Open Sound. Open Life
Ponto 4

Because
sound matters

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1

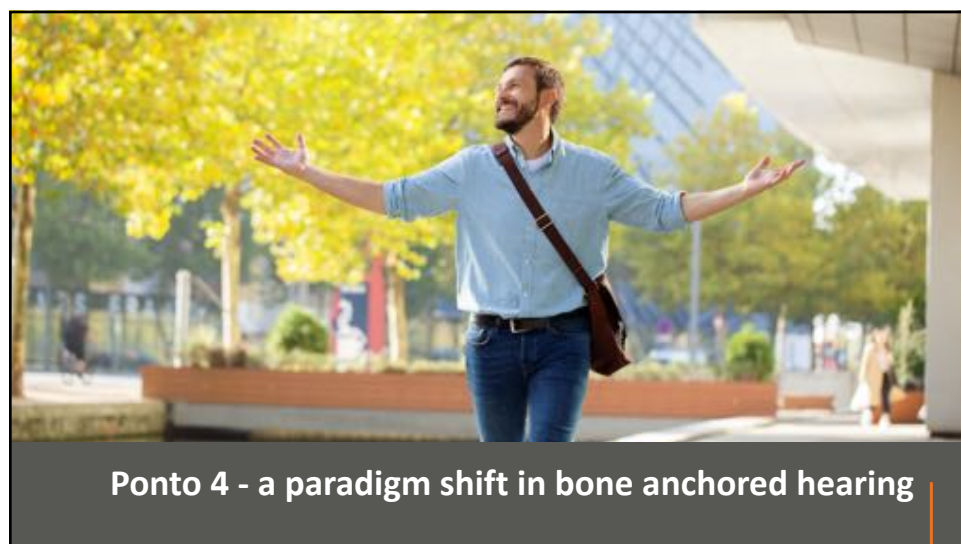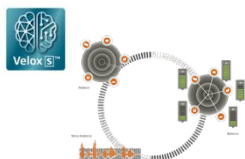**Ponto 4 - a paradigm shift in bone anchored hearing**

2

Ponto 4 – Join the open sound revolution

Velox S™ platform and OpenSound Navigator™

- Extremly fast and powerful
- Unique technology for 360 degree access to sound.

The world's smallest bone anchored sound processor

- 27% smaller than Ponto 3*
- Combining discretion, performance & reliability

Truly wireless – now and in the future

- The world's first bone anchored sound processor to be connected to the Internet – using IFTTT and the Oticon ON App.

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* Data on file at Oticon Medical
Pending FDA clearance.

3

Listening in noisy environments

- The most difficult listening situation for hearing impaired people
- Sounds of interest are acoustically mixed with all other interfering sounds.
- We use a cognitive process to focus our attention selectively on sounds of interest.
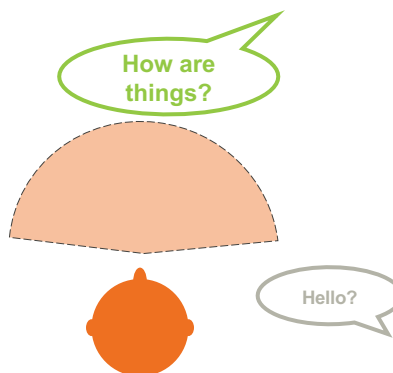

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4

Conventional technology

- Creates a focus towards the front of the user and attenuates noise
- Slow transition between different "modes" to avoid abrupt changes that disturb attention
- Side-effects exist – like the user feeling isolated and "boxed in"

How are things?

Hello?

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OpenSound Navigator™ - 360° sound

- OpenSound Navigator is opening up and balancing the sound environment
- Enabled by Multi Speaker Access Technology – making directionality as we know it a thing of the past

- **Very High setting New for Velox S™**
  - as OpenSound Booster in the Oticon ON App
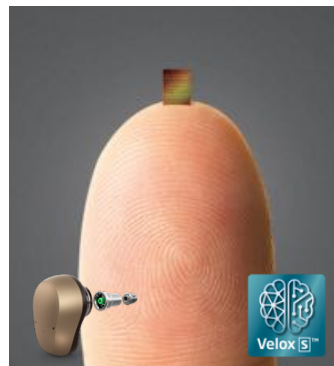- **-** in Genie Medical BAHS

Analyse

Noise Removal

Balance
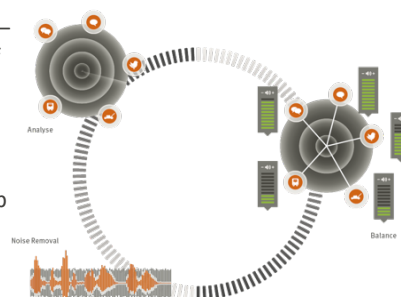
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Pending FDA clearance.

6

Velox S™ - the platform with unprecedented processing power

- Velox S is built from the bottom up by Oticon – custom made for hearing technology, launched by Oticon February 2019

- It offers extreme speed and precision

- Ponto 4 features the strongest audiology on the hearing instrument market from Oticon Opn™ and Oticon Opn S™

- Sound processing has never been this current in bone anchored technology
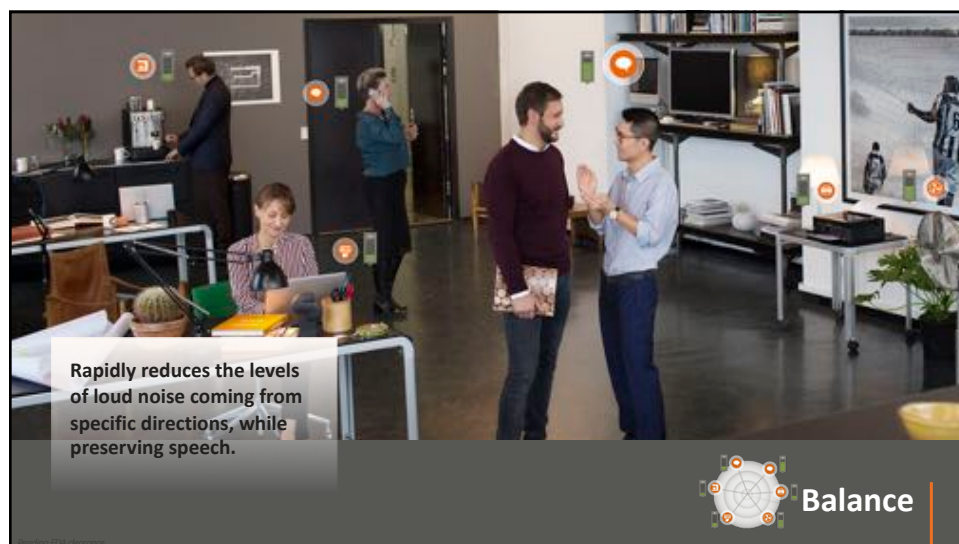
Pending FDA clearance.

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OpenSound Navigator™   **A paradigm shift**

8

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

Analyse

9

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

Balance

10

Rapidly attenuates remaining diffuse noise, even between individual words
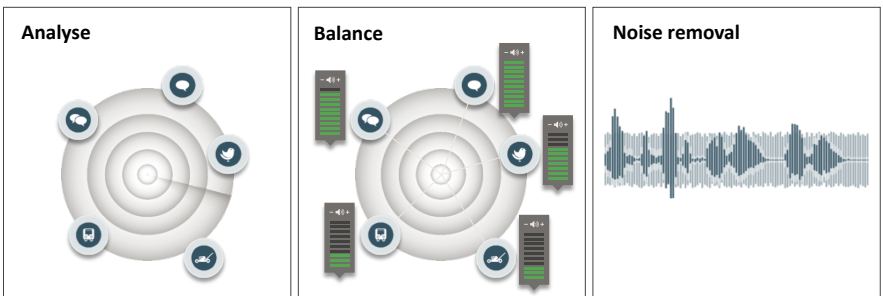
Noise removal

11

OpenSound Navigator™

Fast and seamless

Analyse

Balance

Noise removal

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*Pending FDA clearance.*

12

Why is OSN so significantly different?

- OpenSound Navigator™ is a spatially informed seamlessly adapting speech-enhancement algorithm - reducing noise, while also maintaining access to multiple talkers.

- OpenSound Navigator™ is designed to leave the user with the possibility to hear multiple speech sources and decide themselves where to attend
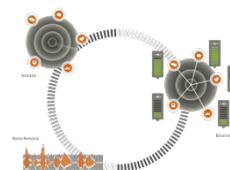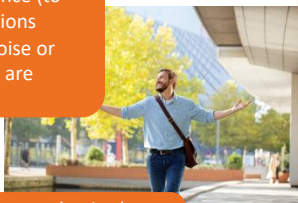
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What do Ponto 4 users say?

"The largest difference (to Ponto 3) is in situations with background noise or when many people are gathered" (#4)

"Listening range is increased"(#5)

Two children in the living room, two adults in the kitchen.
"I walk back and forth between the rooms, I can hear what they say even when I'm far away." (#3)

"Background noise has become background sounds" (#4)

Event center with 150 people.
"Ponto 4 sounds super great. The background noise is not at all noisy, I hear clearly my family at the table, as well as the speaker. With Ponto 3, I hear lots of humming from all the people, and hard to hear the speaker" (#4)

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2019
Ponto 4 Initial Clinical Data

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Study Objective

- Evaluate the **OpenSound Navigator (OSN) feature** of Ponto 4 in terms of benefit in intelligibility during a speech-in-noise test, as well as users' self-reported performance.
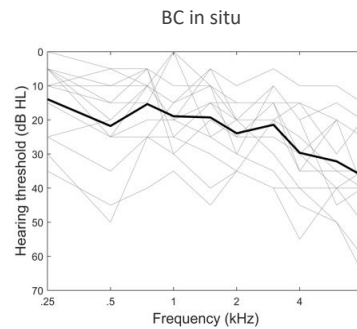
Analyse

Balance

Noise removal

oticon
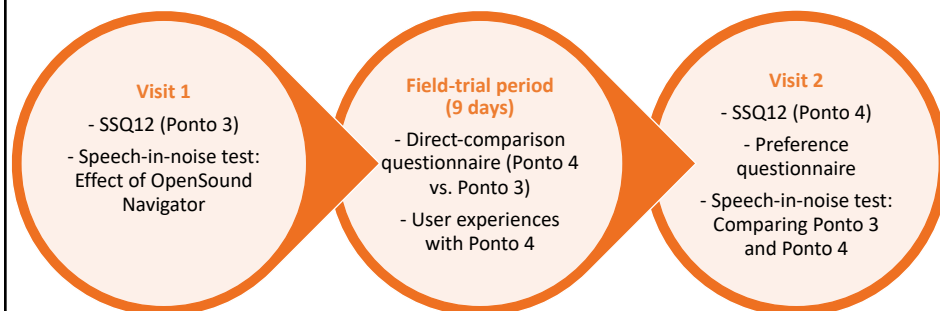MEDICAL

16

Participants

- 12 subjects (5 male, 7 female) that were experienced Ponto 3 users.
- Mean age: 59 years old [min-max: 32-72 years].
- Conductive (n = 8) or mixed hearing loss (n = 1), or single-sided deafness (n = 3).
- Average bone-conduction pure tone thresholds (BC PTA) lower than 45 dB HL.

BC in situ

oticon
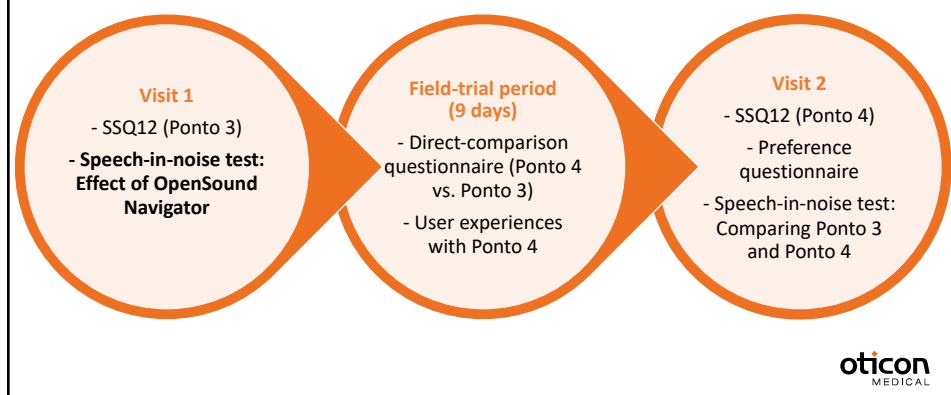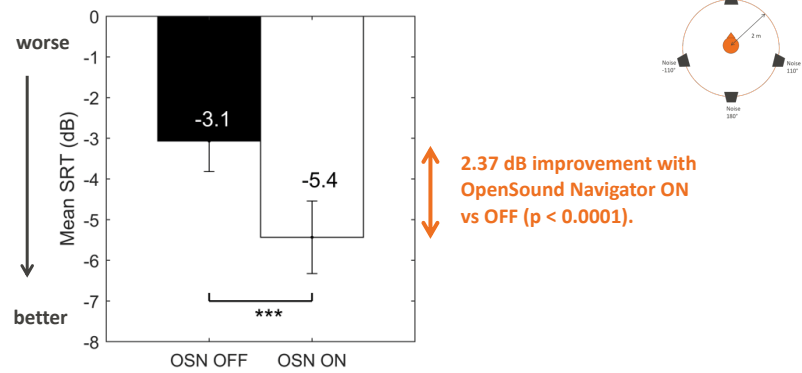MEDICAL

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Study design

Visit 1

- SSQ12 (Ponto 3)

- Speech-in-noise test: Effect of OpenSound Navigator

Field-trial period (9 days)

- Direct-comparison questionnaire (Ponto 4 vs. Ponto 3)

- User experiences with Ponto 4

Visit 2

- SSQ12 (Ponto 4)

- Preference questionnaire

- Speech-in-noise test: Comparing Ponto 3 and Ponto 4

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Study design

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Effect of OpenSound Navigator in the lab

Speech target

2 m

Noise
-110°

Noise
110°

Noise
180°

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Effect of OpenSound Navigator in the lab

2.37 dB improvement with OpenSound Navigator ON vs OFF (p < 0.0001).

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Study design

Visit 1
- SSQ12 (Ponto 3)
- Speech-in-noise test: Effect of OpenSound Navigator

Field-trial period (9 days)
- **Direct-comparison questionnaire (Ponto 4 vs. Ponto 3)**
- User experiences with Ponto 4

Visit 2
- SSQ12 (Ponto 4)
- **Preference questionnaire**
- Speech-in-noise test: Comparing Ponto 3 and Ponto 4

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Direct-comparison questionnaire

≥ 70% prefer Ponto 4 in multiple-speaker, dynamic listening environments

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Preference questionnaire

Higher preference for Ponto 4 for speech-in-noise and listening comfort (p = 0.04)

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Study design

Visit 1
- **SSQ12 (Ponto 3)**
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Field-trial period (9 days)
- Direct-comparison questionnaire (Ponto 4 vs. Ponto 3**)**
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- Preference questionnaire
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Speech, Spatial and Qualities of Hearing Scale (SSQ12[1])

Doc-00066471

Higher scores with Ponto 4 re. Ponto 3 (p = 0.003)
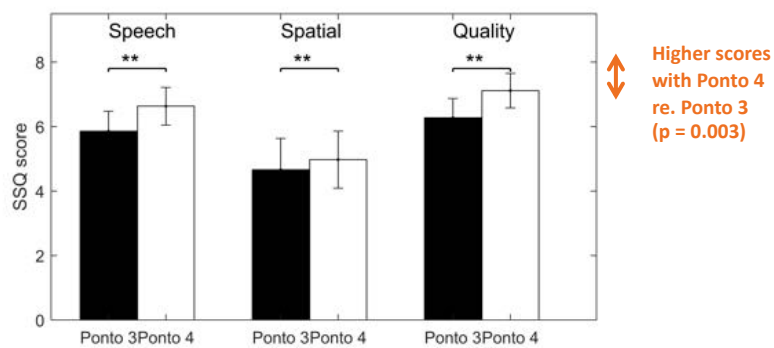
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[1] Noble et al., Int J Audiol, 2013

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Study design

Visit 1	Field-trial period (9 days)	Visit 2
- SSQ12 (Ponto 3) - Speech-in-noise test: Effect of OpenSound Navigator	- Direct-comparison questionnaire (Ponto 4 vs. Ponto 3) **- User experiences with Ponto 4**	- SSQ12 (Ponto 4) - Preference questionnaire - Speech-in-noise test: Comparing Ponto 3 and Ponto 4

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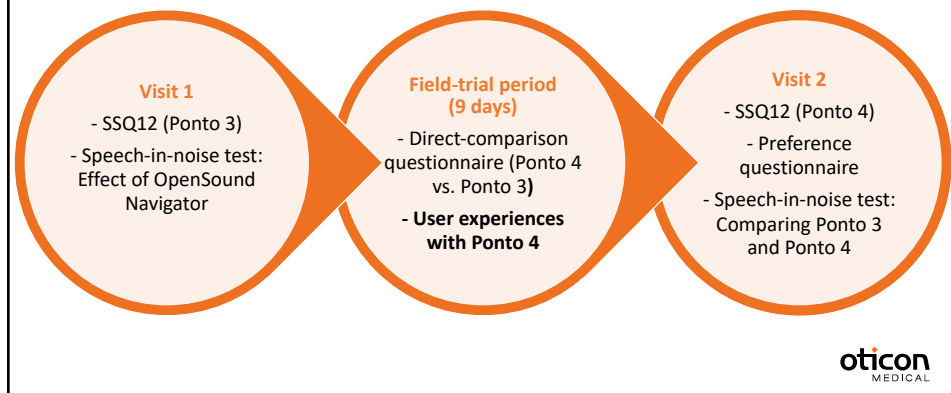
27

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Conclusion

The new **OpenSound Navigator™** technology of Ponto 4:

✓ Significantly **improves speech intelligibility**;

✓ Improves perceived **speech-in-noise** performance and **listening comfort in real-life** listening environments;

*The full potential of the OSN technology comes into play in the **dynamics of real-life** environments.*

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Ponto 4 – Join the open sound revolution

Velox S™ platform and OpenSound Navigator™	The world's smallest bone anchored sound processor	Truly wireless – now and in the future

- • Extremly fast and powerful
- • Unique technology for 360 degree access to sound.

- • 27% smaller than Ponto 3*
  - • Combining discretion, performance & reliability

- • The world's first bone anchored sound processor to be connected to the Internet – using IFTTT and the Oticon ON App.

* Data on file at Oticon Medical
Pending FDA clearance.
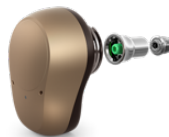
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World's smallest bone anchored sound processor
Ponto 4 is appealing to all

- Non-side specific
- Upholding our legacy on reliability and durability
- Ponto design element – the round dome
- Black back shell and coupling for shadow-effect on the head and discretion of wear
- LED option*
- Tamper resistant drawer option

Pending FDA clearance.

*Unique for the small sound processors

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Ponto 4 – Join the open sound revolution
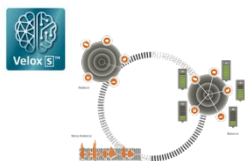
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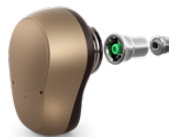
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Join the future of connected hearing

Made for iPhone®

Direct streaming from any smartphone

The first truly connected bone anchored sound processor

- Ponto 4 connects directly to the iPhone for direct streaming of phone calls, music, changing program, volume etc.

- Via ConnectClip
- To access user controls - volume control, program change, IFU, "find my hearing aid" and much more using the App

- Endless options with IFTTT
- Unique Oticon cloud solution, enables connection and control to an endless range of devices used in everyday life.

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Genie Medical BAHS

The Genies out of the bottle!

Because
sound matters

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1. Introduction
2. Fitting flow
3. New tools in Genie Medical BAHS
   - OSN
   - Fine Tuning tool
   - LED
   - Pediatric setting
4. Software news and Wireless programming

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Completely new, yet completely familiar

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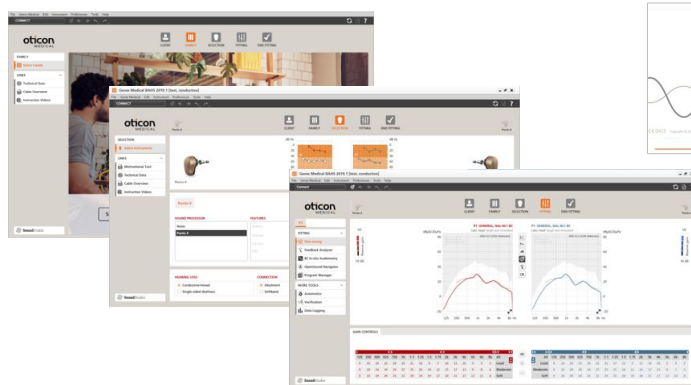
Fitting range for Ponto 4

Conductive / mixed hearing loss

Single-Sided Deafness
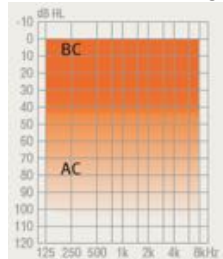
BC thresholds up to and
including average 45 dB HL[1]
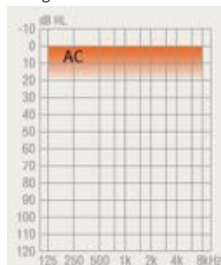
AC thresholds up to and
including average 20 dB HL[1]

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[1]Average of 0.5, 1, 2 and 3 kHz

Doc-00066472

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A good bone anchored hearing is based on a range of parameters

	Signal processing	MFO	Bandwidth	Wireless	Design	Reliability
Ponto 4	●	◖	●	●	●	●
Ponto 3 Power	◕	●	●	◖	●	●

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Softband fitting

Ponto 4 for a conductive HL

- Ponto 4 can be used on softband for patients with conductive losses, e.g. patients with aural atresia / microtia, chronic otitis media.
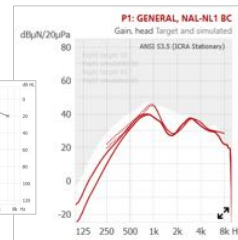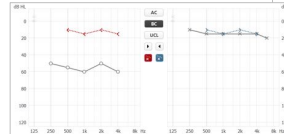
Ponto 4 fitting on softband for a conductive HL

- If the hearing loss is larger (mixed or SSD) then MFO is much more important to achieve an optimal fitting and Ponto 3 SuperPower should be used
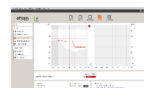
41

Ponto Fitting Flow

1. Connect instruments

2. Select HL and Connection type

Instant Connectivity

3. Measure feedback limit

4. Measure BC in-situ

42
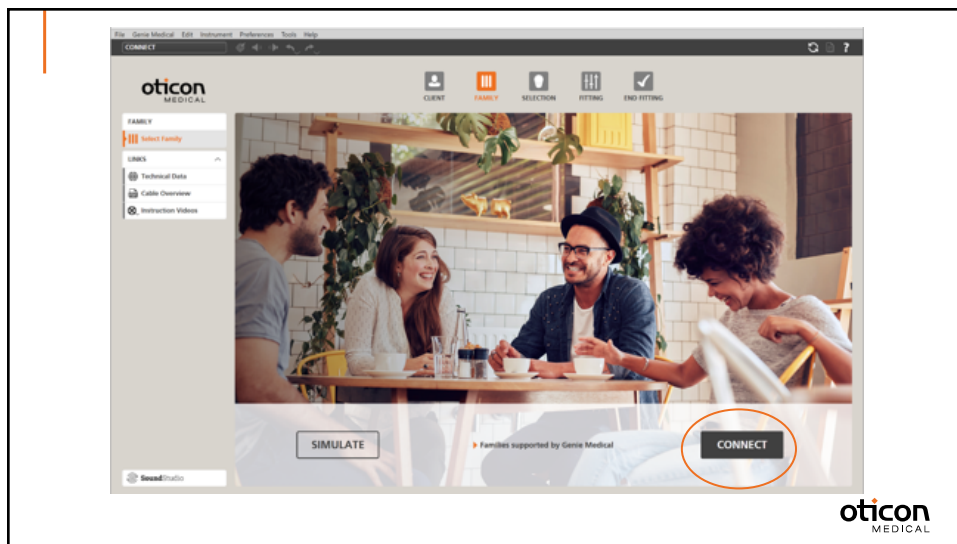
43
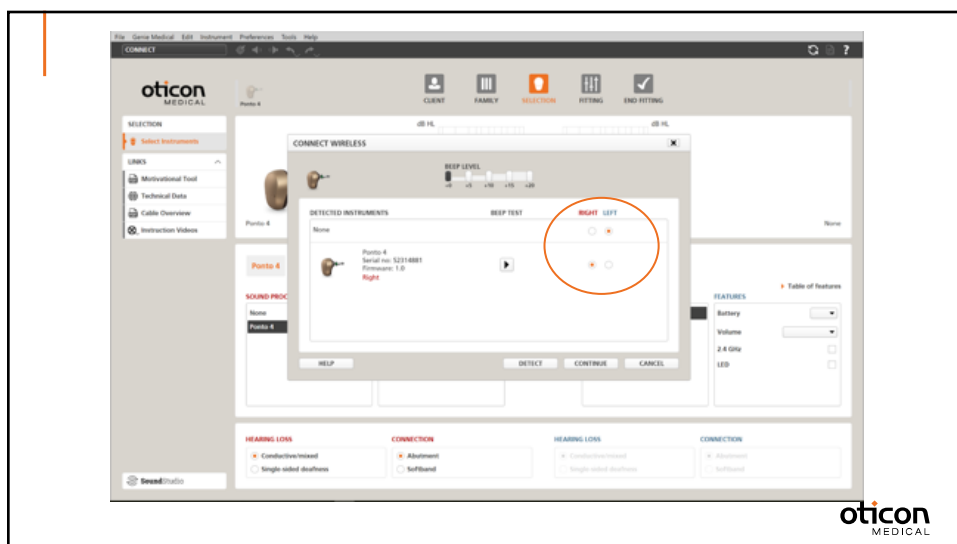
44

Ponto Fitting Flow

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Instant Connectivity

ON
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45
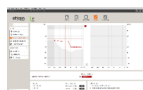
46

Ponto Fitting Flow

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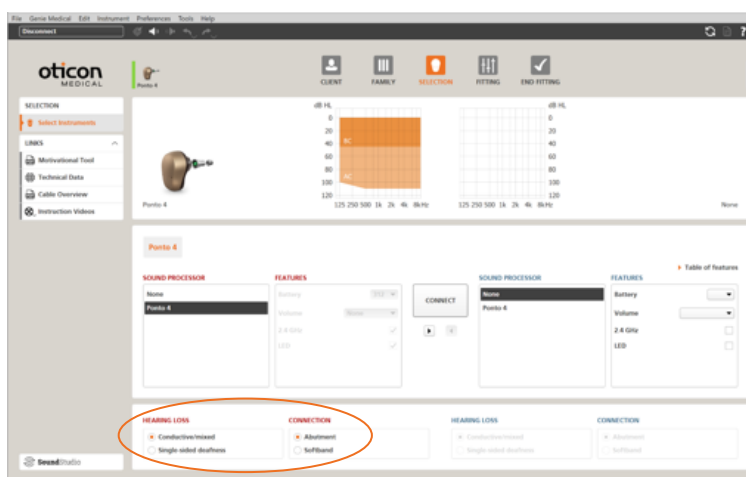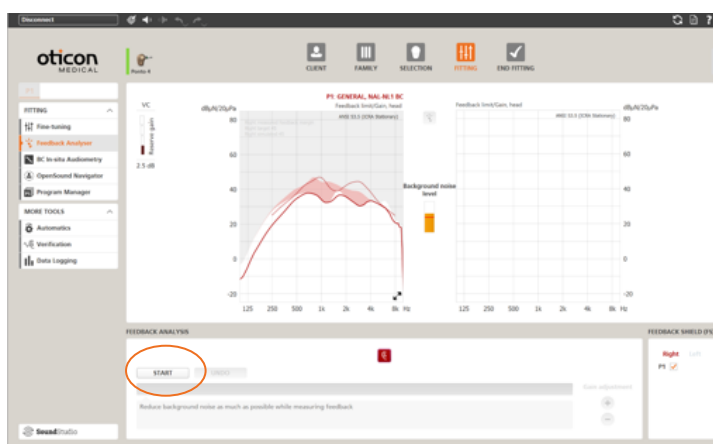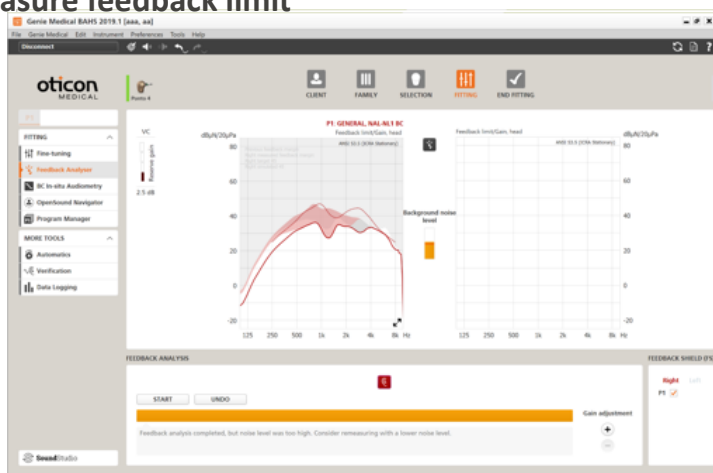
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Instant Connectivity

ON
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Measure feedback limit

oticon
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47
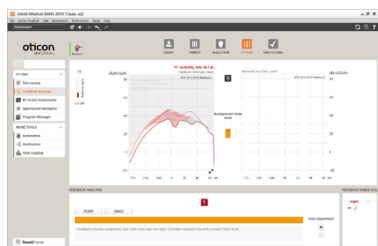
Measure feedback limit

48

Measure feedback limit

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Feedback measurement

Be aware

- If programming cable is used, please make sure that the cable does not pull in the sound processor and impacts the feedback measurement or evoke feedback.

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Ponto Fitting Flow

1. Connect instruments

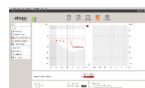2. Select HL and Connection type

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Instant Connectivity

ON
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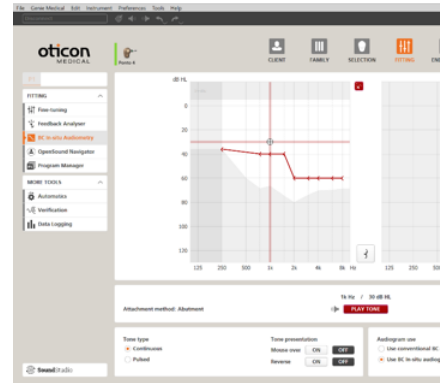
51

Measure BC In-situ Audiometry

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Measure BC In-situ Audiometry

- Use arrow keys and space bar

- You need to be connected to access the tool

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Ponto Fitting Flow

1. Connect instruments

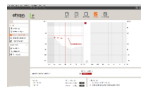2. Select HL and Connection type

Instant Connectivity

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4. Measure BC in-situ

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Connectivity- Accessories

Instant connectivity

- No need to do anything at the fitting visit, as is the case when fitting Opn.

- Patient can pair to Connectclip microphone and or directly connect to iPhone at home.

- At the follow-up visit when connecting to the Ponto 4 you can see what accessories the sound processor has been paired with.
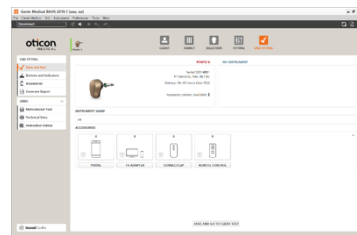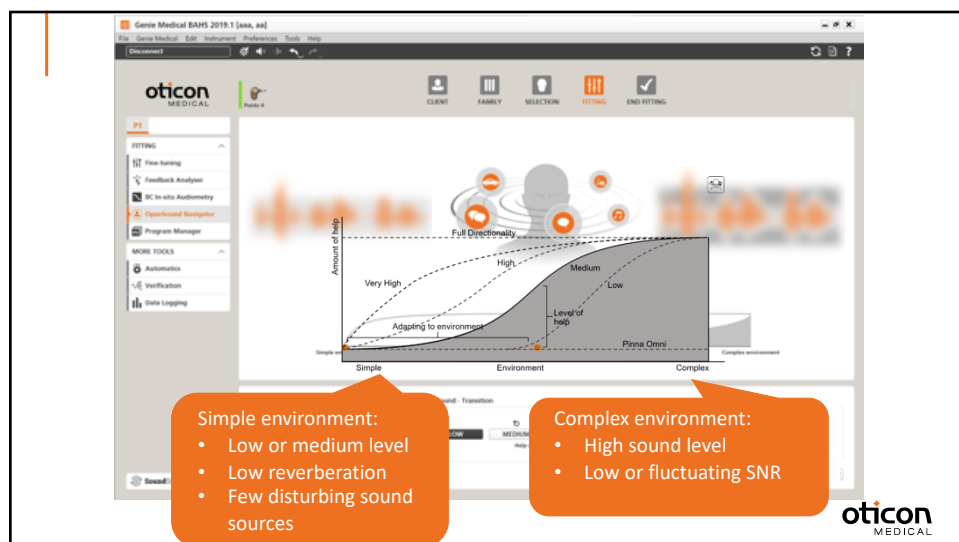

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New tools and functions

OpenSound Navigator
Fine Tuning aspects
LED
Pediatric setting

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Simple environment:
- Low or medium level
- Low reverberation
- Few disturbing sound sources

Complex environment:
- High sound level
- Low or fluctuating SNR

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OpenSound Navigator
When to use the tool?

- Use the tool at the follow-up visit if the patient wants to understand speech better or is bothered by background noise.

- It is seldom that you would use the tool at the fitting visit, as the patient needs some experience with the sound processor in different listening environment.

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Course presented in partnership with
continued

Case Examples

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OpenSound Navigator
When to use the tool?

Doc-00066472

Default setting

Open Sound - Transition

| LOW | MEDIUM | HIGH | VERY HIGH |

Help with auditory focus
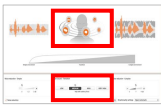
"In noisy environments I find it too hard to understand people talking to me"

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OpenSound Navigator
When to use the tool?

Doc-00066472

Default setting

Open Sound - Transition

| LOW | MEDIUM | HIGH | VERY HIGH |

Help with auditory focus

| LOW | MEDIUM | HIGH | VERY HIGH |

Help with auditory focus

"In noisy environments I find it too hard to understand people talking to me"

Action:

- Open Sound Transition -> High or Very high
- Eventually also reduce the diffuse noise: Noise reduction Complex -> -9 dB

  Noise reduction - Complex

  -5   -7   -9 dB

- Alternatively suggest the patient to use the 'OpenSound booster' functionality in the ON app

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OpenSound Navigator
When to use the tool?

Doc-00066472

Default setting

Open Sound - Transition

| LOW | MEDIUM | HIGH | VERY HIGH |

Help with auditory focus

| LOW | MEDIUM | HIGH | VERY HIGH |

Help with auditory focus

"Generally I feel I miss out on what goes on around me"

Action:

- Open Sound Transition -> Low

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Feedback limit and gain adjustments

- Gain can be adjusted above the measured FB limit
  - of course with increased risk of having feedback.

- You can still see the measured limit.

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Doc-00066472

Fine Tuning
Own voice reproduction

- Fine tuning is seldom needed

- .. but if needed it can be due to a complaint of reproduction of own voice which sounds:
  "muffled", "as if I have food in my mouth", "rattling", ...

- The following adjustment are suggested:
  1) Increase HF gain for all input levels by 3 dB in the frequency region 1.5 – 4 kHz
  2) if it doesn't solve the problem then turn DFC is turned off (for small HL)
 3) Alternatively for some patients it works better to decrease LF (+750 Hz) by 3 dB

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Pediatric default settings

..is applied only at initial fitting

- The client's age is read into Genie Medical.

- If the patient is below 18 years old then Pediatric default settings are applied at the initial fitting.

Example:

- 2y old boy is being fitted for the first time: Pediatric settings are automatically applied

- He comes in again when he's 5y old: The settings are not automatically changed. The audiologist will not be reminded.
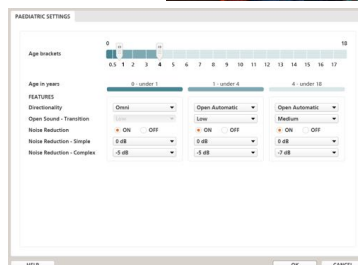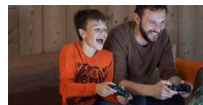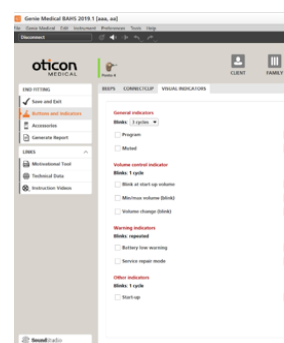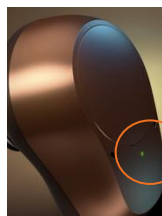

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Buttons and Indicators

Visual Indicators

Ponto 4 has an LED

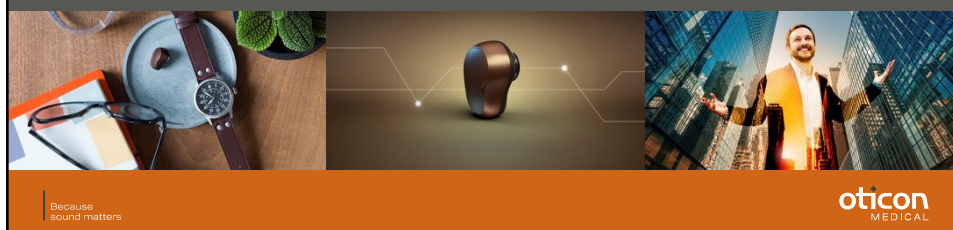- Indicators for:
  - Program change
  - Volume control change
  - Battery low
  - Start up
  - ...

- LED is default on for children (can be turned off)

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Software news and wireless fitting

Because
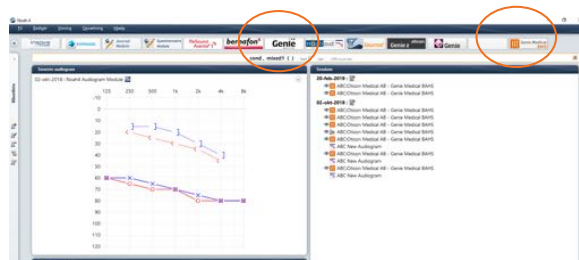sound matters

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Genie Medical BAHS
Completely new platform

- GM BAHS 2019.1 is separate to GM 2016.1

- As such it is seen as a completely separate module in NOAH

- There is no exchange of information between the GM platforms

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Genie Medical BAHS
Completely new platform

Genie Medical BAHS works with:

- Ponto 4 family
- ..and sound processors to come

Genie Medical 2016.1 works with:

- Ponto Pro family
- Ponto Plus family
- Ponto 3 family

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Wired or wireless fitting available

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CONTINUED

Fitting and Genie Medical guide

Information can be found

Product Guide

Audiological Manual

Quick fitting guide

Genie Medical help files

Welcome to Genie Medical's help files

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Thank you

Because sound matters

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continued