

# Phonak wireless hearing instruments

## Useful facts



This fact sheet summarizes some helpful information and is directed to wearers of wireless enabled Phonak hearing systems and their related accessories. These hearing systems have a built-in wireless chip called CORE. If you are not sure whether your hearing system is based on the CORE platform, please contact your hearing care professional.



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## Wireless capabilities thanks to CORE Technology

With CORE, Phonak is able to offer a host of revolutionary hearing systems that respond intuitively to your surroundings and give you complete control and unlimited connectivity for a wireless world. CORE platform hearing instruments have the ability to not only function as separate hearing instruments, but can also function as a system. This means that your hearing instruments can wirelessly transmit data to each other, and to a selection of accessories.

The wireless connectivity has been designed specifically for communication purposes, particularly taking into account all day use. The chosen technology for the data transfer between instruments is a coded digital electromagnetic field. Low level electromagnetic fields are common to everyday equipment such as televisions, telephones, computer monitors and other consumer electronics. In fact, even the sun and the earth produce electromagnetic fields.

In every country where CORE hearing systems are sold, they must meet local regulations based on certified measurements. For example, in the United States they meet FCC regulations, they also comply with RSS210 of Industry Canada and Canadian ICES-003. In Europe, CORE hearing systems received the CE label to confirm their conformity to European regulations.

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## CORE Technical data

The CORE technology has transfer rate of 300,000 Bits per second (300 kBits/s), using continuous phase frequency shift keying. The transmission frequency is 10.6 MHz with a bandwidth of 300 kHz. This frequency was chosen to be able to support the transfer of complex broadband data with virtually no interference.

The magnetic field intensity needed for hearing instrument wireless communication purposes is low intensity as they are placed on the head in close proximity to each other. The measured field strengths for CORE hearing instruments is 3 mV/m at 1 m which equates to 0.18 picoWatts. The magnetic field strength of the hearing instruments is < -62 dB  $\mu$ A/m at 10 m.

This magnetic field strength is far below the international maximum values and less than the field strengths of other everyday equipment such as computer monitors, dishwashers and halogen lamps.

Specific Absorption Rate (SAR) is the widely accepted, scientific measure used to characterize the amount of radiofrequency energy absorbed by the body. For example, in the United States, the limit adopted by FCC for mobile phones is that their SAR levels may not exceed 1.6 Watts per kilogram (W/kg). In Europe, the European Union Council has set a SAR limit of 2.0 W/kg. The typical SAR rating emission of a mobile telephone ranges from 0.3 to 1.5 W/kg.

Testing by the independent Foundation for Research on Information Technology in Society (a foundation within the Swiss Federal Institute of Technology – ETHZ) showed the Specific Absorption Rate (SAR) value of the CORE hearing instruments to be less than 0.001 W/kg. Therefore the instruments fall significantly below the recommendations from both the European Commission and the United States Federal Communication Commission.

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## Commonly asked questions

### Is the wireless link always stable, or will it be interrupted in certain environments?

As the CORE technology works with a specially coded inductive signal and a dedicated frequency, the risk of interference is small. But as all radio transmission can be disturbed by other electromagnetic fields you may experience interference in areas with strong electromagnetic fields (around high-power electronic equipment, larger electronic installations).

### Are the CORE instruments compatible with pacemakers?

The field strengths with CORE hearing instruments are very low and nearly immeasurable. For comparison, the hearing instruments operate with much lower field strength than some other everyday electronic devices such as mobile phones. However, for persons with pacemakers or defibrillators, it is suggested to follow the manufacturer guidelines for mobile phone use. This includes keeping the hearing instruments at least 15 cm away from the implant.

Should you have any further questions regarding the use of CORE instruments and a medical implant, please contact the implant manufacturer.

### Are there any risks from using CORE hearing instruments all day, every day?

The amount of radiofrequency energy to which the body is exposed is so little, that there are no foreseen risks of using CORE hearing instruments all day and every day. Many clients use their hearing instruments for over 16 hours every day.

### Can I use my CORE hearing instruments on an airplane?

Yes, this is confirmed by the European Aviation Safety Agency (EASA) who expressly stated that the field strengths of the CORE hearing systems are so minimal that they will not disrupt or have any effect on airplane controls or navigation. This statement is valid internationally, not just in Europe, and includes the use of wireless accessories such as myPilot or iCom.