ERICSSON

RADIO WAVES AND HEALTH: 5G

Over the past 140 years, Ericsson has been at the forefront of communications technology. Today, we are committed to maximizing customer value by continuously evolving our business portfolio and leading the Information and Communication Technology industry. In fact, 40% of the world's mobile traffic is carried over Ericsson networks.

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

5G is the next step in the evolution of mobile communication. Its capabilities will extend far beyond previous generations, but it will be based on similar radio technologies. 5G devices will be designed and tested to comply with established radio wave exposure limits, and base stations will be installed so that the exposure in homes and public areas is well below the limits.

Since 1996, Ericsson has co-sponsored over 100 studies related to radio waves and health. Independent expert groups and public health authorities, including the World Health Organization, have reviewed the available research and have consistently concluded that there is no evidence of any health effects associated with radio wave exposure from either mobile phones or radio base stations.

5G is the next step in the evolution of mobile communication

The overall aim of 5G is to provide connectivity everywhere for any kind of device that may benefit from being connected. 5G will support a wide range of new applications and use cases, including smart homes, traffic safety, critical infrastructure, industry processes and very-high-speed media delivery. And it will accelerate the development of the Internet of Things.

5G capabilities will extend far beyond previous generations

To meet the demands of the new applications and use cases, the capabilities of 5G will extend far beyond previous generations of mobile communication. Examples are very high data rates, very short delay (latency), ultra-high reliability, high energy efficiency and ability to handle many more devices within the same area.

Radio waves are used for communication in 5G

Like in previous mobile networks, 5G devices will communicate with base stations by transmitting and receiving radio waves, or radio frequency (RF) electromagnetic fields (EMF).

5G will use new radio technology and new frequency bands

5G networks will incorporate the existing 4G LTE technology, but a new radio technology also will be introduced that meets all the extended capability demands of 5G. To increase the capacity of the mobile networks and support very high data rates, 5G will extend the range of frequencies used for mobile communication. This includes new spectrum below 6 GHz, as well as spectrum in higher frequency bands up to 100 GHz.

5G equipment will use beamforming to improve performance

To address the demands of increased performance, 5G base stations and devices will use many antennas. Arrays of up to hundreds of small antennas at the base station will make it possible to focus the transmission of radio waves to maximize the signals that the connected devices receive. This is called beamforming or massive MIMO. Thanks to this technology the transmitted power can be kept low resulting in radio wave exposure at similar levels as in previous networks, even though the performance is significantly improved.

Exposure levels will be below international safety limits

The power levels of the radio signals transmitted by 5G radio equipment will be of similar or lower magnitude as those used in previous networks. 5G devices will be designed and tested to comply with established radio wave exposure limits. 5G base stations will be positioned so that the exposure in homes and public areas is well below the limits.

Public access will be restricted where needed

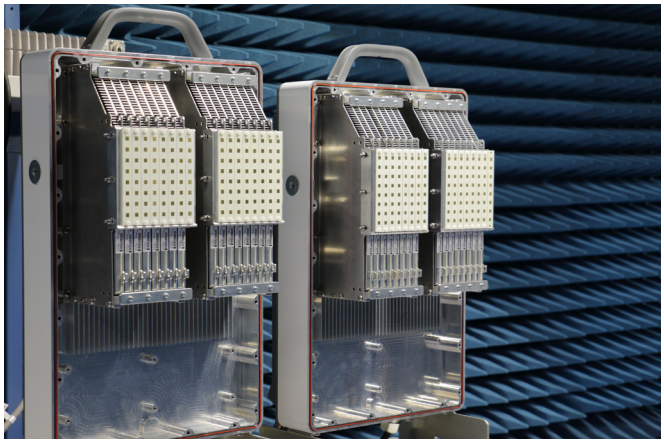
As for existing networks, the exposure limits may be reached near a base station antenna. The antennas are installed in such a way that unauthorized people do not have access to this area, which varies in size from a few centimeters for small indoor antennas up to several meters for antennas mounted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

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. 5G equipment, whether it be mobile devices or base stations, will meet the same safety standards as the equipment used in previous mobile communication networks.

No adverse health effects from mobile communications

The World Health Organization (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 on Radio waves and health, visit www.ericsson.com/health

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