. It comes with super fast 3-hour charging time for a full day of power and a quick recharge function, which in 30 minutes gives an additional 6 hours of power.* An intuitive-to-use and stable charger in a modern design goes hand in hand with the new elegant miniRITE R.

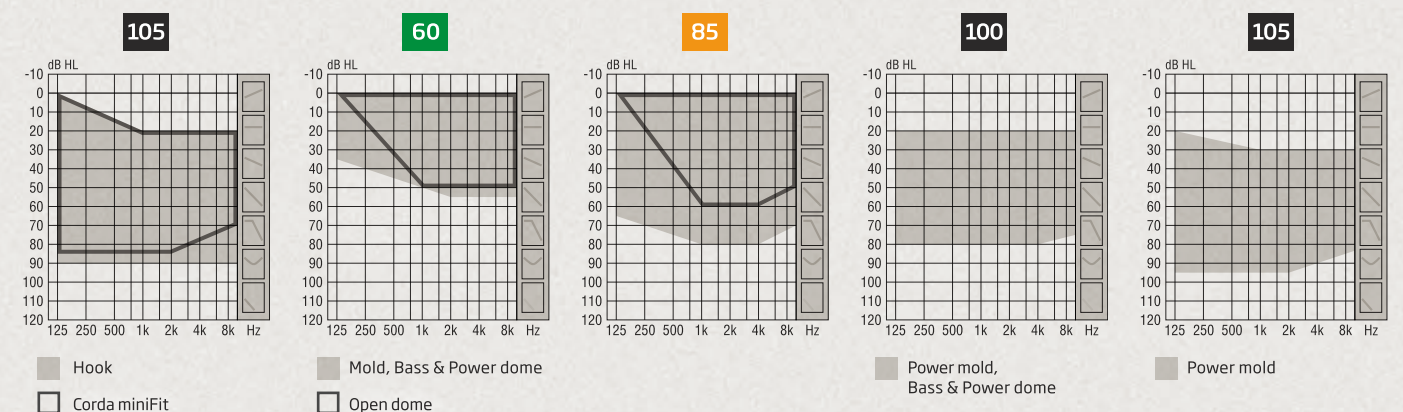


Four styles and 12 colors to meet the needs of most children



Fitting ranges from mild to severe across styles

The Oticon Opn Play product family covers hearing losses from mild to severe. This includes a versatile BTE PP 105 and three different miniRITE styles, with the option of four different speaker levels; 60, 85, 100 and 105. Fitting levels and DSL-based fitting ranges are shown in the below.



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



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