

APPLYING WIRELESS FITTING IN PAEDIATRICS

With our latest hearing aid series Widex has introduced a completely new wireless technology platform that includes wireless fitting. The benefits of wireless fitting are similar whether fitting an adult or a child. For the audiologist the procedure is made easier (i.e. avoiding the cable jungle) and for the adult or child the comfort and the feeling of ease during the fitting session are increased.

A typical fitting session in a paediatric session consists of four important steps (see figure 1). Wireless fitting becomes applicable at two of the stages - during **the hearing aid fitting** and **the hearing aid verification stage**. This audiological bulletin will describe the procedure recommended by Widex when performing wireless fitting of Widex hearing aids to children. Furthermore the procedure for performing test box verification of a wireless hearing instrument is described.

1. WIRELESS FITTING

Fitting hearing aids to young children is enjoyable as well as a challenging procedure and it is guaranteed that a paediatric fitting session will rarely follow a standard path. The successful hearing aid fitting depends of course on the expert skills of the audiologist, but also to a large extent on the cooperation of the child, which is an ingredient that is unforeseeable.

Wireless fitting is one way to ensure the best possible preconditions for a successful session. Minimising the time spent on finding the right cables, connecting them to the hearing aid, disconnecting them from the hearing aid, keeping the child from chewing through or tugging at the cables, etc is valuable time that can be better spent on fitting, fine tuning, verification, counselling or playing. For the child, wireless fitting allows more freedom of movement and may increase the overall tolerance of the situation.

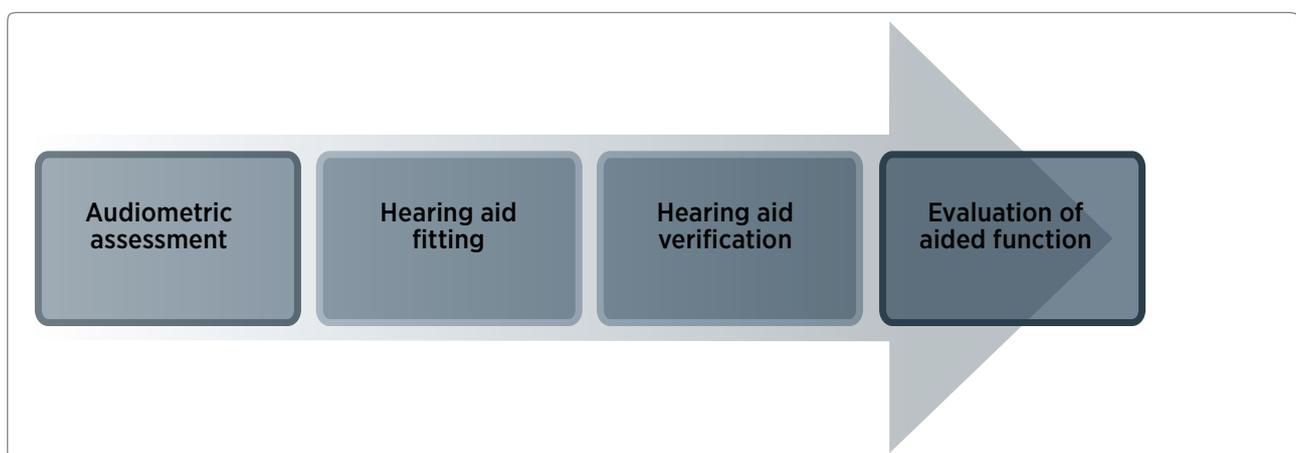


Figure 1: The four steps of a typical paediatric fitting session. Protocols and procedures may vary between countries.

Wireless fitting allows the audiologist to fit the hearing aids from the CLEAR series to children using either the nEARcom or the USB Link. In the following the recommended procedure for wireless fitting of young children is described. The basic idea is to do as much of the fitting as possible on the desk top.

1.1 BEFORE THE FITTING SESSION – ON DESK PROGRAMMING

1. Select the hearing aids you wish to fit, e.g. a C4-m and open the Compass module
2. Place the hearing aids on the desk with either the nEARcom or the USB Link placed in close proximity



3. Enter ChildFit by selecting the ChildFit icon in the left menu of the Compass screen



4. Click the detect wireless button in the top menu of the Compass screen



5. If the fitting is binaural, select which hearing aid is right and which is left



6. Select the acoustic identity of the selected hearing aids



7. Go to the Preconditions screen and select the relevant options, i.e. choice of rationale, audiometric conditions, etc
8. Continue to the Fitting screen, which will result in an instant estimated fitting

1.2 DURING THE FITTING SESSION – ON EAR PROGRAMMING

The initial fitting of the hearing aids can be done prior to the child actually entering the room, as described above. This only requires that the age of the child and the audiometric thresholds are known to the audiologist. During the fitting session it may be relevant to perform certain measures that require the child to wear the hearing aids and the programming device (nEARcom or USB Link). This procedure is described in the following:

1. Place the hearing aids on the child's ears and place the USB Link or nEARcom around the child's neck. With infants and young children sitting on the parent's lap, the parent or caregiver can help calm the child and keep the programming device in place. Examples of using the programming devices for different age groups are shown later in this bulletin
2. Perform the relevant measurements, i.e. feedback test, Widex in-situ RECD, Sensogram, depending on the child's cooperation or age. Feedback test and Widex in-situ RECD can be performed with children of all ages. The Sensogram in-situ threshold measurement can be performed as soon as the child is able to respond behaviourally (ie around the age of 6 months using VRA techniques)
3. Remove the hearing aids and the programming device from the child and place both parts on the desk in close proximity to each other

After the relevant tests have been performed it is possible to remove the hearing aids and programming device from the child, so that the child is free to move about while the last steps of the fitting and verification are made.

1. Place the hearing aids and the programming device on the desk in close proximity to each other
2. Continue to the Fine tuning screen and perform the relevant adjustments (ie changing feature settings, changing gain settings¹, adding Programs using the Program manager)

¹If the gain settings are altered, ie by using the Ling sounds in the LifeSounds library, then the hearing aids and the programming device must obviously still be worn by the child in order to note their response

3. If verification in a test box is performed as part of the clinical protocol, then activate the ISTS test mode before placing the hearing aids in the test box. The procedure for wireless verification in a test box is described in section 2 of this bulletin
4. Continue to Finalise for DEX matching, Questionnaires, Instruction tools, etc
5. Save the fitting and exit Compass

1.3 SELECTION OF PROGRAMMING DEVICE

With Widex hearing aids two different programming devices are available.

- The nEARcom, which is a wireless programming device developed by HIMSA, a consortium of leading hearing aid manufacturers including Widex



- The USB Link, which is developed by Widex specifically for use with Widex hearing aids



Both can be used for a paediatric hearing aid fitting, but as they double as programming devices for adult clients in many clinics the physical size of both devices is naturally entirely different in proportion when placed on a small child. Widex recommends the use of both the nEARcom and the USB Link for paediatric fittings.

Placement of nEARcom



nEARcom placed on an 11 month old child and on a 2 month old infant.

Unlike for adults a nEARcom is more easily placed hooked over the shoulder of the child instead of around the neck

Placement of USB link



USB Link placed on an 11 month old child.

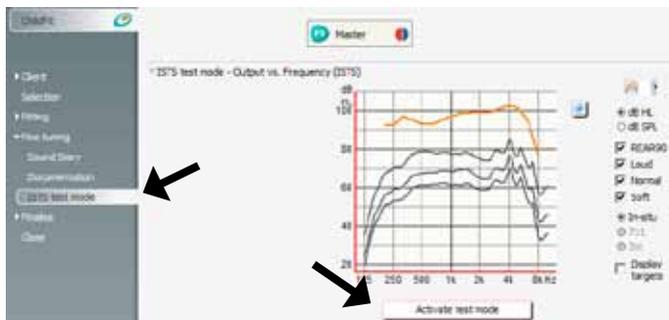
Due to narrower shoulder width the USB Link may need to be held in place by the parent, or by a clip to the clothes of the child, when using this programming device for infants.

2. VERIFICATION IN TEST BOX

Many paediatric audiologists verify the hearing aid fitting in a test box as part of their fitting protocol. This is typically done once the hearing aid fitting is completed to confirm that the electroacoustic performance of the hearing aid matches the amplification targets for a given hearing loss. During the verification procedure it may be necessary to make small gain adjustments in the fitting software in order to get closer to the targets. Therefore the audiologist may need to toggle back and forth between the ChildFit software and measuring in the test box until the desired targets are reached and the fitting can be completed.

When using wireless programming devices it is necessary to follow a specific procedure for verification and simultaneous adjustment of gain settings.

1. Place the hearing aids and the programming device on the desk in close proximity to each other
2. Go to the ISTS test mode under Fine tuning in the left menu and click the “Activate test mode” button when you have entered the ISTS test mode screen. If the fitting is binaural you can only set the test mode for one ear at the time

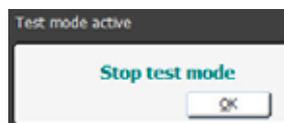


3. Once the test mode is activated remove the hearing aid from the programming device, place it in the test box and run the required test measurements



4. When the test measurement is done return to Compass by taking the hearing aid out of the test box and placing it in close proximity to the programming device

5. Only click the “Stop test mode” button when the hearing aid is back in the range of the programming device. The connection to Compass will be re-established



6. Go to Fine tuning and adjust the gain settings if necessary
7. If you wish to perform verification again, then follow the above described procedure of activating the ISTS test mode before moving the hearing aids out of range of the programming device and placing them in the test box
8. Always return to Compass and stop the test mode. Once you have done this you are ready to close and save your fitting.

Reference

Seewald R.C, Moodie S., Scollie S., Bagatto M. (2005). The DSL Method for Pediatric Hearing Instrument Fitting: Historical perspective and Current Issues, Trends in Amplification, 9(4), 145-157