

Oticon ♦ Syncro

[ **Syncro 2**  
Forever better ]

PRODUCT INFORMATION  
FITTING INFORMATION  
TECHNICAL INFORMATION

**oticon**  
PEOPLE FIRST



## **Oticon Syncro**

*Syncro is a complete family of state of the art digital products suitable for all types of hearing losses from mild to severe-to-profound.*

*Syncro 2 uses Artificial Intelligence to optimize the performance of the Voice Priority Processing system - providing significant benefits to users in demanding listening situations.*

### **Voice Priority Processing**

- is a self-configuring, automatic system which uses Artificial Intelligence based decisions to pursue the optimum Voice-over-Noise ratio. Three powerful features combine to form this ground-breaking new concept.

- Multi-band Adaptive Directionality
- TriState Noise Management
- Voice Aligned Compression

### **Multi-band Adaptive Directionality**

Syncro 2 uses adaptive directionality in four frequency bands allowing the user to enjoy more effective directionality – and to enjoy it in far more situations. Furthermore, this Multi-band Adaptive Directionality is able to attenuate multiple noise sources simultaneously.

Syncro has three modes of directionality:

- Surround
- Split directionality
- Full directionality

The mode with the best possible Voice-over-Noise ratio will always be chosen.

### **TriState Noise Management**

- combines the advanced “VoiceFinder technology” with noise reduction in 8 frequency channels.

Syncro 2’s TriState Noise Management system moves smoothly and automatically between three different states to ensure that comfort is provided in noisy situations while preserving speech understanding.

### **Voice Aligned Compression**

- provides improved speech understanding especially at high input levels. To maximize sound quality, speech intelligibility and listening comfort Syncro 2 implements a new curvilinear compression strategy with multiple knee-points. Compression reaches the highest point in the soft/moderate input area and becomes increasingly linear as input levels increase.

### **Syncro Identities**

- is five unique combinations of amplification parameters and advanced feature settings that control the behavior, performance and response of Syncro 2 e.g. the speed of change, the aggressiveness and the depth of signal manipulation.

### **Automatic Adaptation Manager**

- enables a smoother adaptation by automatically adjusting gain over time in small increments (at power on). Setting start and stop level (prescribed setting) as well as total transition time between levels will allow for a smoother adaptation especially for new users.

### **Syncro Activity Analyzer**

- stores information about the usage of the instrument and how the VPP features respond to the users sound environment. This information offers detailed insight into the actual performance of the instrument and to balance that with the user experiences leading to a more individualized fitting.

### **Syncro 2 Power**

- is a dedicated power style allowing for the fitting of Syncro 2 to users with a severe-to-profound hearing loss. The Voice Aligned Compression, and the Identities are optimized to the specific needs of this user group.



## Standard Features

- Multi-band Adaptive Directionality
- TriState Noise Management
- Voice Aligned Compression
- Syncro Activity Analyzer
- Up to 4 customizable programs
- Automatic Adaptation Manager
- Automatic microphone matching
- OpenEar Acoustics™
- Dynamic Feedback Cancellation
- Fully automatic operation
- Program sound indicators (beeps)
- Standby function
- On-set Delay

## Custom Instruments

- Design optimized for size and cosmetics
- Colors: beige, light brown, medium brown, dark brown
- Selection of three wax protection systems:
  - NoWax
  - MicroWaxBuster
  - WaxBuster

### *Options and accessories include:*

- Auto Phone - automatic shift to one of two dedicated phone programs
  - Acoustic Phone (AP): Microphone
  - Phone T (PT): Telecoil
- Fully programmable telecoil and/or automatic telecoil
- Volume Control with audible indication

## BTE Instruments

- Direct Audio Input
- Fully programmable telecoil
- FM compatible
- Adjustable sound hook
- Hair-tone colors: beige, light brown, dark brown, light grey and dark grey
- Cool colors: black, transparent, yellow, orange, pink, purple, blue, and green

### *Options and accessories include:*

- Volume Control with audible indication
- 9 dB, 5 dB and undamped sound hooks
- Pediatric sound hooks
- Thin tube fitting (Oticon Corda)
- Tamper-resistant battery door
- DAI and FM shoes
- Eyeglasses adaptor

## Right and Left Identification

Right and left marking for easier identification is standard with Syncro.



Open the battery door. Insert the marker and twist off the top part.

## Cables and Fitting Systems

### Cables and Fitting Systems

Syncro instruments are programmed using the Genie Fitting Software 6.0 or higher compatible with NOAH 2.0 and 3.0. Syncro instruments use Oticon cable # 3 and FlexConnect for custom instruments and Oticon cable # 3 and shoe for the BTE instruments.

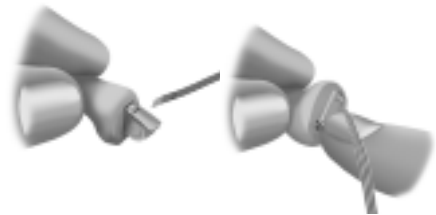
### Connecting Custom Instruments

Connect the small plug to the black connector on the FlexConnect, taking care to align the red dots. Insert a new battery in the instrument. With the battery door slightly open, insert the gold end of the FlexConnect into the space between the battery door and hinge. Make sure that the connecting side of the FlexConnect is facing away from the door and the FlexConnect is pushed all the way in. Close the battery door.



### Connecting Custom CIC

With the battery door slightly open, insert the gold end of the FlexConnect into the small slot on the battery door. Make sure that the connecting side of the FlexConnect is facing the hinges. Close the battery door.



### Connecting BTE Instruments

Connect the Oticon #3 cable to the programming shoe (make sure the



red dot on the plug and the shoe are aligned) and push the instrument into the adaptor. *Do not twist the plug!*



## Selection Step

The Selection step includes three sub-panels:

- Hearing Instruments
  - Select the physical instrument.
- Personal Profile
  - Enhance the individual prescribed setting.
- Configuration
  - Configure the hearing instrument with program content and acoustics (e.g. vent).

Note: Personal Profile and Configuration are optional in the fitting process.

### Hearing Instruments

Selection of the hearing instruments can be done in two ways:

- Detection of aid(s)
- Selection of aid(s)

If you have the physical instrument, Detect Instruments should be used. If you do not have the instrument, Selection should be used.

### Detection of Aid(s)

The detection of hearing instruments requires that one or two Syncro's are connected. Then "Detect Instruments" can be used.

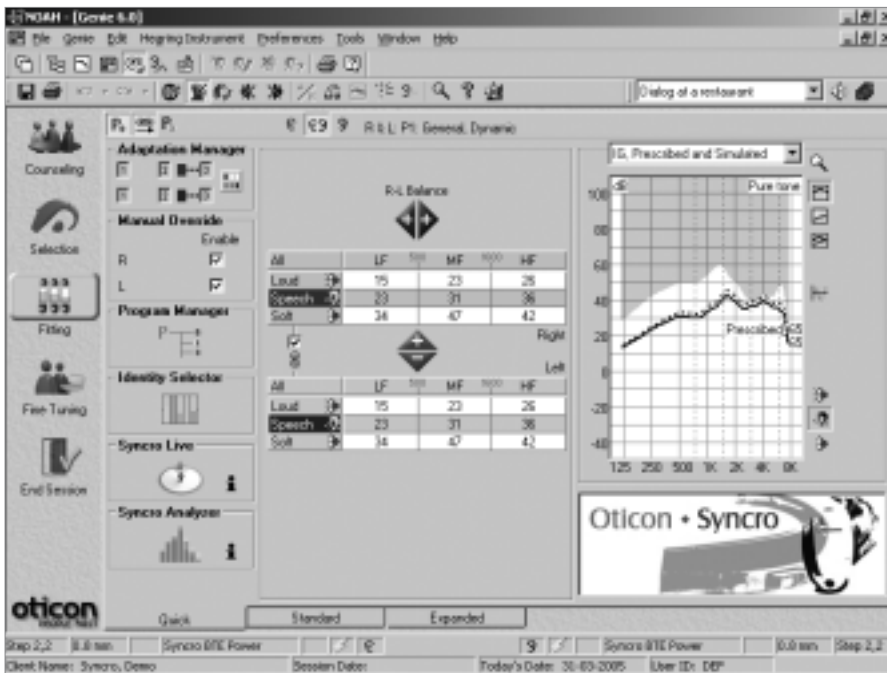
Detect Instruments

The instruments will automatically be connected when you enter the fitting step after having used "Detect Instruments".

### Selection of Aid(s)

The selection of hearing instruments involves 3 steps:

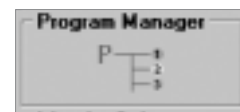
1. Choose Syncro
2. Select style (BTE, ITE, etc.)
3. Select features (battery size, telecoil, etc.)



You can also disable/enable the volume control by clicking the “Disable” button. In instruments with more than one program, the volume control can be disabled in P1. Be aware that this will influence all programs.

## Programs

Syncro instruments provide high flexibility and easy handling of programs in the Program Manager. Up to 4 programs can be activated.



## Managing Programs

The programs are handled in the Program Manager; here you can activate, configure or delete a program and you can change the order of the programs.

### To activate a program:

1. Select “No Program”
2. Expand the program content structure (click the “+”)
3. Select content

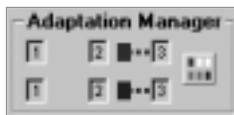
## Fitting Step

The Fitting step displays the controls on the selected instrument(s), and contains the tools needed for fitting. The Fitting step consists of three panels that offer progressively greater access to adjustment parameters. The Quick panel is the simplest of the options, increasing in complexity to the Standard and the Expanded panel.

### Fitting Controls:

### Adaptation Manager

The Adaptation Manager provides easy access to a gradual acclimatization process by changing gain, compression and frequency response.

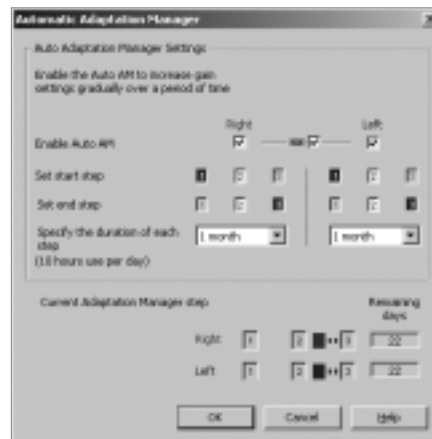


### The 3 steps are based on the client’s experience:

- Step 1: Reduced settings optimized for helping first-time users through acclimatization.
- Step 2: Slightly reduced settings for short-term or part-time users.
- Step 3: Fully prescribed settings for the experienced user.

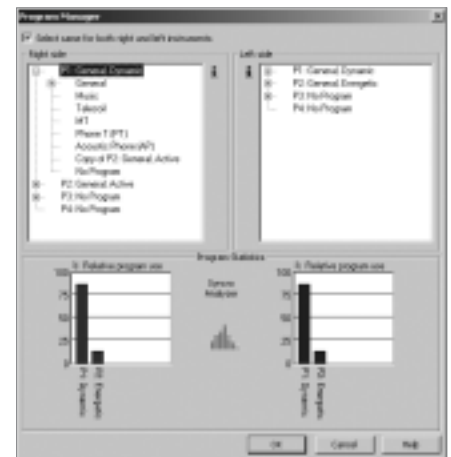
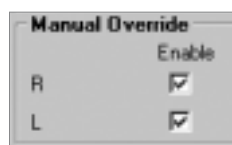
### Automatic Adaptation Manager (AAM)

Specifying the transition time between steps allows for an automatic and smoother acclimatization, since AAM uses the same steps as the Adaptation Manager re-calculated to smaller increments.



### Manual Override

Instruments with volume control offer a Manual Override to let you control how much the client can increase the gain.



When a program is activated, a new one becomes available until all four programs are activated.

If you want to delete a program, select “No Program”. The remaining programs will move upward. Thus, if the client has 3 programs and P2 is deleted, then P3 will become P2.

# FITTING INFORMATION

## Quick Fitting Panel

In most cases the Quick Fitting panel is sufficient to provide a good fitting. In this panel the underlying 8 frequency channels in Syncro are designated to 3 channels: LF, MF and HF channels for low (0-500 Hz), medium (500-1600 Hz) and high (1600-8000 Hz) frequencies. For both left and right ear instrument Soft (45 dB SPL) and Loud (80 dB SPL) input levels can be selected. Likewise, you can select all three LF, MF or HF controls by clicking the LF, MF or HF button in the table. By selecting "All", all gain controls will be selected.

The colors of the control values are blue (left) and red (right) until adjustments are made, if any. To indicate that the control value is no longer prescribed, the value turns black.

**Link Icon:** By checking this box you can make left and right adjustments for each parameter at the same time.



**+/- Button:** These controls adjust the gain controls in 1 dB steps in the selected fields.



**R-L Balance:** Adjusts the right-left balance; thus increasing the overall gain in the right instrument, while decreasing the overall gain in the left.



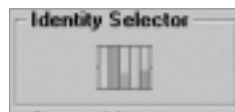
## Fitting Controls set limits for one another

When changing a gain control, you may find its movement to be stopped before it reaches the visible limit (displayed as a shaded area on the Prescribed and Simulated Insertion Gain graph). The situation occurs when the setting of another control prevents further movement. The control which is causing the limitation flashes a colored arrow

that shows the direction in which this control must be moved before the other control can be moved further.

## Identity Selector

The Syncro Identity Selector is the simple intuitive tool for the selection of Identities. It is available from the fitting step in Genie in any General program. With this tool, Syncro Identities can be compared and changed.

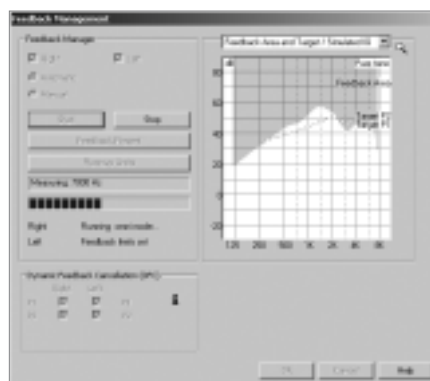


Any of the Identities can be chosen. If any fine-tuning has been done in the current Genie session, it is also possible to change back between fine-tuned and prescribed Identities.

*Note: When you change the Identity in a General program it takes up to 20 seconds before automatics such as the Multiband Adaptive Directionality and Tri-State Noise Management will be fully adapted to the environment. Therefore care should be taken when comparing two Identities using the Identity Selector.*

## Feedback Management

The Feedback Manager is accessible from the toolbar in the Fitting and Fine Tuning steps. The Feedback Manager is a fast and effective way to set the instrument's feedback limits to ensure that no static feedback is present.



## Dynamic Feedback Cancellation

All Syncro instruments have a Dynamic Feedback Cancellation system that

contributes to the instruments' superb sound quality. Unlike static feedback management and other dynamic feedback reduction methods, the DFC system does not reduce gain. So audibility and speech understanding are never compromised.

DFC is present and default on in all microphone programs. The DFC system is active in the instrument during the fitting sequence in Genie.

## When to run the Feedback Manager?

If there is feedback then run the Feedback Manager, otherwise there is no reason to run the Feedback Manager and set the feedback limits.

## End Session step

To end the fitting session, go to "End Session".



To exit Genie, click the Save, Program and Exit button.



## Syncro Live

Syncro Live is accessed from the Syncro Fitting Panel.



It enables you to explore and explain the key components of the Voice Priority Processing System in real time:

### Multi-band Adaptive Directionality

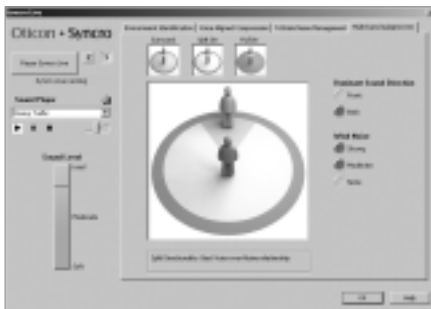
– demonstrate how the instrument adapts to the sound environment by applying one of the three directional modes (Surround, Split Directionality or Full Directionality).

### TriState Noise Management

– show how the instrument adapts to the sound environment by applying the three noise management strategies (Speech, speech in noise and noise only).

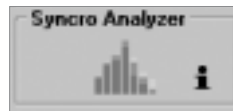
### Voice Aligned Compression

– see how the instrument manage gain and compression across all eight channels.



## Syncro Activity Analyzer

Where Syncro Live offers insight into the inner workings of the Voice Priority Processing system – as it happens, Syncro Activity Analyzer offers insight into what has happened.



This allows for advanced counseling where the facts of what the instrument really did during use can be combined with the experiences of the client.

Syncro Activity Analyzer is accessed from the fitting panel with access to information about:

- Overall and program specific instrument usage
- The activity of Voice Priority Processing system




A central element in the Syncro Activity Analyzer is the Advisor. The advisor provides relevant information regarding the use and interpretation of the data presented.

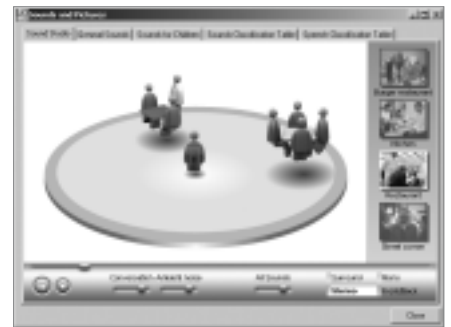
The Advisor is accessed directly from within the Syncro Activity Analyzer application.

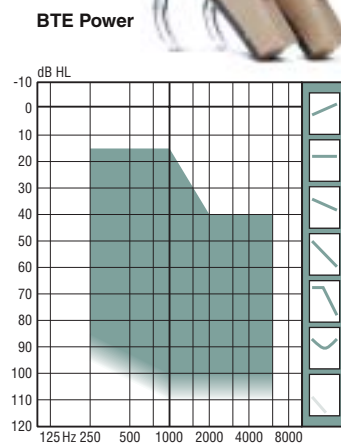
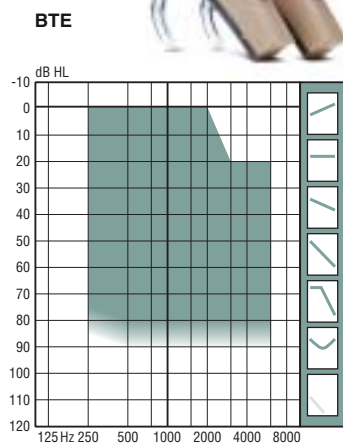
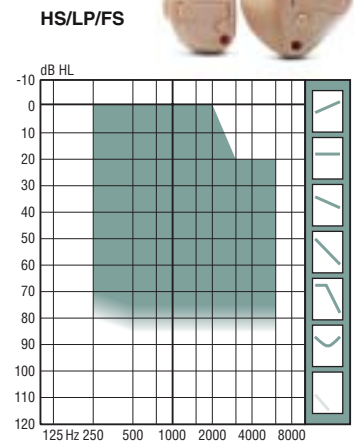
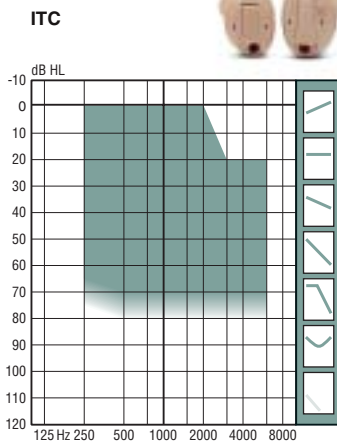
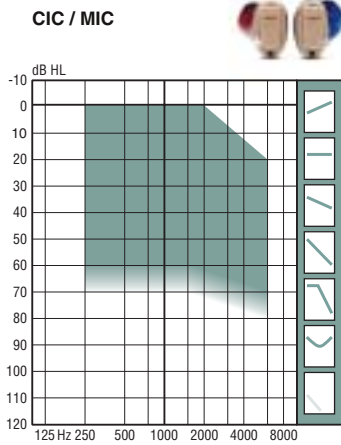
## Genie Sound Studio

Genie Sound Studio is an advanced sound scene builder. In other words you can optimize a specific (sound) situation to either:

- a. Illustrate and explore unique product features – such as the Multi-band Adaptive Directionality – or
- b. Re-construct a specific situation in which your client experiences listening challenges, enabling individualized and problem solving counseling.

The Genie Sound Studio is accessed by clicking the “Sound and Pictures”  button in the tools menu.





	CIC / MIC	ITC (10)	ITC (312)	HS/LP (312)	FS (13)	BTE	BTE Power
Peak Gain, dB (711/2cc)	47/37	47/37	51/41	56/47	61/52	62/54	68/62
Peak Output, dB SPL (711/2cc)	114/103	115/104	120/110	122/112	123/113	122/112	134/126
Programs	1-4	-	1-4	1-4	1-4	1-4	1-4
Multi-band Adaptive Directionality	-	Yes	Yes	Yes	Yes	Yes	Yes
Telecoil	-	-	-	Optional	Optional	Yes	Yes
Auto Phone	-	Optional	Optional	Optional	Optional	-	-
Volume Control	-	-	-	Optional	Yes	Optional	Yes
Battery size	10	10	312	312	13	13	13
Battery life, typical (hrs)	100	70	120	120	220	220	170

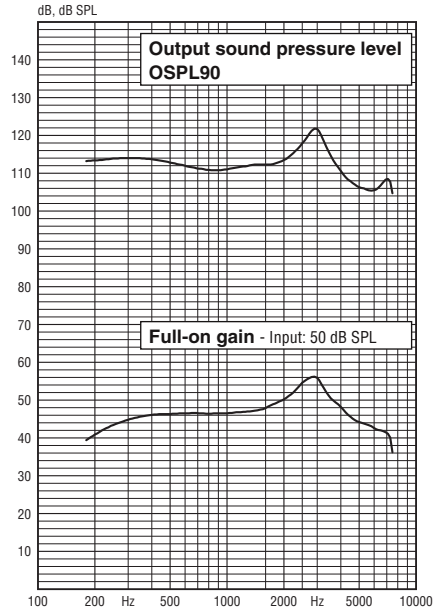




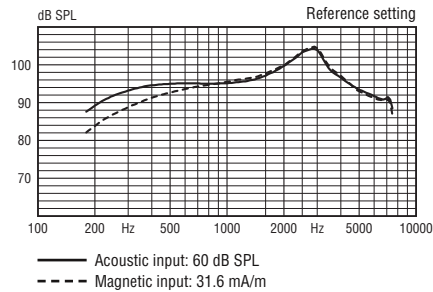


**Ear simulator**

Measured according to IEC publications 118-0, -1, -2, -6, -13 (incl. amendments) and 711.



**Frequency response with magnetic and acoustic input**



**Data at a glance**

**General measuring conditions**

All measurements are made on instruments without wax protection.

**Note:** Measurement data obtained through standard pure tone measurements on advanced adaptive digital hearing aids may be misleading with regard to characteristics in normal use. For technical measurements, special technical settings that disables all the adaptive features are used.

Unless otherwise stated all measurements are in the Omnidirectional mode.

Ear simulator		2cc coupler
<b>OSPL90</b>	<b>Output, dB SPL</b>	<b>OSPL90</b>
122	Peak	112
111	1000 Hz	106
112	1600 Hz	105
112	Average (DIN)	107
	HF Average (ANSI)	106
	<b>Full-on gain, dB</b>	
	Input: 50 dB SPL	
56	Peak	47
46	1000 Hz	42
48	1600 Hz	41
47	Average (DIN)	43
	HF Average (ANSI)	43
	<b>Frequency range, Hz</b>	
130-7600	DIN/ANSI	120-7200

Telecoil output, dB SPL		
79	1 mA/m field, 1600 Hz	71
99	10 mA/m field, 1600 Hz	91
	SPLITS (ANSI)	87
Total harmonic distortion, %		
Reference setting. Input: 70 dB SPL		
IEC	Hz	ANSI
2.0	500, typical	1.5
1.5	800, typical	1.0
1.5	1600, typical	1.0

Equivalent input noise level, dB SPL (A)		
19	Typical/maximum, Omni (ANSI)	19/23
34	Typical/maximum, Dir (ANSI)	31/35

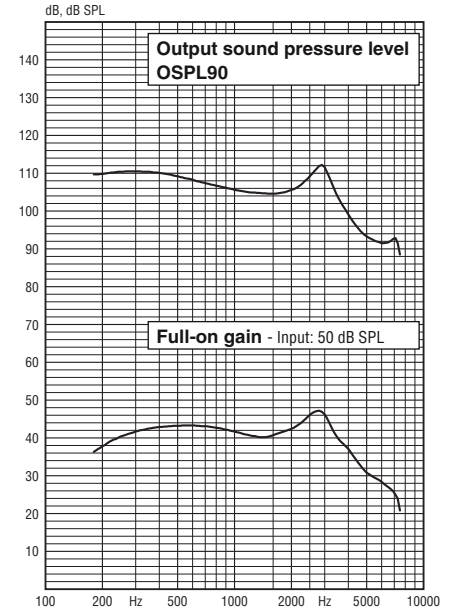
Battery consumption, mA		
1.1	Quiescent, typical/maximum	1.1/1.3
1.1	IEC	1.1
	ANSI	1.2

Battery		
Size 312 (IEC PR41)		
Estimated life in hours		Typ/Min
1.4 V Zinc air		120/100

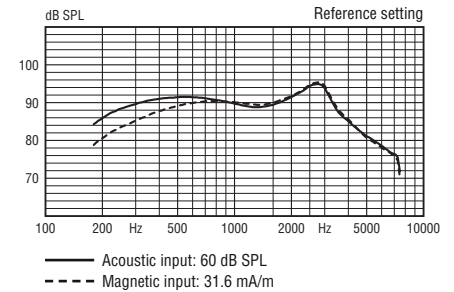
EMC Immunity (IEC 118-13)		GSM/DECT
IRIL, dB SPL		Field strength, (V/m)
-36/-16	Microphone (Omni)	3/2
-29/-2	Microphone (Dir)	3/2
-34/-8	Telecoil	3/2

**2cc coupler**

Measured according to IEC publications 118-7 (incl. amendments) and 126 and to ANSI S3.22 (2003) and S3.7 (1995).



**Frequency response with magnetic and acoustic input**









*People first*



We believe that it takes more than technology and audiology to create the best hearing instruments. That's why we put the individual needs and wishes of people with hearing loss first in our development of new hearing care solutions.