

Title (en)
METHOD FOR THE MANUFACTURE OF HEARING AID SHELLS

Title (de)
VERFAHREN ZUR HERSTELLUNG VON HÖRGERÄTSCHALEN

Title (fr)
PROCEDE DE FABRICATION D'ENVELOPPES D'APPAREILS DE CORRECTION AUDITIVE

Publication
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Application
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Abstract (en)
[origin: WO0034739A2] This is a method for the manufacture of hearing aid shells that is more accurate and faster than present techniques. The method involves the use of a specially adapted ultrasonic probe head to safely measure the contours of the ear canal without contact with the surface being measured. The recording of the data in the ear canal is made possible by filling the canal with a liquid and using an ear stopper, at the entrance to the ear, that incorporates a probe guiding tube to ensure that no extraneous movement occurs during the measurement process. The probe head can either be withdrawn from the ear canal by means of a motor to record the shape data or, alternatively, remained fixed relative to the ear, the scanning being accomplished by electrically recording the data from a series of fixed transducer rings located along the longitudinal axis of the probe. The three-dimensional shape data is then processed in a computer that produces a digital image STL file. The processing involves the use of an image edge detection algorithm that allows only the data that maps the surface of the ear canal to be stored, rejecting the reflected ultrasonic signal data from under the surface of the ear canal. This image file is then transmitted directly to a rapid prototyping system or recorded onto a compact disc which is used by a remote rapid prototyping system to produce an accurate hearing aid shell that is a precise fit for the ear canal. The image file can also be transmitted directly to the rapid prototyping system by means of the Internet or a direct computer to computer phone connection without the requirement to produce a compact disc. The measurement system can be used to monitor the shape of the ear canal for medical diagnostic purposes as well as the measurement of the shape of any enclosed surface of a natural or man-made structure.

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