

5G and Electromagnetic fields

The European electronic communication code plays a key role in ensuring consistent 5G deployment conditions while protecting public health.



Electromagnetic fields and wireless devices

An electromagnetic field (EMF) is a physical field produced by stationary, spinning or moving electrically charged particles. EMF is not a recent phenomenon from the digital world, electric and magnetic fields exist in nature. However, as the number of smartphones, tablets, laptops and many other connected devices increase, it has raised concerns about how EMF exposure might affect our health.

Some citizens perceive the fifth generation of wireless networks - 5G - as a threat to public health, as they think that EMF exposure is higher than exposure from current 4G networks. At the same time, opposition to 5G is making it difficult for certain stakeholders to fully roll out 5G networks.

Some of the expressed concerns have been classified as disinformation. An example of this is linking 5G networks with the outbreak of COVID-19.

Exposure to electromagnetic fields

Exposure to EMF that is caused by wireless communications equipment is subject to limits defined in a Council Recommendation. These limits are set according to the guidelines issued by the International Commission on Non-Ionizing Radiation Protection. More information about the guidelines can be found on ICNIRP's webpage.

Following the scientific recommendations, the EU puts exposure for the general public at a limit which is at least 50 times lower than what international scientific evidence suggests as having any effect on health. These limits are not binding for the EU Member States. However, the European Electronic Communications Code refers to them and calls on Member States to ensure consistent application.

5G and exposure to electromagnetic fields

The 5G (and future 6G) networks will use much smaller antennas and therefore generally lower exposure levels compared to the current 2G, 3G and 4G networks, but altogether achieve much better quality of service and higher connection speeds. Many of these smaller antennas could to a certain extent be compared to Wi-Fi installations. All new specificities of 5G technology have been taken into account in the definition of the revised ICNIRP guidelines.

To this end, the Commission adopted the Implementing Regulation on physical and technical characteristics of small-area wireless access points, specifically their volume, weight, visual impact and emission power. This regulation is not introducing new EU limits for the EMF. The installations will have to adhere to applicable national or regional regulations.

Therefore, following all the existing recommendations, the deployment of 5G networks will not have a negative effect on people's health.

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The European Commission has adopted its legislative proposal for a strategic European partnership on Smart Networks and Services as a Joint Undertaking, with a public R&I investment of €900 million over the new long-term budget period 2021-2027. The Joint Undertaking will coordinate research activities on 6G technology under Horizon Europe as well as 5G deployment initiatives under the Connecting Europe Facility Digital and other programmes.

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5G Research & standards

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5G Observatory

The European 5G Observatory enables the EU to assess the progress of the 5G Action Plan and take action to fully implement it.

5G Action plan

The 5G Action Plan is a strategic initiative that will make 5G a reality for all citizens and businesses across the EU.

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