

POWERFUL PERSPECTIVES



SUPREMIA 7 | 3



bernafon[®]
Your hearing · Our passion





How we experience the world depends a lot on our perspective. Sometimes, changing our perspective changes our interpretation of the situation. Other times, changing our perspective makes the impossible seem possible.

With the Supremia Super Power BTE, we at Bernafon strive to offer people with severe to profound hearing losses a new perspective in hearing. Supremia's contemporary design, strong performance, and sophisticated features together have the power to inspire and support people every day. Complementary accessories also increase the possibilities for successful communication in many different listening environments.

**It all comes down to powerful perspectives.
With Supremia.**

Offer a New Perspective

People with a severe to profound hearing loss often experience more challenges than the average hearing-impaired person. They typically have a reduced dynamic range. They require extra gain, but their loudness discomfort levels can be quickly reached or exceeded. There is a large variability in speech perception. They normally have poor speech discrimination in noise and even in quiet.

What your clients are asking for is a powerful hearing aid which can help them to overcome their hearing limitations as much as possible. Power is one core requirement, but by far not the only one.

Supremia is the brand new Super Power hearing aid available in two performance categories. It is specifically designed for adults and children with severe to profound hearing losses. Its small design, high performance, and powerful feature set make Supremia a strong partner for you and your clients.



Design and Durability

With an integrated volume control wheel and push button, Supremia is extremely easy to operate. The LED status indicator can simply be configured via the Oasis fitting software. The switch on and off function via the battery door can easily be managed by clients of any age.

Super Power hearing aids must be steadfast. Supremia is designed to be robust and durable, and to meet the highest quality standards. All the key components are hydrophobic coated to repel liquid. Additionally, Supremia has been tested under most adverse conditions and has been IP58 rated.

Performance

Supremia wouldn't be a Super Power hearing aid if it didn't provide top-level gain. Supremia reaches a peak MPO of 143 dB SPL. But, there's more. Especially in the low frequencies, where your client's hearing abilities may be stronger, Supremia delivers incredible gain. The long-lasting size 13 battery, in combination with Supremia's battery management system, has the energy to provide power for up to 184 hours.

Audio Efficiency™ Technology

Equipped with Bernafon's Audio Efficiency™ technology, Supremia delivers a rich set of features and programs, including Speech Cue Priority™ and Frequency Composition™ systems. These features can bring true benefits for your clients. Of course Supremia can be connected to all Bernafon wireless accessories, including FM and DAI adapters, to open up the full potential of the hearing system.



A New Option for Speech Understanding

People with severe to profound degrees of hearing loss are more likely to have problems understanding speech. They often have poor speech discrimination in quiet, and background noise further complicates the problem. Additionally, speech performance can vary widely between clients.

It has been observed that speech scores can range from 10% to 100% for clients with similar hearing losses (Souza, 2009). Speech intelligibility cannot be predicted by the hearing thresholds. When listening in noise, severe to profound hearing-impaired clients require a significantly higher signal-to-noise ratio (SNR) compared to normal hearing people in order to understand speech. Some clients can understand with a +10 dB SNR while others require as much as +20 dB SNR (Souza, 2009). These difficulties are a result of the damage that severe to profound hearing loss can have on one's auditory resolution abilities (Moore, 2014). This affects their ability to separate two signals such as speech and noise.

Listeners with reduced auditory resolution abilities are less capable of extracting and using the fine details of speech. As an example, clients with a severe to profound hearing loss may not hear consonants even when additional gain is applied. For those people, the contrast in loudness is the key. They need the output signal from the hearing aids to behave similarly to the original signal. Loud sounds should remain loud and soft sounds should still be relatively soft. However, as stated, clients with severe to profound hearing loss will vary widely in their speech ability. A generic or "one size fits all" solution is not an option for this population.

While some clients may have reduced auditory resolution abilities, others may still have access to the fine details of speech and be able to use it to their benefit. Because of the diverse auditory resolution across clients with this degree of hearing loss, and because studies show that some listeners perform better with different types of speech processing (Souza, 2009), Bernafon now presents optional speech settings.

Souza P. (2009). Fitting Recommendations for Severe Hearing Loss. *Audiology Online* [electronic publication]. Retrieved from <http://www.audiologyonline.com/articles/severe-hearing-loss-recommendations-for-893>

Moore B.C.J. (2014). *Auditory Processing of Temporal Fine Structure: Effects of Age and Hearing Loss*. Singapore: World Scientific.

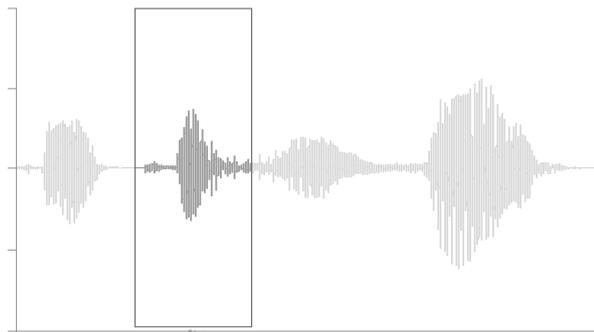
With Speech Cue Priority™, Bernafon offers two different amplification strategies: Phoneme Priority and Envelope Priority.

Phoneme Priority’s amplification algorithm strives to make all parts of the speech signal audible. For people with a milder hearing loss, this strategy is beneficial since they still have the ability to access and use the finer details within the signal (see Figure 1).

Envelope Priority has been developed to cater to clients with poorer auditory resolution abilities. A majority of potential Supremia end users will likely fall into this category.

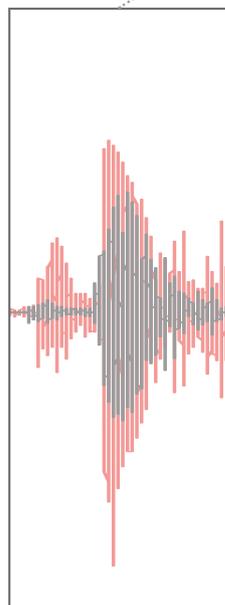
The goal of this amplification strategy is to maximize the loudness contrast between phonemes. Soft sounds remain soft in contrast to loud sounds. Only small variations in gain are applied and Envelope Priority preserves the crucial speech envelope cues (see Figure 2).

Bernafon provides the tools necessary to create a carefully selected fitting for each and every client.



PHONEME PRIORITY

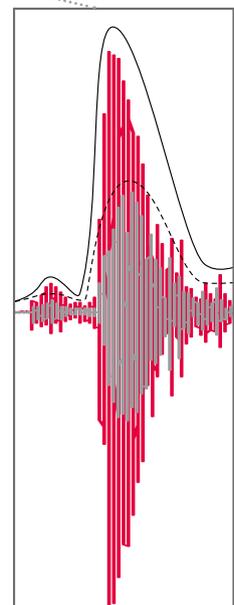
Figure 1: Maximum amplification of each phoneme results in the audibility of all sounds. The contrasts between soft and loud sounds are reduced.



Original Signal
Output with Phoneme Priority

ENVELOPE PRIORITY

Figure 2: Amplification of the envelope information results in the preservation of the contrasts between soft and loud sounds



Original Signal
Output with Envelope Priority
Envelope with Envelope Priority
Envelope of Original Signal



Changing Ideas of What's Possible

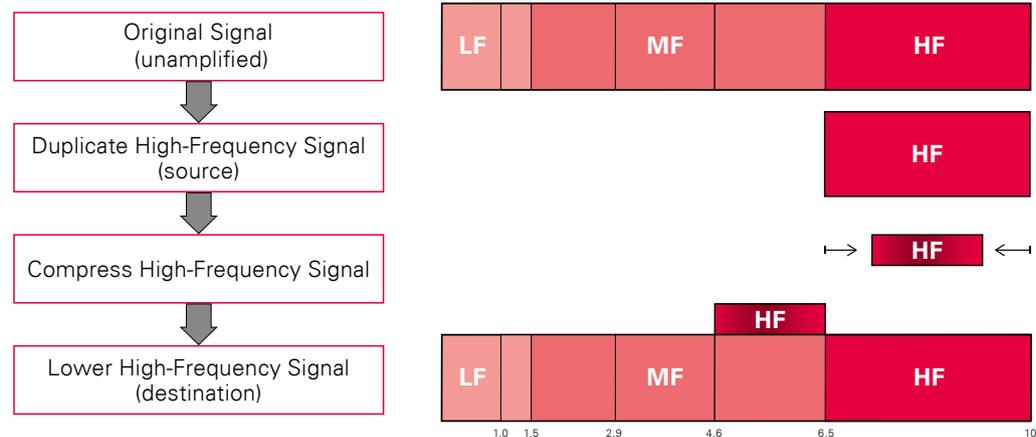


Figure 3: Working principle of Bernafon's Frequency Composition™

For people with a severe to profound hearing loss, it is usually a special challenge to hear high-frequency sounds. Without sufficient high-frequency audibility, clients miss out on important speech cues. This can lead to clients confusing words, not hearing words correctly, or finding it hard to communicate even in quiet environments.

Bernafon's Frequency Composition™ is a frequency-lowering system which applies to a wide range of hearing losses. This unique system takes high-frequency signal components from the source to the requested destination range. The high-frequency information is transferred and overlaid onto the frequency range where the client can likely hear better.

By maintaining the full bandwidth of the signal, original high-frequency sounds are still available. This is important because those with a more moderate to severe hearing loss may still benefit from the original high-frequency information (see Figure 3).

For those with a severe to profound hearing loss, the frequency range with audibility is reduced. For these clients, only Supremia offers an additional destination area. A lower destination range allows you to superimpose high-frequency information to frequencies just above 1.0 kHz. In this way, your clients with severe high-frequency damage may still have access to important speech information.

Strong Features Bring Clear Benefits

A powerful hearing aid requires strong features that will make a big difference for your clients in terms of speech understanding, listening comfort, and convenience.

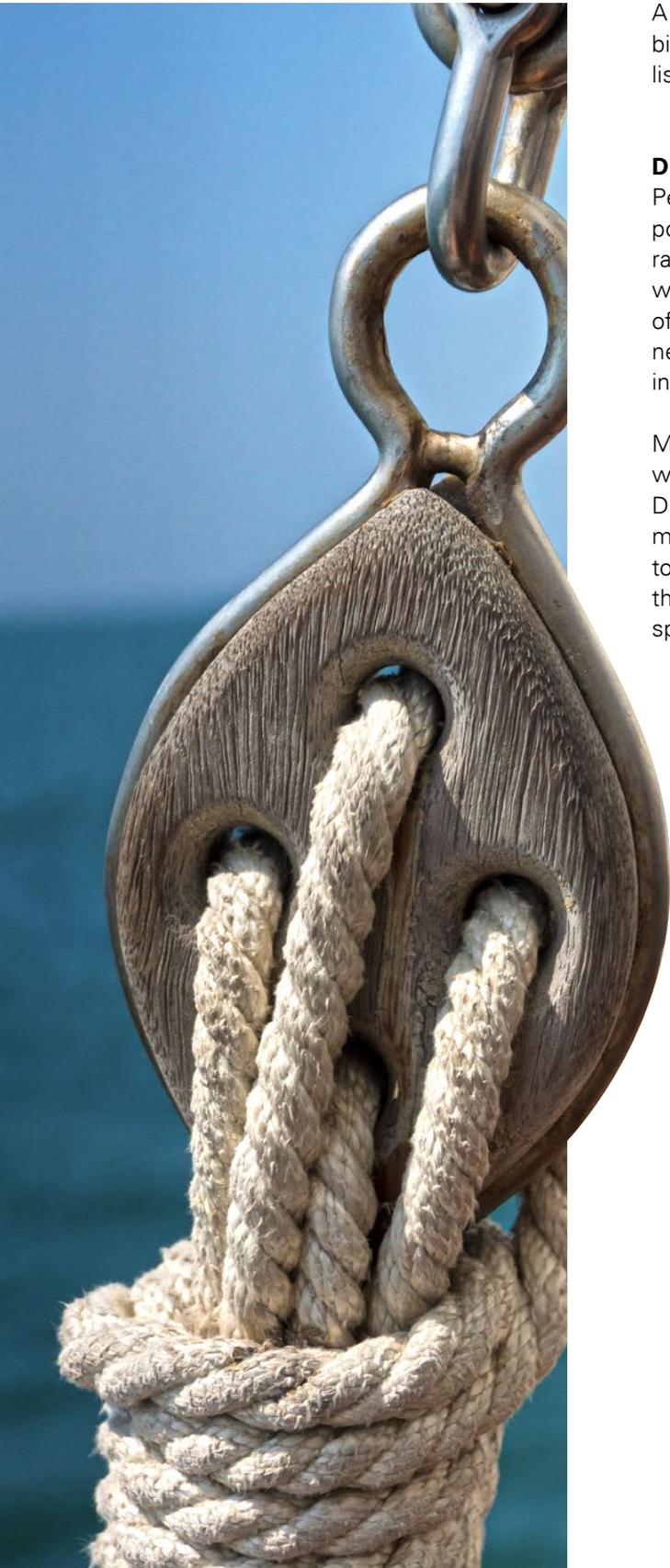
Directionality

People with a severe to profound hearing loss normally have poor speech discrimination and require a higher signal-to-noise ratio (SNR). They often have difficulty separating two signals which reduces their ability to recognize speech in the presence of noise. Directional microphones are the most important feature needed to improve the SNR for increased intelligibility of speech in background noise.

Multi-microphone technology also facilitates sound localization which is important for your clients' safety and comfort. Adaptive Directionality switches between omnidirectional and directional microphones. The omnidirectional microphones allow clients to hear sounds in their environment making them aware of their surroundings, yet switch to directional microphones when speech and noise are present.

Binaural Coordination

Equipped with binaural coordination features, Supremia constantly exchanges information from one side to the other to make sure that both devices are working as one system. This ensures that both hearing aids are in the same microphone mode. Additionally, changes in programs made on one hearing aid will naturally apply on both sides. Binaural coordination is also designed to make phone calls in noisy environments easier by automatically muting or reducing the amplification of the non-telephone hearing instrument.



Adaptive Feedback Canceller Plus (AFC Plus)

Acoustic feedback has been a challenge as long as there have been hearing aids. More so when talking about a Super Power fitting, because of the high amplification levels which are required. Bernafon's proven AFC Plus feedback cancellation system has been designed to detect and remove acoustic feedback signals immediately. Be it when the feedback path is static (as it often is during the instrument fitting) or when the feedback path changes suddenly (as when your client changes the volume), AFC Plus is designed to react effectively.

Reverb Reduction

Bernafon's Reverb Reduction is an algorithm that identifies the reverberant part of a signal and its specific characteristics. It detects reverberation and attenuates the reverberant part of the signal while preserving important speech information (see Figure 4). This reduces the perceived amount of reverberation and improves listening comfort.

VC Step Size

Supremia's analogue volume control is designed to be manipulated easily without any hassle. The four clearly visible level markings allow users to easily identify their typical volume control setting. The volume control has a fixed start and end point so that users know when they have reached the minimum or maximum volume level.

Since people with a severe to profound hearing loss often have a reduced dynamic range, small changes in gain can quickly reach perceivably uncomfortable levels. For this reason, Supremia has an optional VC step size of 1 dB allowing for finer adjustments to the hearing aid volume. A VC step size of either 1 dB or 2 dB can be selected in the Oasis software.

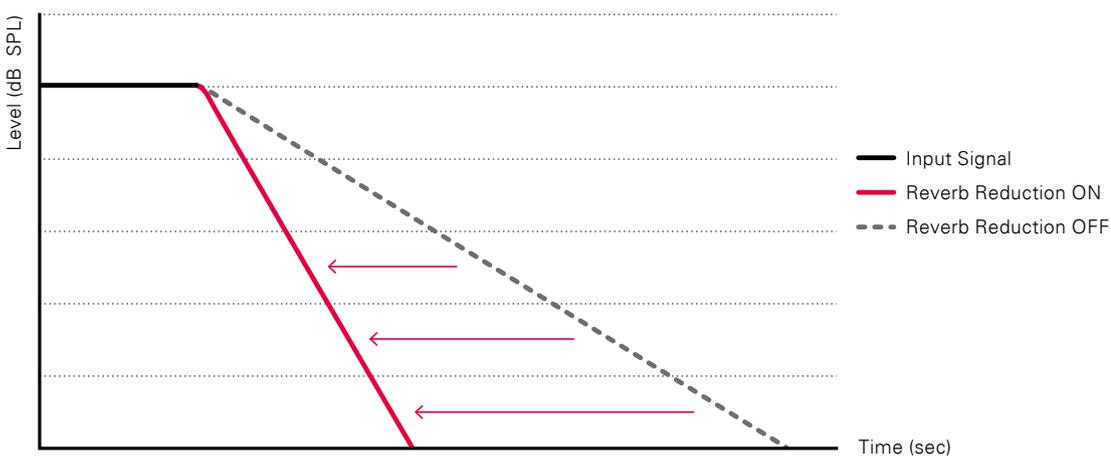


Figure 4: Comparison between Bernafon Reverb Reduction ON and Reverb Reduction OFF

POWERFUL PERSPECTIVES



SUPREMIA







From A Child's Perspective

Supremia also offers a new perspective in hearing to the smallest among us. Children discover, experience, and learn every day. Their lives are full of big and small events, and Supremia can give them the power to actively participate in any occasion.

Sounds are important to all of us, but for children they are indispensable for their auditory and cognitive development. Supremia is designed to assist children in every stage of their lives. In order to do so properly, Supremia can be equipped with a range of components dedicated to the pediatric population.

LED Status Light

A small status light below the volume control wheel can be programmed to visually indicate various settings. Hearing instrument ON/OFF, low-battery level, and program change can be made visible for parents and teachers, making it extremely easy for them to monitor the operation of the instrument.

Child Earhook and Tamper-Resistant Battery Door

Wearing comfort and security are naturally important requirements. An extra child earhook for a proper fit on small ears is available with Supremia. Additionally, a tamper-resistant battery door will prevent young ones from removing batteries that could be accidentally swallowed.

FM Systems

A school classroom is often filled with children's voices and other sounds which can displace the teacher's voice. Supremia is compatible with wireless FM systems used in school classrooms. A special FM adapter that can be attached to the hearing instrument is available.



Turn a Standard Fitting Session into an Efficient One

For good speech and language development, children need as much access to speech information as possible. Additionally, special consideration should be given to pediatric fittings to avoid over-amplification. Oasis supports pediatric fittings by offering the DSL 5.0 Child fitting rationale. In addition to the DSL 5.0 Child, Oasis can apply measured Real Ear to Coupler Difference (RECD) values and Auditory Brainstem Response (ABR) thresholds when determining fitting targets.

DSL 5.0 Child

This fitting rationale is specifically designed for children. It provides different prescriptive targets for children as compared to the adult targets prescribed by DSL 5.0 Adult. Overall, the goal is to enable maximum audibility. DSL 5.0 Child prescribes more overall gain than other commonly used fitting rationales.

Auditory Brainstem Response (ABR)

Oasis gives the opportunity to enter the type of transducer used for measuring the audiometric thresholds. It then applies the appropriate correction values to calculate amplification when DSL Child is selected. This improves the fitting accuracy for the child if hearing thresholds were determined with an ABR.

ABR thresholds can be selected in the Audiogram screen or in the Preferences Tab of Oasis.

Real Ear to Coupler Difference (RECD)

RECD values are different for children compared to adults due to the smaller physical size of the ear canal. Fitting rationales use an average RECD value when determining hearing aid targets. However, for children, it is important to use the individually measured RECD to create the appropriate targets. The measured RECD can be entered into the Oasis software in the Audiogram screen. Oasis will then use these individual values when determining the targets for each child.



Open Up the Full Power of Supremia

People with a severe to profound hearing loss can especially benefit from accessories that pair with their hearing aids. Sounds which are streamed directly into their ears can become even more clear and understandable. Furthermore, accessories can help to reduce the listening fatigue in very challenging hearing environments.

SoundGate App

Bernafon has a wide range of wireless connectivity accessories which brings added value to your clients. With the Bernafon SoundGate App, it is possible for your clients to manipulate their hearing aids very discreetly, without a single hand behind their ear. The stable connection between the SoundGate 3 and the personal iPhone® (SoundGate App supports iPhone 6 Plus, iPhone 6, iPhone 5s, iPhone 5c, iPhone 5, iPhone 4s, and iPhone 4) makes this all possible.



Bernafon wireless hearing aids



RC-N

An alternative to the SoundGate App is the lightweight and also extremely discreet remote control. Volume and program changes are so easy to make with this small device.



SoundGate Mic

The SoundGate Mic can also deliver real benefits to your clients. SoundGate Mic is especially helpful when having one-to-one communication in a busy environment. The small microphone can be worn by the conversation partner and their voice will be transmitted directly to the hearing instrument via the SoundGate 3.



RC-N

TV Adapter 2 and Phone Adapter 2

The TV and Phone Adapter 2 can also be highly beneficial for your clients. Paired with the SoundGate 3, sound from the TV and landline phone are directly streamed into you clients' ears. This makes watching TV or talking to someone on the phone much more comfortable and enjoyable than before.

SoundGate 3



SoundGate App



SoundGate Mic



Phone Adapter 2



TV Adapter 2

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From time to time, we all need a change of perspective. The benefits that such a change can bring are numerous, but very individual. Sometimes a new perspective helps someone feel stronger again, equipped and ready to take on the world. Other times, a new perspective is reassuring, contributing to a new sense of peace and contentment. We can all give our own examples.

Be part of a powerful change in perspective that your clients with severe to profound hearing loss can experience with the latest Swiss technology.

**Offer someone a new perspective today.
With Supremia.**



Feature Overview

	SUPREMIA 7	SUPREMIA 3
SIGNAL PROCESSING		
ChannelFree™	●	●
Speech Cue Priority™	●	●
Frequency Composition™*	●*	●
Frequency Bandwidth	8 kHz	8 kHz
LISTENING COMFORT		
Adaptive Noise Reduction Plus (ANR Plus)	5 ctr	4 ctr
ANR Plus Ultra Comfort	●	–
Adaptive Feedback Canceller Plus	●	●
Transient Noise Reduction	●	–
Wind Noise Monitor	●	●
Environment Optimizer	1/4	–
Advanced Soft Noise Management	3	2
Reverb Reduction	●	–
BINAURAL SYNCHRONIZATION		
Mute, Program Change	●	●
Environment Classification	●	–
Non-Telephone Ear Attenuation (Auto-T)	●	–
DIRECTIONALITY CONTROLS		
Adaptive Directionality	●	●
True Directionality™	●	–
CONVENIENCE FEATURES		
VC Clicks	●	●
Mute Via Push Button	●	●
Configurable Start-Up Delay	●	●
1 dB VC Step Option	●	●
LED Status Indicator	●	●
CUSTOMIZATION		
Program Options/Memories	13/4	11/4
Adaptivity Control	●	–
Data Logging	●	●
Smart VC	●	–
Language Specific Targets	●	●
REMfit™	●	●
Client Interactive	●	●

* Supremia 7 offers an additional destination frequency range (1.0 – 2.9 kHz)

Performance Overview

HARDWARE	
Directionality	dir
Battery Size	13
Program Selector	●
Volume Control	●
IP58 Rated	●
ACCESSORIES	
RC-N Remote Control	○
SoundGate 3	○
SoundGate Mic	○
SoundGate App	○
TV Adapter 2	○
Phone Adapter 2	○
FM Adapter	○
DAI Adapter	○
CROS Microphone	○
PERFORMANCE (EAR SIMULATOR)	
OSPL 90, Peak dB SPL	143
OSPL 90, 1600 Hz dB SPL	136
Full-On Gain, Peak dB	82
Full-On Gain, 1600 Hz dB	75
Reference Test Gain dB	62

● standard ○ optional

Color Options

ADULTS



METALLIC BEIGE
MBE



ANTIQUÉ BRONZE
ANBR



METALLIC SILVER
MSIL



METALLIC ANTHRACITE
MAC

PEDIATRIC



BABY BLUE
BB



BABY PINK
BP

Since 1946, we have been passionate about developing quality hearing systems that enable people with hearing difficulties to enjoy authentic listening experiences. With Swiss Engineering, precision technology, and our commitment to individual service, we strive to exceed our customer's expectations. Our aim is to provide extra value to our partners every day. Bernafon representatives and employees in over 70 countries fulfill our vision to help people with impaired hearing communicate again without limitation.

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