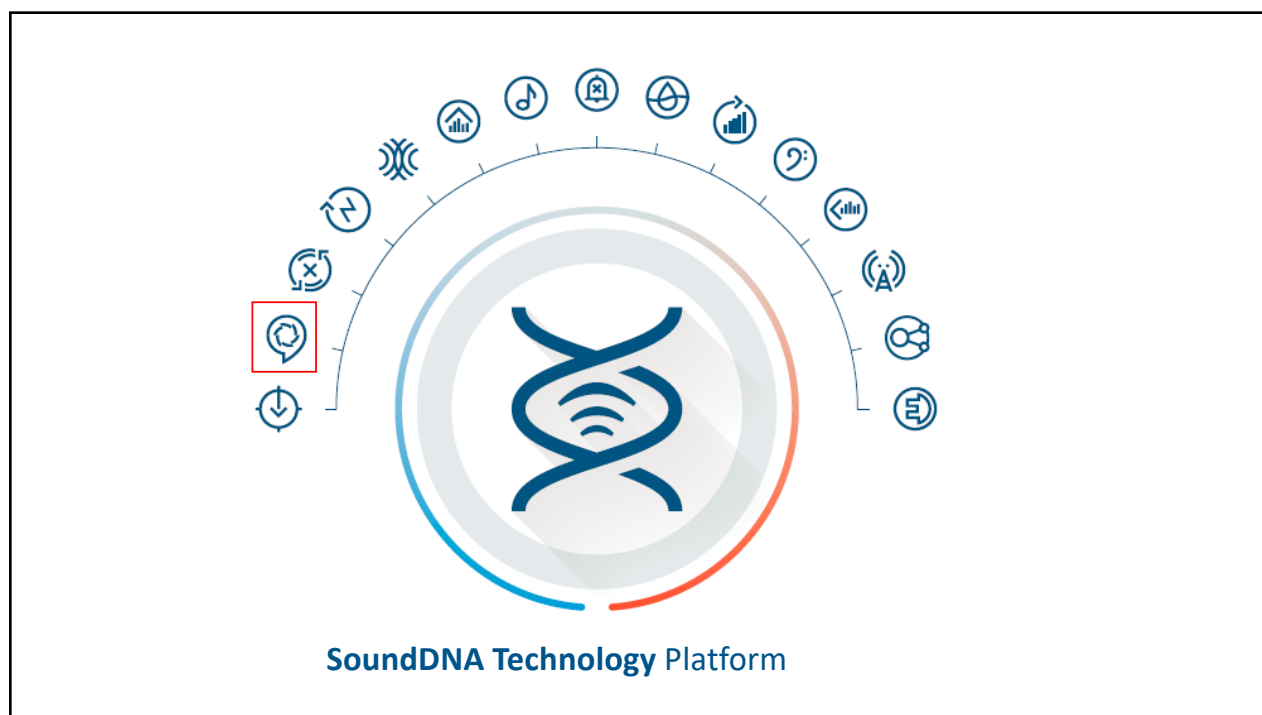


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SPiN Management-SoundDNA

Noise management technologies working as a team



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SPiN Management

SVP Platform



cheer journey

SoundDNA Platform



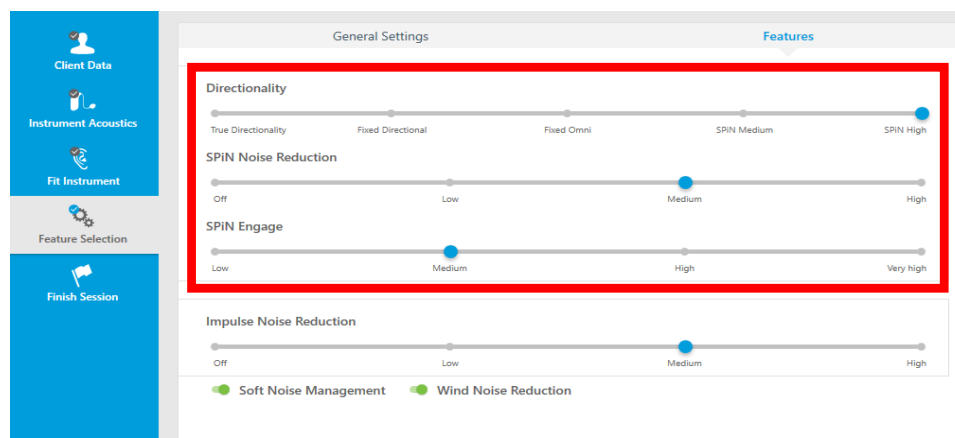
captivate trek
enchant

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SPiN Management –EXPRESSfit® Pro



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SPiN Directionality

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Enhances sensitivity to sound via automatic directional microphone system

SPiN Directionality-1st component of SPiN Management

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SPiN Directionality

What is the number one complaint of hearing impaired individuals?

Difficulty hearing in noise

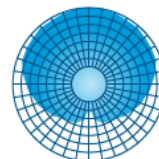
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SPiN Directionality – Automatic

- Turns on the directional microphone only when needed
- From full omni to full directional
- Avoids limitations of directionality when not required



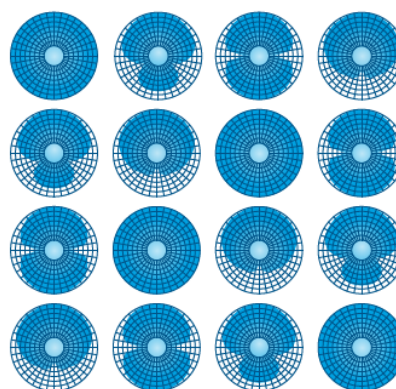
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SPiN Directionality – Multiband

- 16 frequency bands
- Isolates and suppresses noise from multiple sound sources simultaneously across the frequency spectrum

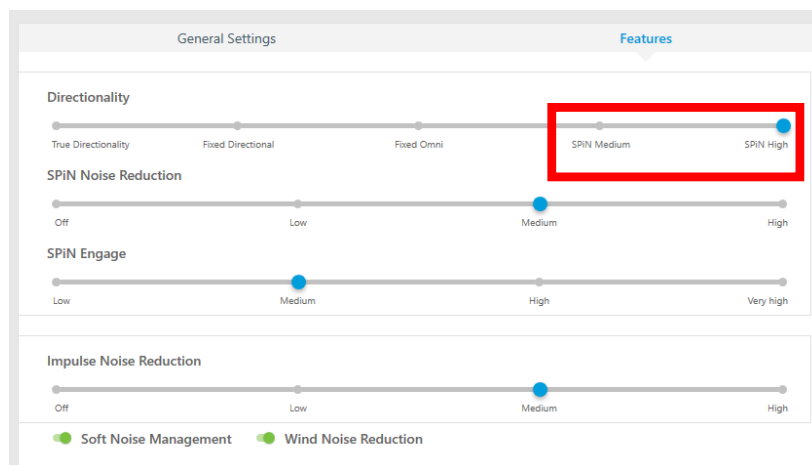


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SPiN Directionality



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SPiN Directionality - The Result

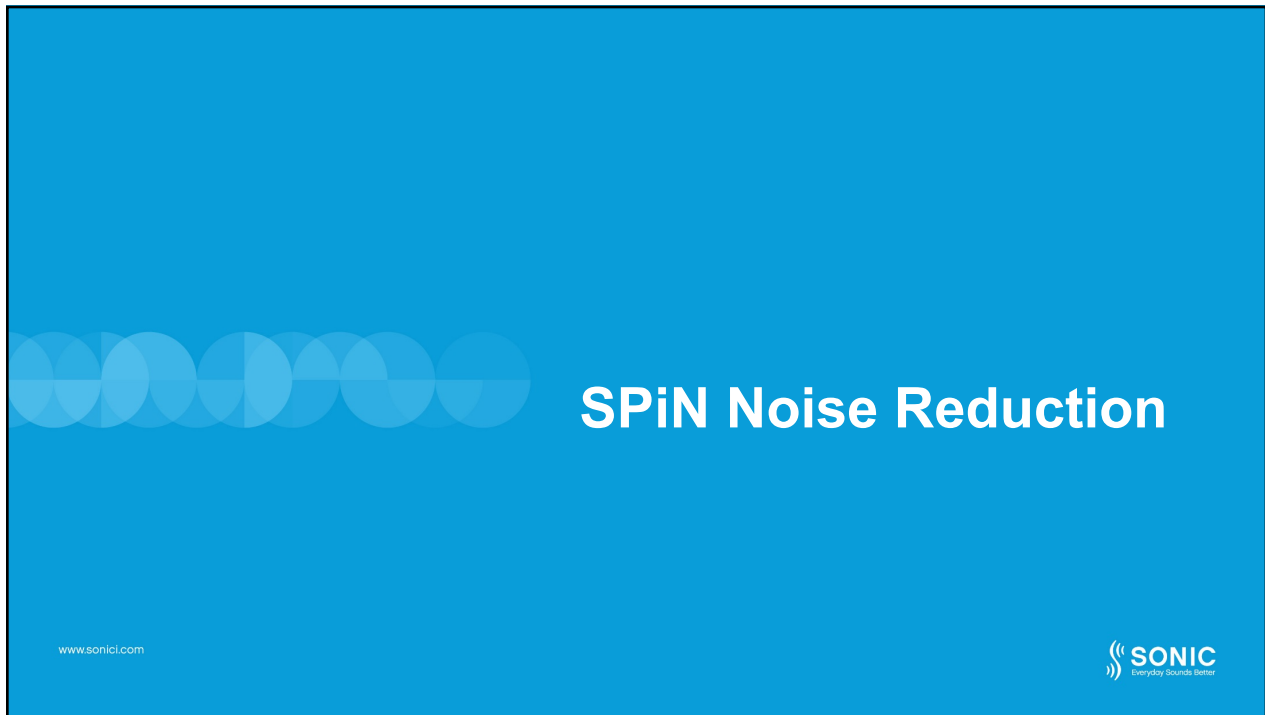
- Adaptively transitions to the optimal configuration
 - Selection based on best SNR
 - Analyzes between instruments (wirelessly)
 - Simultaneously occurs in 16 bands!
 - Continual, smooth null steering attenuating multiple noise sources



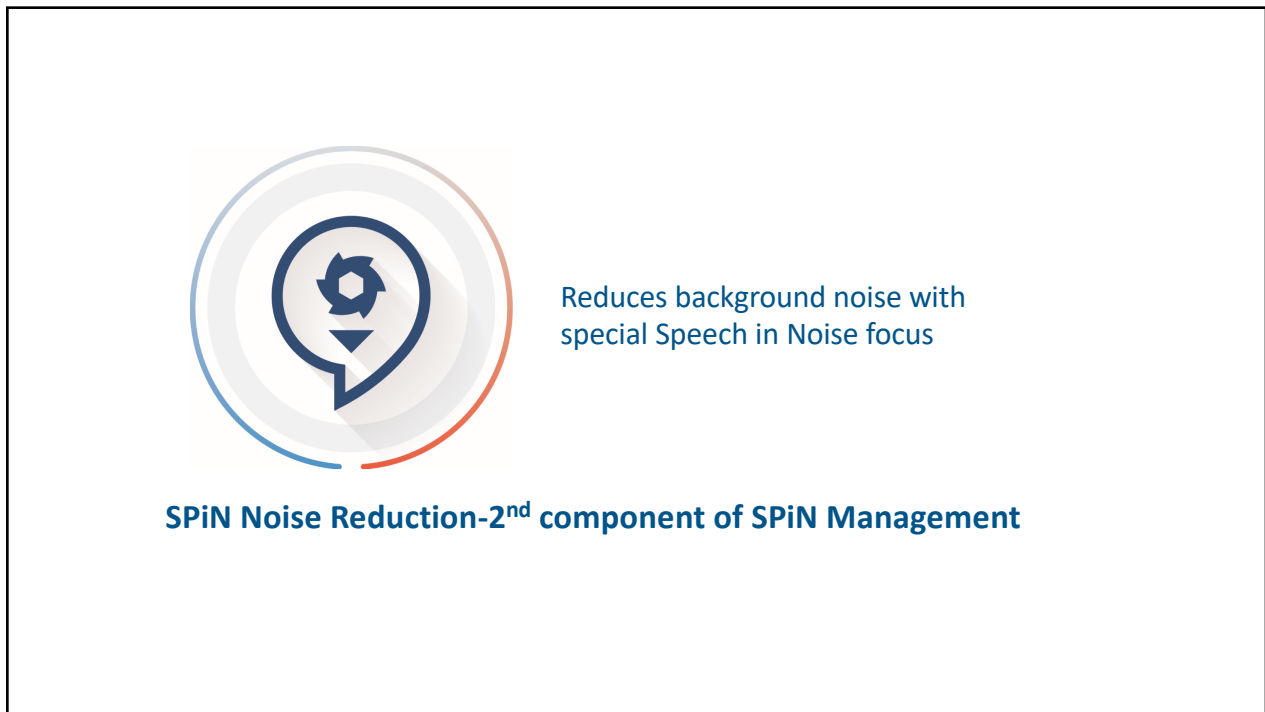
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SPIN Noise Reduction

- What are the major benefits?
- Decreased listening effort
- Improved comfort in noise

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SPiN Noise Reduction

Modulation-Based DNR

- Detects the modulation rate of incoming sound
 - Signals with a high modulation rate are desirable (e.g. speech)
 - Signals with a low rate are undesirable (e.g. steady-state noise)
- Analyzes the modulation depth of incoming sound
 - Continuously monitors peaks and troughs of the signal
 - Large peak-to-trough value = high SNR
 - Small peak-to-trough value = low SNR

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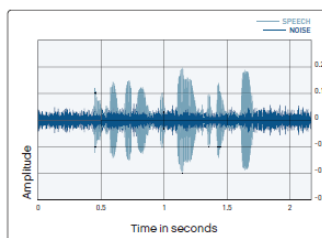


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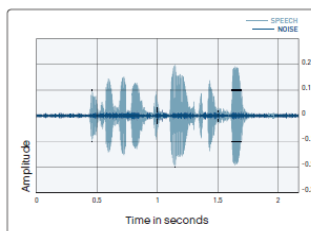
SPiN Noise Reduction

Operates in 16 frequency bands

- High-resolution framework
- Identifies noise of varying spectral content
- Reduces gain in the narrow bands where noise is detected



Input signal



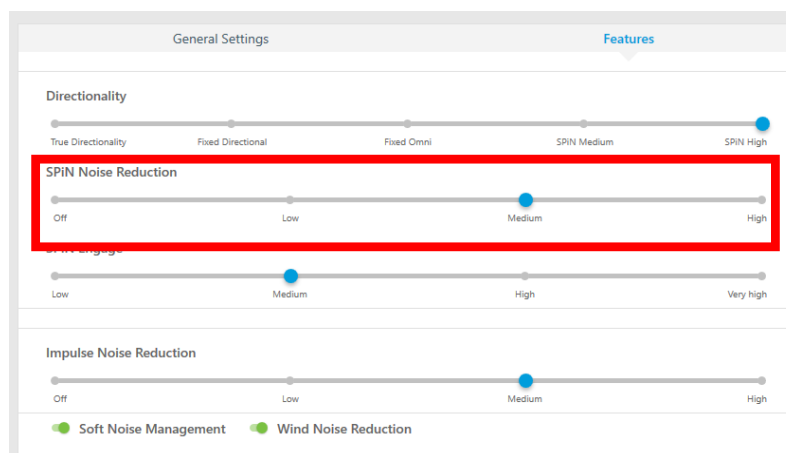
Signal treated with SPiN Noise Management

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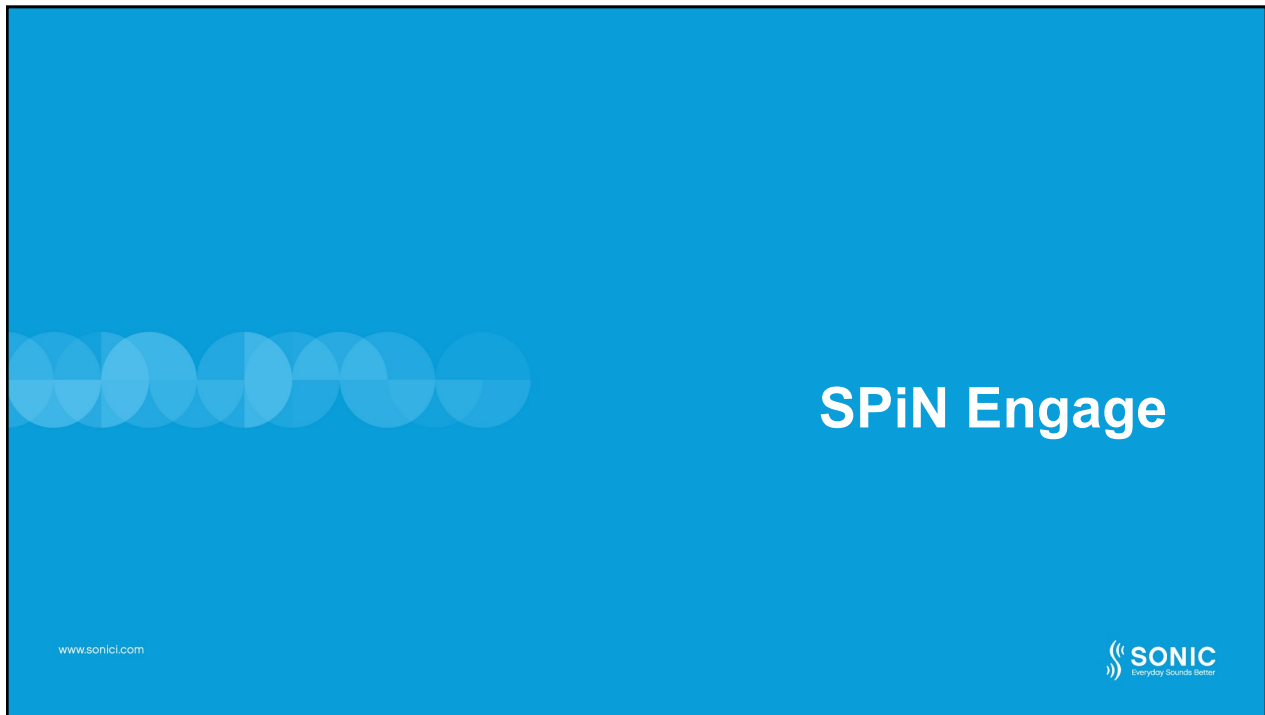
SPiN Noise Reduction



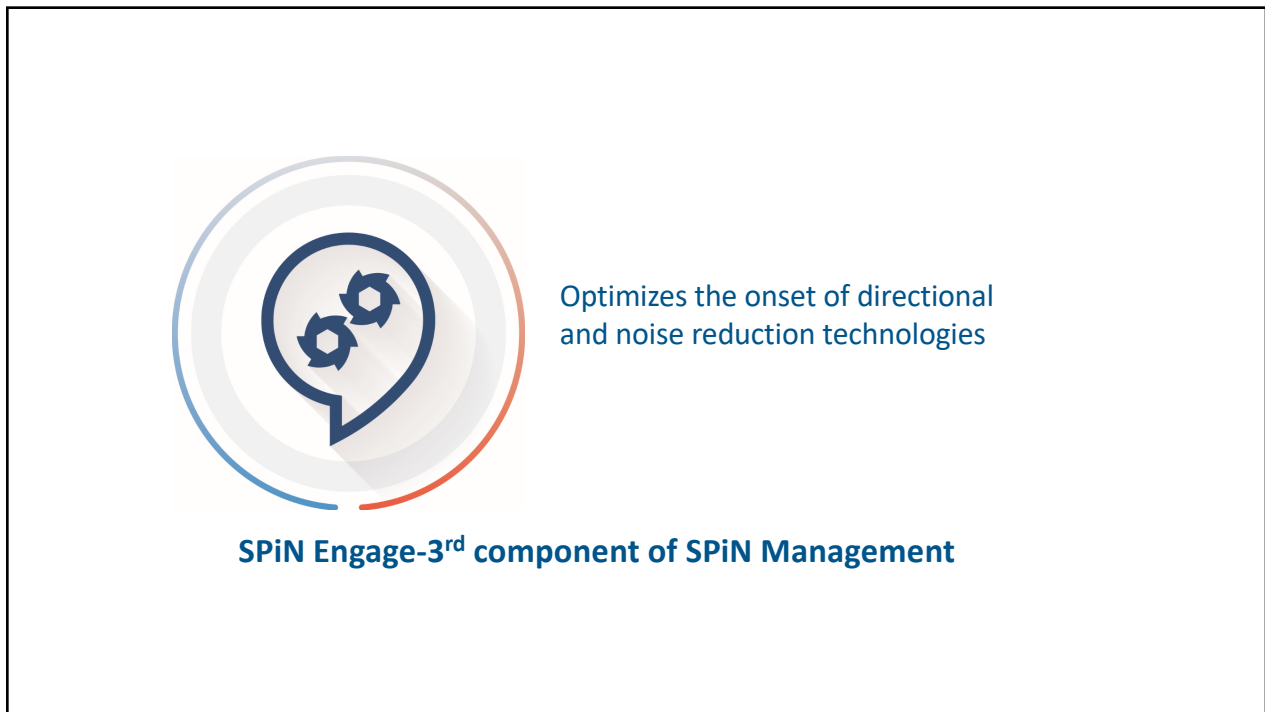
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SPiN Engage – Why?

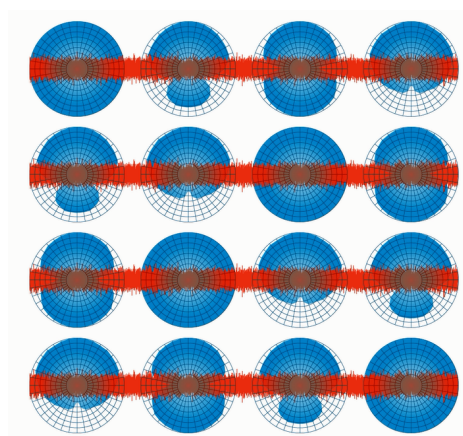
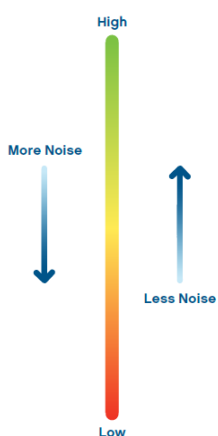
Hearing aid users have varying tolerance levels regarding how much noise they are willing to accept

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SPiN Engage

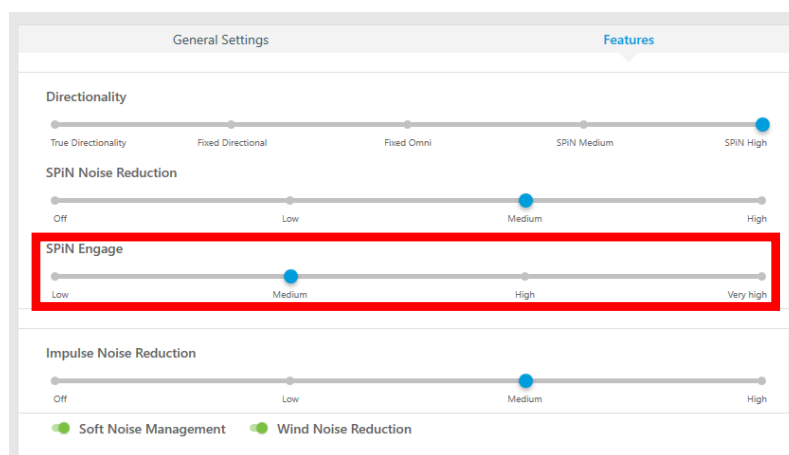


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SPiN Engage



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SPiN Noise Reduction Case Study

Patient: TS

Age: 80 year old male

Hearing Loss: Mild to moderate SNHL

Hearing Aids: Captivate 100 MNR

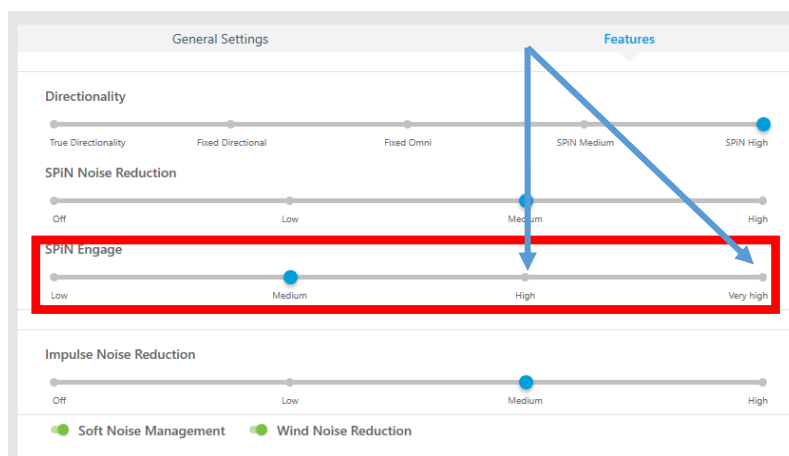
Complaint: Devices work great except when trying to listen when there is noise present. Reports sound is overwhelming, cannot concentrate on what is being said

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SPiN Engage-Less Tolerance for Noise



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SPiN Noise Reduction Case Study

Patient: LS

Age: 55 year old male

Hearing Loss: Mild to moderate SNHL

Hearing Aids: Captivate 100 MNR

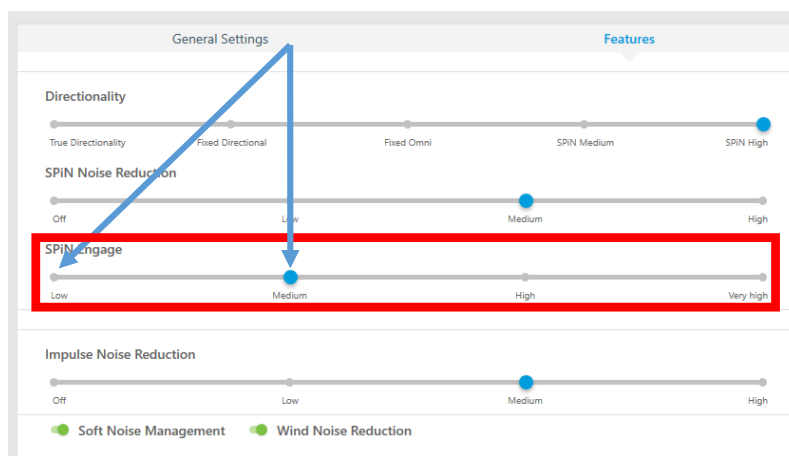
Complaint: Devices work great except when trying to listen when there is noise present. Reports missing out on certain sounds around him-wants to be able to hear more of surrounding sound

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SPiN Engage-More Tolerance for Noise



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Results

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SPiN Management Clinical Test Results

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SPiN Management Clinical Trial

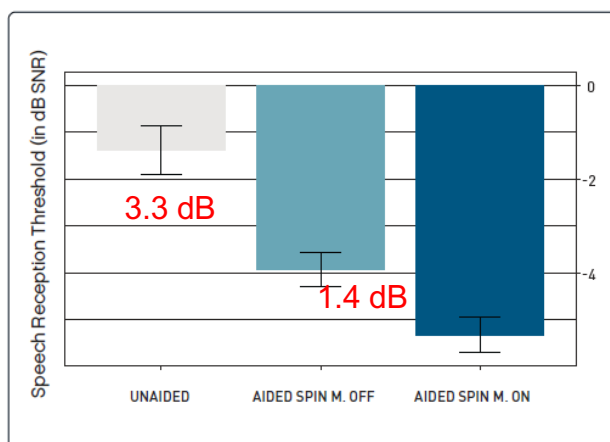
- 30 Participants
- 23 males
- 7 females
- All experienced hearing aid users of the previous platform
- Moderate to severe hearing loss

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SPiN Management Clinical Test Results



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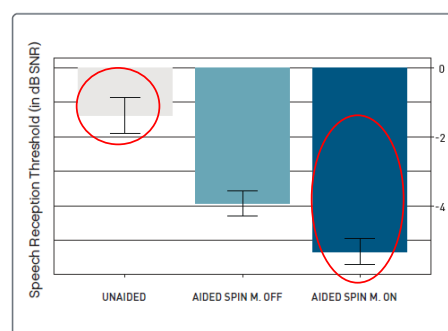
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SPiN Management

Test Results showed a significant improvement between unaided and aided SRT scores with SPiN Management

SPiN Management is more than just a comfort feature that reduces noise for the listener



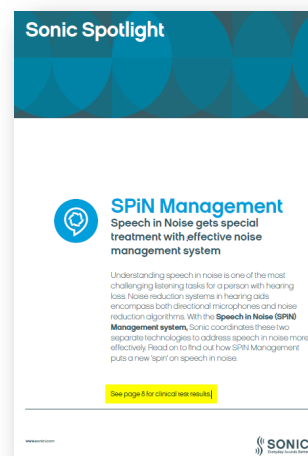
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SPiN Management White Paper

Sonic Spotlight: SPiN Management technology paper can be found at www.sonici.com



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Summary

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SPiN Management Summary

- **Automatic**
 - Automatic activation in Speech in Noise
- **Adaptive**
 - Adaptive operation in Speech in Noise
- **Flexible**
 - Easily personalized for individual needs in fitting software

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Final Comments

- Thank you for attending our Sonic Spotlight Series: SPiN Management
- Any Questions?
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