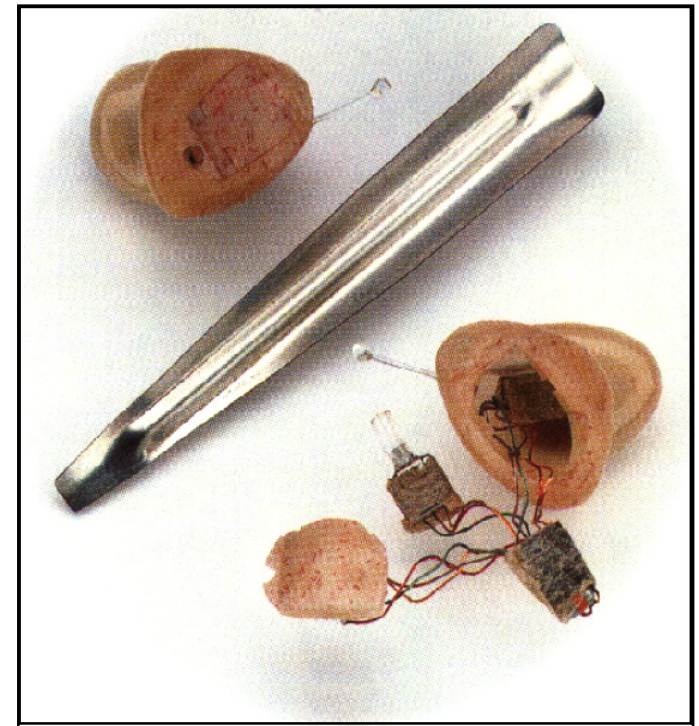


# „What a hearing aid manufacturer expects from hardware research and development activities“

## Statements from everyday routine

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## How I understand my role in the next 20 minutes

- \* to give stimulations for customer orientated R&D activities
- \* to show unsolved problems and future opportunities
- \* to be „the voice of the customer“

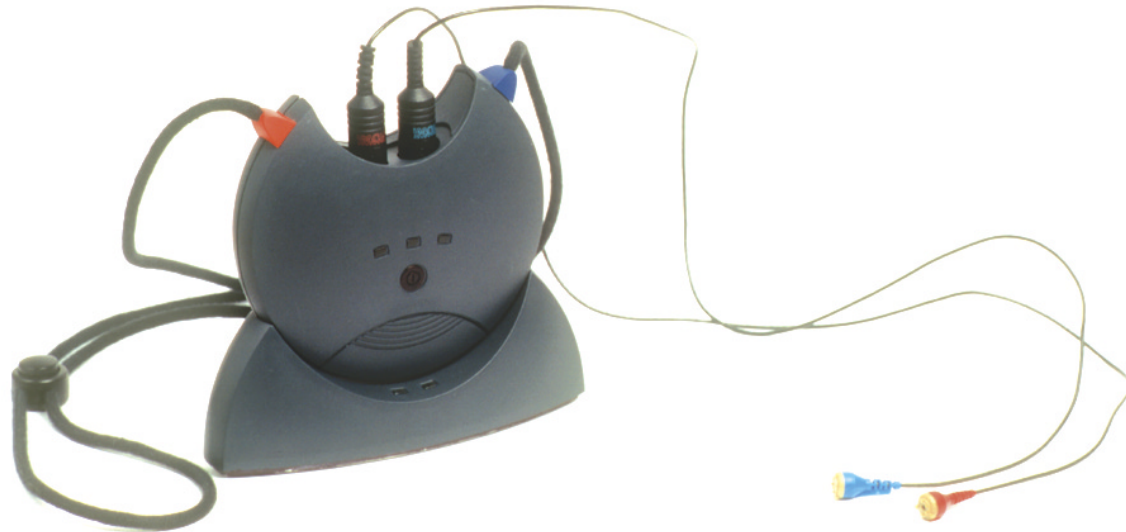
## Statement 1: We need a wireless HI interface



**NOAHlink:  
uses Bluetooth  
technology**

## NOAHlink : Really wireless?

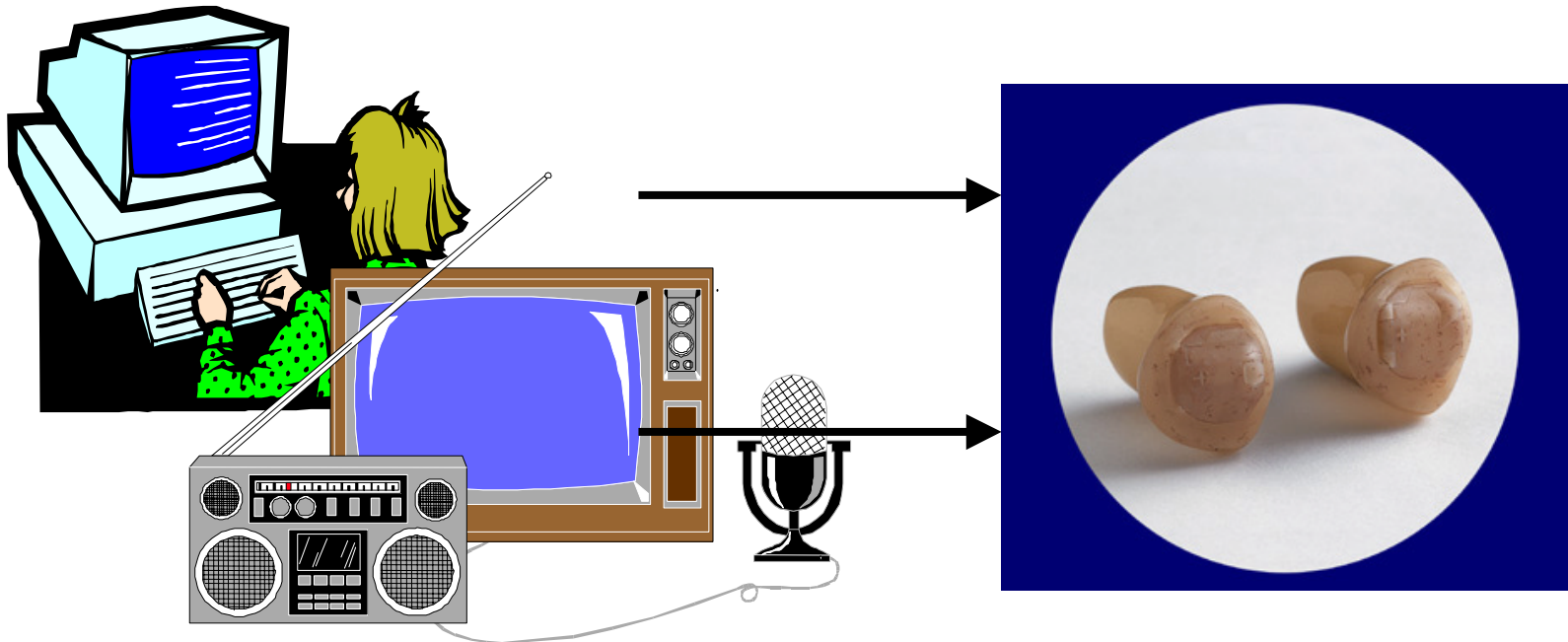
- \* No, cable connection between NOAHlink and HI necessary
- \* Installation problem:  
In the German market only one PC interface is available, which is working with NOAHlink (TDK)!





# Statement 1: We need a real wireless BINAURAL HI interface as an industry standard!

- \* wireless programming: fitting data input
- \* wireless audio input: audio signal input



## Goals of a standardized wireless interface

- \* industry standard (MUST and repeated wish of our customers): One solution for all
- \* additional benefit for the HI user: HI compatible = works together with mobiles, PDAs, Mics etc.
- \* easier life for the acoustician = more comfort
- \* no great variety of company specific programming cables, adaptors, generations, versions etc.
- \* no contact problems
- \* no wear and tear

## Statement 2: We need an intelligent VC pot



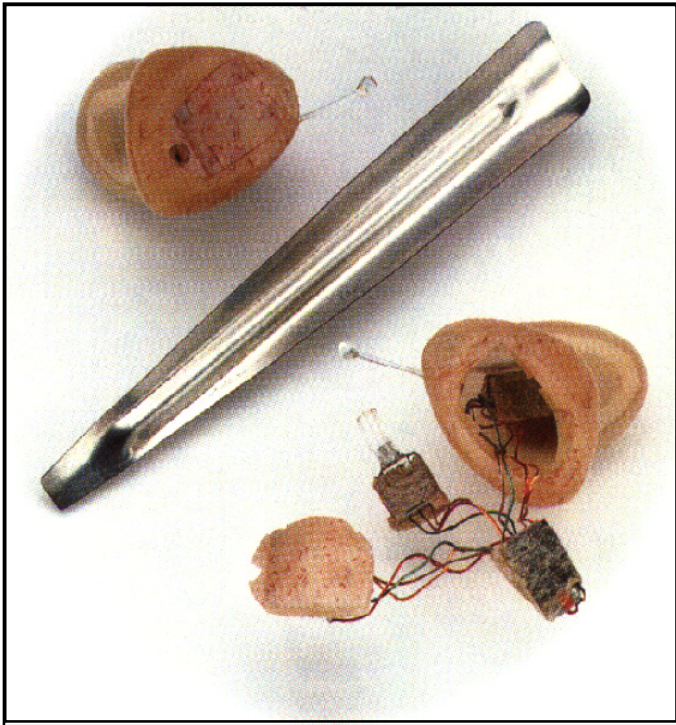
## Why intelligence with a pot?

- \* binaural applications using conventional VC with end stops: indifferent absolute position
- \* binaural applications using digital encoding VC: no end stops
- \* We need to provide a „real feeling“ for the operational range
- \* programmable functionalities (linear/expo)
- \* „self-learning“ abilities (store the habits of operation)
- \* RESET function (return to default position + settings)

**Problem: Operationability**



## Statement 3: We want to get rid of the litz wires



### Problems

- \* reliability (litzes breaking)
- \* danger of jamming
- \* contact problems
- \* soldering
- \* long term stability

Each litz connection  
is a risk!

Solutions: to be found

Bus technology?

Others?

## Other fragment ideas for the future

### **New operationals**

- \* sensor switches
- \* touchless switches
- \* brain coupled switches
- \* speech commando controlled switches

### **ITEs without PCBs**

## New power supply approaches

- \* electricity from movement - kinetic energy
- \* electricity from chemicals (blood, sweat...??)



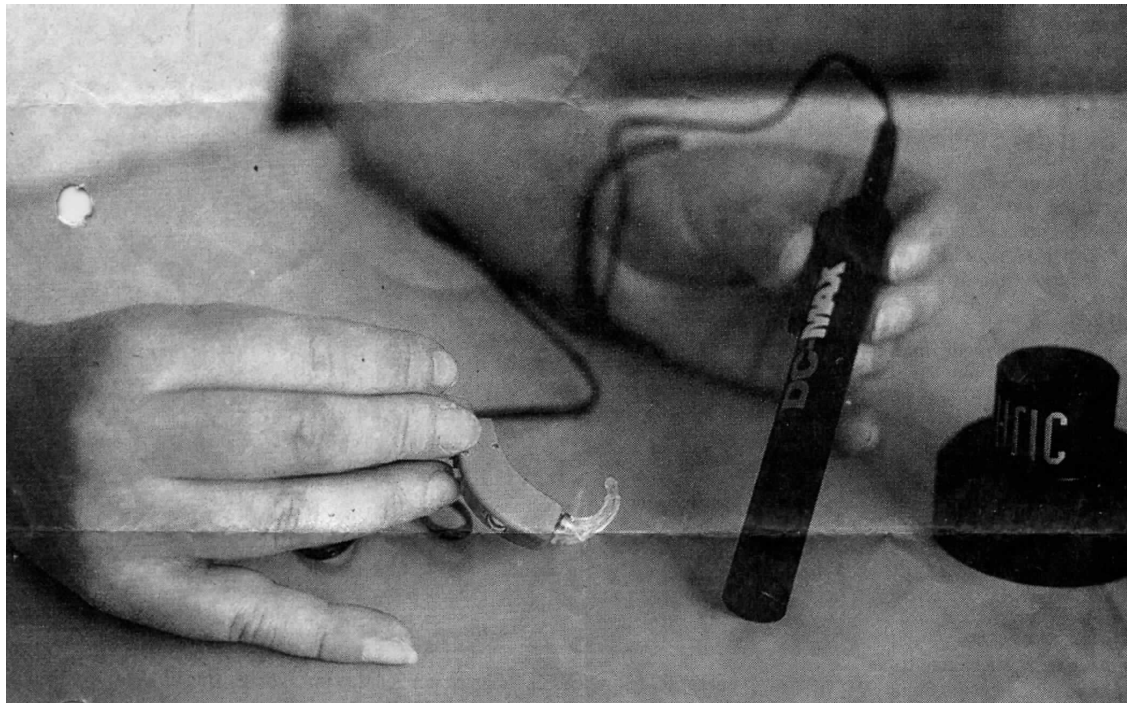
SAMSUNG WATCH PHONE with GPRS, WAP & Bluetooth  
Accu charged by movement of hand joint



## \* **New energy storage approaches**

- capacitors
- fuel cells

AURIC  
„energy tank“





# Challenges...!!

# Let's do it!!