



## SPEAKER DISCLOSURE JODI SASAKI-MIRAGLIA, AUD

- **Relevant Financial Relationships:**
  - Is an employee of Widex USA and receive financial compensation.
- **Relevant Nonfinancial Relationships:**
  - There are no nonfinancial relationships.

## TODAY'S LEARNER OBJECTIVES

- After this course participants will be able to list 3 wireless options for the pediatric population.
- After this course participants will be able to identify 3 features of Widex Hearing Aids which align with AAA pediatric Guidelines..
- After this course participants will be able to list 3 special considerations for pediatric fitting within Compass GPS software and/or Widex Apps.

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## AGENDA

1

### WHY WIDEX FOR CHILDREN & TWEENS

Review of WIDEX technology and features that will benefit the pediatric, tween and teen population.

2

### AAA PEDIATRIC GUIDELINES

Compare WIDEX Technology to current AAA Pediatric guidelines for alignment of best practices.

3

### WIDEX PEDIATRIC PORTFOLIO

Review WIDEX products and services specifically designed for pediatric/tween and teens.

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## FULFILLING THE NEEDS FOR EVERYONE

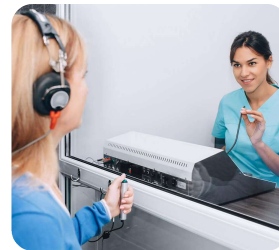
What the Child wants



What the Parents want



What the Audiologist wants



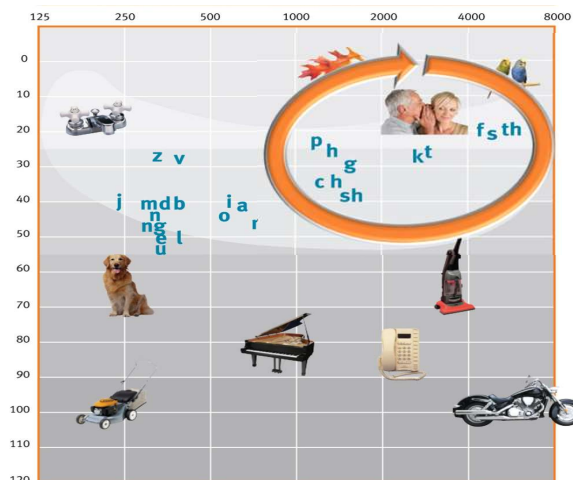
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## PREREQUISITE TO LANGUAGE ACQUISITION...

Access to Sound



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## PEDIATRIC FITTING CONSIDERATIONS ARE UNIQUE

- Small/soft/ growing ear canals
  - Immature auditory system
  - Lack experience of language redundancy
  - Developing speech and language
  - Hearing is important for auditory self-monitoring
- Amplification often fit with limited audiometric data
  - Middle ear challenges with fluctuating hearing levels
  - LTASS at child's ear will differ from LTASS at adults
  - **Needs change as they age**

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## VISION TO PROVIDE PERFECT HEARING

Commitment  
To  
Innovation

- Widex' vision is to give children unlimited access to a world of sounds by providing perfect hearing.
  - 1) We put hearing impaired people first
  - 2) We work diligently to be reliable partners
  - 3) We solely develop digital hearing technology with passion and pride
  - 4) We cherish industry and team spirit
  - 5) We are pioneers in the hearing aid industry



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## MOST ACCURATE REPRODUCTION OF SOUND

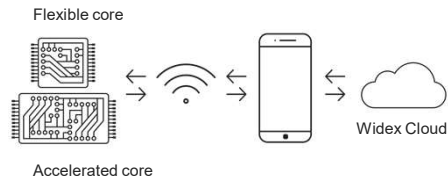
4 A/D Converters  
108 dB Dynamic Range  
113 dB SPL Linear Input

### EVOKE CHIP

WITH DISTRIBUTED COMPUTING

#### Benefits

- 30% MORE processing power
- Superior sound quality
- Flexibility and efficiency
- Smarter Tomorrow



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## MOST ACCURATE REPRODUCTION OF SOUND

4 A/D Converters  
108 dB Dynamic Range  
113 dB SPL Linear Input

**108 dB**  
LINEAR INPUT  
DYNAMIC RANGE



• UPPER INPUT LIMIT BY **BEYOND 113dB SPL**



• LOWER INPUT LIMIT BY **BEYOND 5dB SPL**

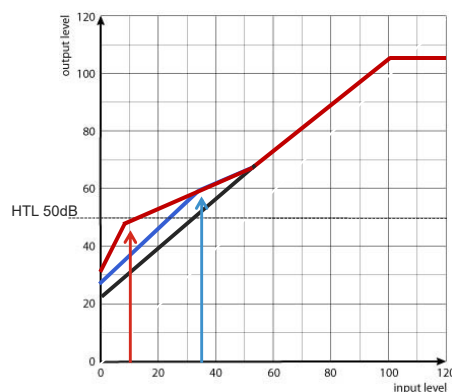
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## PRESERVING SOFT SOUNDS

Lowest Common Threshold  
Spectral & Temporal Cues  
Audibility for Soft Speech



Dynamic Range Compression=  
High threshold (or no threshold)

Wide Dynamic Range Compression  
(WDRC)=  
Low threshold

Enhanced Dynamic Range Compression  
(EDRC)=  
Really low threshold

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WIDEX FOR **CHILDREN**

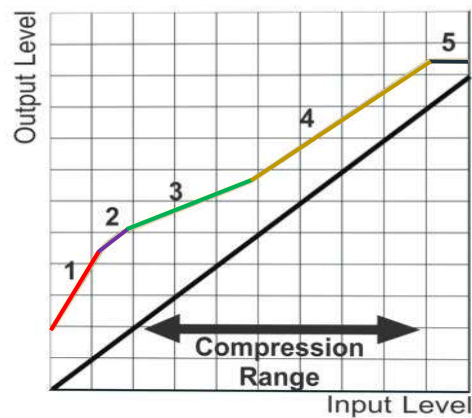
## AUDIBILITY FOR SOFT SPEECH

Lowest Common Threshold  
Variable Speed Compression  
Spectral & Temporal Cues

Widex utilizes *multi-segmental compression*  
*independently*  
In each channel:

1. Expansion zone
2. Max. gain with linear gain
3. Low level compression
4. High level compression
5. Automatic Output Control

### Input – Output Characteristics



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WIDEX FOR **CHILDREN**

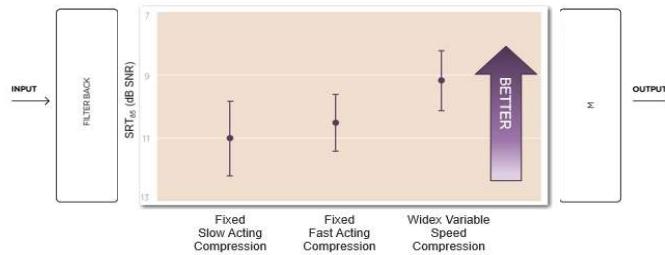
## PRESERVING THE FULL RANGE OF SOUND

Variable Speed Compression  
Spectral & Temporal Cues

VARIABLE SPEED COMPRESSION SOLUTION FOR ALL

### Benefits

- Preserve temporal and speech cues
- Proven improvement in noise
- Easier understanding and comfort



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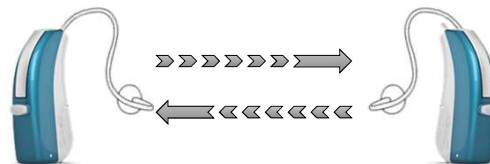
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## BINAURAL INTER-EAR COMMUNICATION

Instantaneous synchronization  
21x/second

Sharing and exchanging of acoustical information:

- IE TruSound Compression
- IE Speech Enhancer (Noise Management)
- IE Feedback Cancelling
- IE Volume Control
- IE Program Shift



Shares information  
21x/second



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## EXTRAORDINARY HEARING IN DIFFICULT ENVIRONMENTS

11 SOUND CLASSES  
SMARTER DECISIONS

### Benefits

- More accurate automatic hearing
- 7 noise-focused sound classes
- Flexible fine tuning for comfort and audibility



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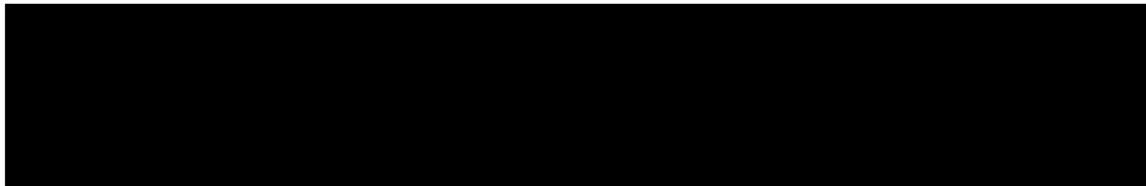
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## EXTRAORDINARY HEARING IN DIFFICULT ENVIRONMENTS

High Definition Locator  
Real-Time InterEar Speech  
Enhancer

High Definition Locator



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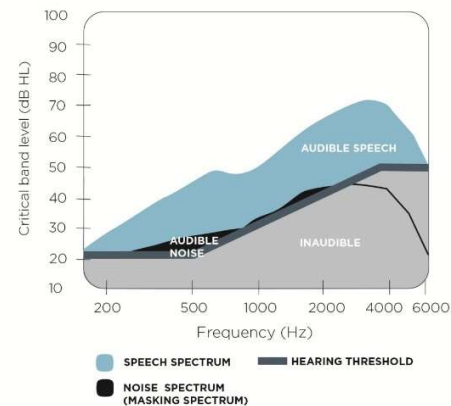
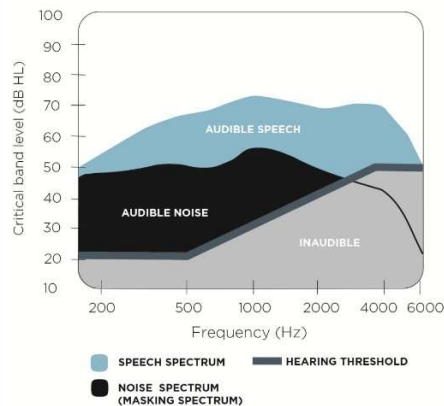
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## EXTRAORDINARY HEARING IN THE MOST DIFFICULT ENVIRONMENTS

Real-Time InterEar Speech  
Enhancer  
Binaural Processing



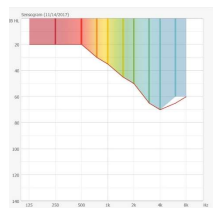
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## INNOVATIVE TOOLS FOR VERIFICATION

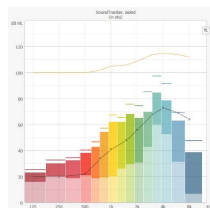
Embedded fitting  
and  
Programming tools

### SENSOGRAM



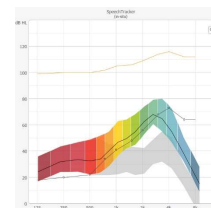
Utilizes in-situ measurements and takes into account the effect of the earmold/shell, the size of the individual ear canal and the hearing loss.

### SOUNTRACKER



Displays a real-time analysis of the hearing aids by conducting a continual, instantaneous tracking of performance.

### SPEECH TRACKER



Displays the hearing aid performance over time by showing the average output for continuous input signals (speech, speech in noise and/or noise only).

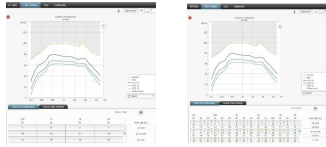
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## FLEXIBLE FITTING AND FINE-TUNING

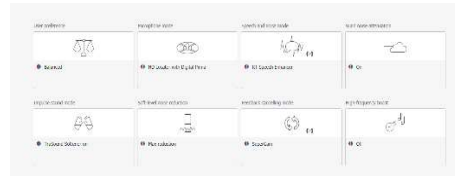
Extreme flexibility in adjusting features and settings

### FINE-TUNING SETTINGS



- Adjust gain in 1dB steps
- Soft, Normal, Loud Inputs
- View Compression Thresholds
- All above in all available channels

### FEATURE SETTINGS



- Adjust Directionality, Noise Management, High Freq. Boost, and more additional features
- Binaural or Monaural Options

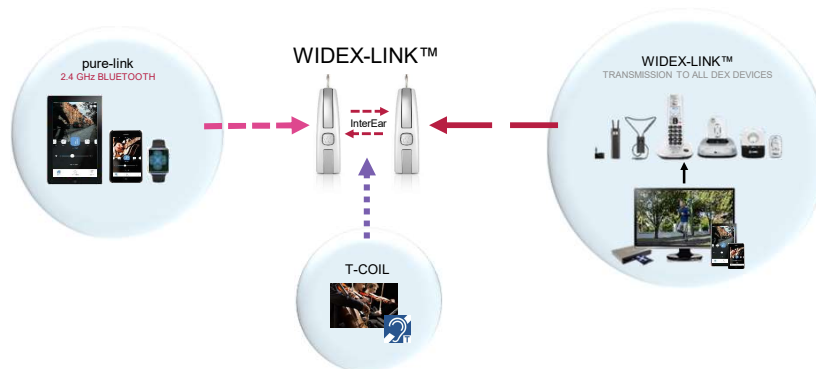


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## MORE CONNECTED

Tri-LINK  
2.4 GHz – BLE  
WidexLink  
T-Coil



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## FLEXIBLE CONTROL AND PERSONALIZATION

EVOKE APP  
SOUNDSense LEARN

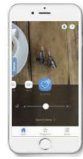
### PEDIATRIC FOCUSED FEATURES



**Find my Hearing Aids**



**Sound Direction**  
for the car  
classroom or at  
home.



**Personal Program**  
flexibility and ease  
of access



**R/L Volume adjust**  
hearing aids  
individually



**Equalizer adjust**  
gain in low/mid/high  
independently



**Sound Mixer**  
adjust ratio  
while streaming



**World's first "in the moment" personalization using the wearers listening intent**  
**SoundSense Learn: Artificial Intelligence with Real-Time Machine Learning**

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## ULTIMATE COMPATIBILITY WITH ACCESSORIES & STREAMING

2.4GHz Direct TV Streaming  
WidexLink DEX Accessories

At WIDEX, connectivity doesn't stop with an app or 2.4GHz streaming.

The DEX accessory portfolio keeps wearers connected to a world of sound.



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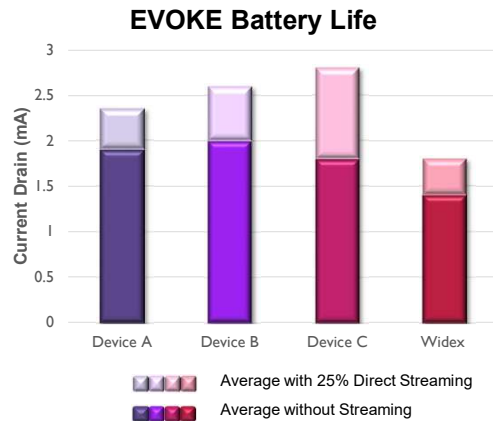
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## CONSISTENT AND RELIABLE BEST IN CLASS BATTERY LIFE

Lowest current drain  
in industry  
Rechargeable ZPower



- Z-Power Rechargeable Option
- Longest Streaming Time in the Industry

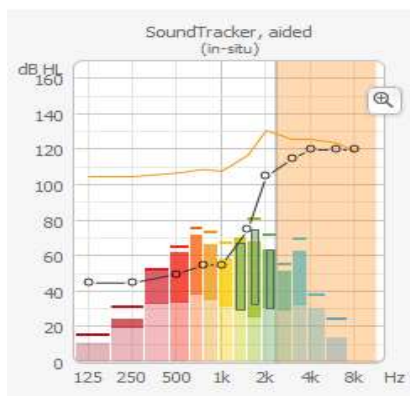
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## FLEXIBILITY FOR ALL HEARING LOSS CONFIGURATIONS

Audibility Extender  
CROS/BiCROS

### AUDIBILITY EXTENDER



### CROS/BiCROS



**3X less** battery drain than other  
wireless CROS solutions

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## WIRELESS PROGRAMMING WITH PRO LINK

FLEXIBILITY AND RELIABILITY

- Bluetooth connectivity
- S-REM, REM friendly
- Effectively charge with cable
- No cable needed for firmware update

Version 1.3.7



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## SOMETHING FOR EVERY ONE

COMPLETE PRODUCT PORTFOLIO



- |                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>■ RIC / RITE / BTE/Customs</li> <li>■ Mild to Profound Hearing Losses</li> <li>■ Low Compression Threshold</li> <li>■ Variable Speed Compression</li> <li>■ Real-Time Speech Enhancer</li> </ul> | <ul style="list-style-type: none"> <li>■ Fully Adaptive Multi-Channel Directionality</li> <li>■ 2.4GHz Best in Class Streaming Sound</li> <li>■ DEX-Accessories powered by WidexLink</li> <li>■ Lowest Battery Consumption</li> <li>■ Various Fun Colors</li> </ul> |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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## FLEXIBILITY AND COMFORT ACROSS VARIOUS DEGREES OF HEARING LOSS

RECEIVER OPTIONS  
FLEXIBLE DESIGN



RIC S



RIC M



RIC P



RITE HP / SP



Wired RITE SP



Passion



Fusion / Fusion2



Baby

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## EVOKE AVAILABLE COLORS



Pearl  
White  
068



Silver  
Grey  
119



Titanium  
Grey  
121



Tan  
Silk  
081



Autumn  
Beige  
123



Summer  
Gold  
069



Cappuccino  
Brown  
071



Tech  
Black  
118



Deep  
Blue  
136



Sporty  
Red  
076

**Additional Colors in FUSION2, FUSION2Z, FUSION, PASSION and FASHION:**



Shocking  
Pink  
077



Lime  
Green  
075



Mediterranean  
Turquoise  
078

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## PEDIATRIC FOCUSED FEATURES

### TAMPER-RESISTANT DOORS



- FASHION
- FASHION POWER
- FUSION

- FUSION2\*
- PASSION\*\*
- BABY440

### PEDIATRIC KIT



\* FUSION2 tamper-resistant door only available in brown, black and white base colors

\*\* PASSION tamper-resistant door only available in white

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## AAA PEDIATRIC GUIDELINES



LOW DISTORTION	AUDIBILITY	IMPROVING SNR	FREQUENCY LOWERING	CONSISTENT USE	FREQUENCY SHAPING	FEEDBACK MANAGEMENT
<p><b>"The system should avoid unnecessary distortion"</b></p> <ul style="list-style-type: none"> <li>• High input linear dynamic range: 113 dB SPL (dynamic range of 108 dB) in all levels and styles of BEYOND and UNIQUE hearing aids provide more natural quality for all input levels.</li> <li>• Primarily slow acting compression to preserve temporal cues for better clarity.</li> <li>• High sampling frequency: 33.1kHz in BEYOND and UNIQUE to preserve frequency information</li> </ul>	<p><b>"The system should employ amplitude compression that offers the flexibility to restore audibility for low level inputs while maintaining comfort for high level inputs."</b></p> <ul style="list-style-type: none"> <li>• Low kneepoint for soft sounds: 0 dB-20 dB HL possible to provide the best access to soft sounds</li> <li>• TriSound compression system</li> </ul> <p><b>"Audibility across the long term average speech spectrum (LTASS)"</b></p> <ul style="list-style-type: none"> <li>• Enhanced dynamic range compression: Low compression threshold from 0-20 dB HL</li> <li>• Excellent feedback management</li> <li>• Extended high frequency bandwidths</li> <li>• Linear frequency transposition: Audibility Extender</li> </ul>	<p><b>"Hearing aids that automatically switch between directional and omnidirectional modes depending on which mode produces the signal with the greater apparent SNR ratio should be considered."</b></p> <ul style="list-style-type: none"> <li>• Widex multi-channel fully adaptive directional microphone system</li> </ul> <p><b>"On average, digital noise reduction is not expected to negatively impact speech recognition ability in children."</b></p> <ul style="list-style-type: none"> <li>• Widex noise management systems with integrated safety features to ensure audibility</li> </ul>	<p><b>"There is evidence to suggest that frequency lowering may improve detection and recognition of high frequency consonants for children with high-frequency hearing loss..." AND "Frequency lowering should not be prescribed until electroacoustic verification has revealed that high-frequency speech audibility cannot be restored through conventional means."</b></p> <ul style="list-style-type: none"> <li>• Utilizes frequency transposition, maintaining harmonic relationships of the speech signal. Default is off; can be applied to all or specific programs when needed</li> <li>• Flexibility - Choice of multiple start frequencies, gain, and frequency range</li> </ul>	<p><b>"Flexibility and ease of connection to external devices, and physical comfort such that consistent, daily use is possible."</b></p> <ul style="list-style-type: none"> <li>• BEYOND offers made-for-iPhone® connection and app control</li> <li>• BEYOND and UNIQUE offer full range of wireless accessories Wide range of styles and fit options</li> <li>• Datalogging to monitor use</li> </ul>	<p><b>"System should allow sufficient frequency shaping to meet prescriptive requirements of the hearing loss configurations."</b></p> <ul style="list-style-type: none"> <li>• Up to 15 independent processing channels</li> </ul>	<p><b>"Use feedback cancellation (which does not reduce the gain below the value that applies in the absence of feedback oscillation) in preference to feedback systems that operate by reducing gain..."</b></p> <ul style="list-style-type: none"> <li>• Multi-Directional active feedback cancellation system</li> </ul>

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## AAA PEDIATRIC GUIDELINES



LOW DISTORTION	AUDIBILITY	FREQUENCY SHAPING	FEEDBACK MANAGEMENT	IMPROVING SNR	FREQUENCY LOWERING	CONSISTENT USE
<p>"The system should avoid unnecessary distortion"</p> <ul style="list-style-type: none"> <li>High input linear dynamic range: 115 dB SPL (dynamic range of 105 dB) in all levels and styles of BEYOND and UNIQUE hearing aids provide more natural quality for all input levels</li> <li>Primarily slow acting compression to preserve temporal cues for better clarity</li> <li>High sampling frequency: 33.1 kHz in BEYOND and UNIQUE to preserve frequency information</li> </ul>	<p>"The system should employ amplitude compression that offers the flexibility to restore audibility for low level inputs while maintaining comfort for high level inputs."</p> <ul style="list-style-type: none"> <li>Low kneepoint for soft sounds: 0 dB-20 dB HL, possible to provide the best access to soft sounds</li> <li>TruSound compression system</li> </ul> <p>"Audibility across the long-term average speech spectrum (LTASS)"</p> <ul style="list-style-type: none"> <li>Enhanced dynamic range compression: Low compression threshold from 0-20 dB HL</li> <li>Excellent feedback management</li> <li>Extended high frequency bandwidth</li> <li>Linear frequency transposition: Audibility Extender</li> </ul>	<p>"System should allow sufficient frequency shaping to meet prescriptive requirements of the hearing loss configurations."</p> <ul style="list-style-type: none"> <li>Up to 15 independent processing channels</li> </ul>	<p>"Use feedback cancellation (which does not reduce the gain below the value that applies in the absence of feedback oscillation) in preference to feedback systems that operate by reducing gain..."</p> <ul style="list-style-type: none"> <li>Multi-Directional active feedback cancellation system</li> </ul>	<p>"Hearing aids that automatically switch between directional and omnidirectional modes depending on which mode produces the signal with the greater apparent signal-to-noise ratio should be considered."</p> <ul style="list-style-type: none"> <li>Widex multi-channel fully adaptive directional microphone system               <ul style="list-style-type: none"> <li>Only operates at high input levels</li> <li>Only operates at poor SNRs</li> <li>Uses a slow activation time</li> <li>Works in tangent with a very low CT</li> <li>Fully adaptive, requiring no switching</li> <li>Every channel has distinct directional characteristics (440/330/220)</li> </ul> </li> </ul> <p>"On average, digital noise reduction is not expected to negatively impact speech recognition ability in children."</p> <ul style="list-style-type: none"> <li>Widex noise management systems with integrated safety features to ensure audibility               <ul style="list-style-type: none"> <li>Speech Enhancer - Optimize SII in noise: based upon speech spectrum and noise spectrum (440/330)</li> <li>Classic Noise Reduction - Based on comfort, slow activation time, sensitive to speech frequencies</li> </ul> </li> </ul>	<p>"There is evidence to suggest that frequency lowering may improve detection and recognition of high-frequency consonants for children with high-frequency hearing loss..."</p> <p>"Frequency lowering should not be prescribed until electroacoustic verification has revealed that high-frequency speech audibility cannot be restored through conventional means."</p> <ul style="list-style-type: none"> <li>Utilizes frequency transposition, maintaining harmonic relationships of the speech signal</li> <li>Default is off, can be applied to all or specific programs when needed</li> <li>Flexibility - Choice of multiple start frequencies, gain, and frequency range</li> </ul>	<p>"Flexibility and ease of connection to external devices, and physical comfort such that consistent, daily use is possible."</p> <ul style="list-style-type: none"> <li>BEYOND offers made-for-iPhone® connection and app control</li> <li>BEYOND and UNIQUE offer full range of wireless accessories</li> <li>Wide range of styles and fit options</li> <li>Datalogging to monitor use</li> </ul>

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## WIDEX EVOKE HEARING AID LEVELS

### WIDEX EVOKE 440

- SMARTWIND MANAGER
- HIGH-FREQUENCY BOOST
- IMPACT PROGRAM
- SPEECH ENHANCER RT/IE
- 15 PROCESSING CHANNELS
- 15 FINE-TUNING CHANNELS
- 5 PROGRAMS
- Digital Pinna
- SoundSense Learn
- SoundSense Adapt
- Comfort Program
- HD Locator
- TruSound Softener
- Fluid Sound Controller
- Fluid Sound Analyzer 11 (IE)
- Soft-Level Noise Reduction
- Noise Reduction
- ZEN IE
- Audibility Extender
- Variable Speed Compression
- EVOKE App
- TONELINK App

### WIDEX EVOKE 330

- SPEECH ENHANCER IE
- DIGITAL PINNA
- 12 PROCESSING CHANNELS
- 12 FINE-TUNING CHANNELS
- 4 PROGRAMS
- SoundSense Learn
- SoundSense Adapt
- Comfort Program
- HD Locator
- TruSound Softener
- Fluid Sound Controller
- Fluid Sound Analyzer 7 (IE)
- Soft-Level Noise Reduction
- Noise Reduction
- ZEN IE
- Audibility Extender
- Variable Speed Compression
- EVOKE App
- TONELINK App

### WIDEX EVOKE 220

- SOUNDSSENSE LEARN
- SOUNDSSENSE ADAPT
- COMFORT PROGRAM
- HD LOCATOR
- TRUSOUND SOFTENER
- 10 PROCESSING CHANNELS
- 10 FINE-TUNING CHANNELS
- 3 PROGRAMS
- Fluid Sound Controller
- Fluid Sound Analyzer 4
- Soft-Level Noise Reduction
- Noise Reduction
- ZEN IE
- Audibility Extender
- Variable Speed Compression
- EVOKE App
- TONELINK App

### WIDEX EVOKE 110

- Fluid Sound Controller
- Fluid Sound Analyzer 3
- Soft-Level Noise Reduction
- Noise Reduction
- ZEN IE
- Audibility Extender
- Variable Speed Compression
- EVOKE App
- TONELINK App
- 6 Processing channels
- 6 Fine-tuning channels
- 3 programs

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# THANK YOU

Jodi Sasaki-Miraglia, AuD  
Director-Professional Education  
Widex USA [jsas@widex.com](mailto:jsas@widex.com)  
1.800.221.0188  
[www.widexpro.com](http://www.widexpro.com)

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