

# RADIO WAVES AND HEALTH

## LTE

Ericsson is a world-leading provider of telecommunications equipment. Over 1,000 networks in more than 175 countries utilize our network equipment and 40 percent of all mobile calls go through our systems. We deliver a new radio base station every 90 seconds.

Communication is a basic human need and modern communications technologies are an essential part of a sustainable future. We consider your safety when using these technologies to be an important priority.

LTE (Long Term Evolution) is the latest development of mobile communications. It is based on previous mobile telephony technologies and uses the same type of radio waves. LTE base station antennas are positioned so that radio wave exposure in homes and public areas is well below the established safety limits. Mobile LTE devices are designed and tested to comply with the exposure limits.





### **LTE is the latest mobile communications technology**

Mobile communication systems are continually developed in order to fulfill people's increasing demands for better communication possibilities. In this development the launch of LTE marks a big step forward. It builds on the technology used in 2G (GSM) and 3G mobile telephony, but enables the use of much more demanding applications. In some countries LTE is referred to as 4G or fourth-generation mobile communications.

### **LTE networks enable high-speed mobile internet access**

In LTE networks the capacity for data traffic is significantly higher than in previous mobile networks. With an LTE mobile broadband module (MBM) embedded in a laptop computer, a truly high-speed connection to the internet can be maintained at home, at the office, outdoors, or on the road. Other possible applications are interactive TV, mobile videoblogging using LTE-enabled video cameras, and mobile on-line gaming using LTE-enabled gaming devices.

### **LTE uses radio waves**

LTE mobile devices, such as laptops or phones, communicate with base stations by transmitting and receiving radio waves, or radio frequency (RF) electromagnetic fields (EMF). These are the same type of radio waves as used in previous networks and without them mobile communications would not be possible. LTE makes use of radio waves with both lower and higher frequencies than previous systems. The new networks require new base station antennas, but these will in many cases be placed next to antennas already in use for other networks.

### **Exposure levels are below international safety limits**

The power levels of the radio signals transmitted from LTE base stations and devices are low, and have similar magnitude as those used in previous networks. The radio wave exposure from base station antennas complies with international exposure limits. LTE-enabled devices are also designed and tested to comply with the limits.

### **Exposure limits are set by independent organizations**

Independent expert organizations have established the exposure limits for radio waves based on many years of research. The limits are recommended by the World Health Organization (WHO), among others, and include large safety margins. LTE equipment, whether it be mobile devices or base stations, meets the same limits as the equipment used in 2G and 3G networks.

### **Public access is restricted where needed**

In close proximity to a base station antenna the exposure limits may be reached. The antennas are installed in such a way that unauthorized people do not have access to this small area, which varies in size from a few centimeters for small indoor antennas up to some meters for antennas mounted in masts or on rooftops. The intensity of the exposure drops dramatically when moving away from the antenna, and the exposure levels are well below the limits in places where people normally reside.

### **No adverse health effects according to the WHO**

WHO states: *"From all evidence accumulated so far, no adverse short- or long-term health effects have been shown to occur from the RF signals produced by base stations"* and *"A large number of studies have been performed over the last two decades to assess whether mobile phones pose a potential health risk. To date, no adverse health effects have been established as being caused by mobile phone use."* (WHO fact sheets No 304 and No 193)

For more information, visit [www.ericsson.com/health](http://www.ericsson.com/health)