time instance due to the sound being delayed through signal processing and transmission time. In Bluetooth devices the delay time is more than 10 ms.

Yet another solution has been to adjust the sound from the telephone to compensate the hearing impaired persons hearing loss. This has the disadvantage that the hearing impaired person would have to take off the hearing aids before making a phone call, and that the telephone would only be usable for the hearing impaired, as the sound would be much to loud for normal hearing people. Furthermore the telephone would have to be fitted by a hearing care professional to the exact hearing loss the impaired is suffering, something which would be very time consuming and costly.

SUMMARY OF THE INVENTION

According to a first aspect of the invention, there is provided a telephone having a loudspeaker, a microphone and an electronic processing circuit connected to the loudspeaker via an electrical signal line, wherein the telephone is modified for accommodating an interface circuit, said interface circuit is connected to said electrical signal line for picking up an analog loudspeaker signal, and includes: an analogue-to-digital converter converting the analog signal to a digital signal; a processor preparing the digital signal for transmission; and a radio transceiver and antenna circuitry establishing a wireless link between the telephone and one or more hearing aids, said radio transceiver and antenna circuitry transmitting the prepared signal over said wireless link to said one or more hearing aids.

According to a second aspect of the invention, there is provided a method for transferring a speaker signal from a telephone to a hearing aid, said telephone having a loudspeaker, a microphone, and an electronic processing circuit connected to the loudspeaker via an electrical signal

line, comprising the steps of: modifying the telephone by mounting an interface circuit for accommodation in the phone; connecting said interface circuit to said electrical signal line for picking up an analog loudspeaker signal during a call; establishing a wireless link between the telephone and one or more hearing aids by means of a radio transceiver and antenna circuitry in the interface circuit; and during a call: converting the analog signal to a digital signal in an analogue-to-digital converter in the interface circuit; preparing the digital signal for transmission in a processor in the interface circuit; and transmitting the prepared signal over said wireless link.

According to a third aspect of the invention, there is provided an interface circuit to be accommodated inside a modified telephone having a loudspeaker, a microphone, and an electronic processing circuit connected to the loudspeaker via an electrical signal line, wherein the interface circuit is connected to said electrical signal line for picking up an analog loudspeaker signal, and includes: an analogue-to-digital converter converting the analog signal to a digital signal; a processor preparing the digital signal for transmission; and a radio transceiver and antenna circuitry establishing a wireless link between the telephone and one or more hearing aids, said radio transceiver and antenna circuitry transmitting the prepared signal over said wireless link to said one or more hearing aids.

The present invention in a first embodiment~~aspect~~ provides a telephone comprising an interface circuit having a radio unit compatible with a radio circuit in the hearing aid, for communicating with a hearing aid by connecting the signal line leading to the telephone speaker to the interface circuit. This signal is processed in the interface circuit and then transmitted wirelessly to the hearing aid via said digitized wireless link. Said signal is then received at the hearing aid radio circuit.

In another embodiment~~According to an aspect~~ of the invention, an electronic circuit having a radio transceiver, using a hearing aid compatible radio protocol is built into the telephone and connected to the telephone microphone and speaker and to the telephone power supply. The interface circuit receives the signal leading to the telephone speaker, converts the signal into a digital signal, encodes the digital signal, and transmits it through a wireless link to the hearing aid. The interface circuit interfaces with all

kinds of telephones with a minimum of modifications required in the telephone, and it does not impair modify normal function of the telephone.

In an embodiment of the invention, the system can be used for programming or changing the setting of the hearing aid via Dual Tone Multiple Frequency (DTMF) tones. In this embodiment, the system is able to acknowledge the programming by automatically sending a message from the hearing aid via the telephone to the programmer at the other end of the telephone line.

Furthermore, the system can be a full duplex system, where the hearing aid is able to transmit messages to the telephone via the wireless link, the hearing aid may acknowledge the re-setting or adjustment using the wireless link, so that an acoustic acknowledge signal is sent over the telephone line to a hearing aid professional.

The invention in a second embodiment~~aspect~~ provides a hearing aid comprising a radio circuit for communicating with a telephone via a wireless link, whereby the parameters of the can be adjusted by tones sent over a telephone network and received at the hearing aid from the telephone.

The invention in a third embodiment~~aspect~~ provides a method for adjusting parameters of a hearing aid using a telephone according to the first embodiment~~aspect~~ of the invention, wherein the tones sent over a telephone network is recognized according to a reception protocol for determining what to adjust depending on the received tones.

The invention in a fourth embodiment~~aspect~~ provides a method for communicating between a telephone and a hearing aid where the telephone is provided