

# Strict precautions in mobile telephony – as little radiation as possible

The further development of mobile telephony must incorporate strict health precautions. That principle must guide the measures adopted by the Federal Council and its responses to parliamentary initiatives concerning mobile telephony<sup>1</sup>. It underpins the six demands set out by Doctors for Environ-

mental Protection in their AefU position statement <Mobile telephony and radiation>. The appeal is addressed to policy-makers, the federal authorities and cantons, and also to the local authorities responsible for approving mobile telephony antennas and for compulsory schooling.

The Federal Council is provisionally retaining the thresholds for radiation from mobile antennas (decision of 22.4.2020) and intends to implement steps to make mobile telephony less harmful to health. It is basing itself on the report by its working party on «Mobile telephony and radiation», in which Doctors for Environmental Protection (AefU) also participated.



AefU has been arguing for years in favour of the strict application of the precautionary principle, also in mobile telephony. It is difficult to avoid this radiation. It is almost everywhere. It particularly affects children and adolescents. They will be exposed to it throughout their lives. As a precaution, reliable thresholds are needed to minimise or prevent exposure.

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Strict application of the precautionary principle in mobile telephony and its use.

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Improving protection for people living near antennas; minimising radiation from mobile telephony (incl. separating outdoor/indoor signals).

3

Moratorium on millimetre waves for 5G and WiFi; conservative implementation rules for adaptive antennas.

4

Independent research into the health risks from mobile telephony, incl. monitoring exposure and the consequences for health (health monitoring).

5

Transparent information for the population, orientated to target groups: «reducing radiation».

6

Environmental medicine counselling centre, headed by doctors, for <non-ionising radiation NIR>.

<sup>1</sup> Pending at present are postulate 19.4043 Häberli-Koller «Sustainable cellular network» and motion 19.4073 Graf-Litscher «Research into mobile telephony and radiation».

# AefU demands for minimal exposure

Representatives of industry, technological companies and environmental sciences swear that mobile telephony radiation is harmless. They point to the thresholds recommended by ICNIRP<sup>2</sup>, but these have been criticised world-wide. The thresholds only consider tissue heating by energy from non-ionising radiation (NIR), but disregard other biological (athermal) effects. They offer no protection against long-term consequences, of which there is growing evidence. We therefore need more than additional thresholds defining the maximum permissible radiation from individual base stations. AefU has formulated six requirements, demanding that the load on the entire population from mobile telephony should be kept to a minimum as a matter of principle.

## 1 Strict precautionary principle in mobile telephony

Since 2011, the high-frequency electromagnetic radiation from mobile telephony has been classified by the World Health Organisation WHO as «possibly carcinogenic». The cancer risk should be reassessed in the light of major research results. Researchers demand its reclassification as «carcinogenic». The health risk from 5G technologies is largely unexplored.

Studies indicate an elevated risk of brain and auditory nerve tumours in people who use mobile phones intensively. Mobile telephony radiation below the ICNIRP thresholds influences brain waves, cerebral blood flow and cell metabolism, increases oxidative cell stress, changes genetic material and genetic repair processes, damages the quality of sperm and impairs the memory and sleep-dependent

learning processes in adolescents. Effects are also seen below the thresholds for radiation from mobile equipment currently applicable in Switzerland.

Mobile telephony radiation is a health risk. Most people cannot escape its almost universal dissemination (forced irradiation from antennas or other people's devices). This also applies to the most vulnerable among us: the unborn, children, pregnant women and the sick.

From the medical point of view, the precautionary principle must therefore be mandatory. That means minimising the exposure to radiation from mobile equipment (e.g. mobile phone antennas), indoor networks (e.g. WiFi) and terminals (e.g. smartphones, tablets, internet of things etc.)

## 2 Improving protection for people living near antennas

The level of protection for people living near mobile telephony equipment must not be reduced in future by raising thresholds either directly or indirectly, or covertly by the way they are implemented (e.g. via the evaluation and measuring methods).

Thresholds should be lowered in future, because 80% of mobile connections occur with users indoors (70% of that for video streaming). In order to penetrate walls and ceilings, mobile antennas and terminal devices need very high transmission power. That causes avoidable radiation both outdoors and in. To keep that to a minimum, the way the internet is delivered to indoor and outdoor areas should

use different technical means. Homes, schools and offices need wired connections with a high transmission rate e.g. via glass fibre. Ideally, the wired connection should go as far as the terminal devices themselves. Where required, radio (e.g. WiFi, femtocell) can bridge the last few feet, with minimum radiation and without burdening the surrounding area. Small mobile equipment (less than 6 watts ERP, e.g. terrestrial antennas, outside-mounted antennas) do not have to stay below any thresholds today. That must change. The number of small antennas is growing rapidly, and they are causing increasing close-up exposure to places with high usage.

<sup>2</sup> The International Commission for protection against non-ionising radiation, ICNIRP, is a private association. It publishes recommendations for thresholds. The Council of Europe, among others, has doubts regarding their scientific basis.



## 3 Moratorium on millimetre waves for 5G and WiFi

The new 5G mobile communications standard uses millimetre waves and dynamic adaptive antennas. Both technologies are new in mobile communications and there has been little research into their effects on health. Millimetre waves have not yet been approved in Europe for communications applications. They are absorbed above all by the eyes and skin. The effects on the skin as a complex - and the largest - organ can have far-reaching consequences

for the organism. The effects on animals (including insects), plants and microbes are also under discussion. The population and the environment must not be exposed to risks where there has not been enough research. AefU demands a moratorium on millimetre waves for 5G and WiFi. For adaptive antennas it calls for conservative rules on their introduction until the effects on human health and the environment have been investigated independently.

## 4 Independent research, with NIR and health monitoring

More research into mobile telephony is needed, especially regarding the latest 5G standard. That is acknowledged by Parliament and the Federal Council, which therefore wish to intensify research efforts. The research must be independent, which should be ensured by a balanced, interdisciplinary commission involving the relevant protective associations and representatives of the medical profession. Projects must not be controlled by the mobile communications industry either directly or indirectly. No studies must be commissioned from organisations/individuals/companies with a financial interest in NIR.

The NIR monitoring planned by the Federal Council (measuring exposure) must cover not only mean values (RMS) but also peaks and other relevant exposure factors. NIR monitoring should be accompanied by health monitoring in order to establish possible effects on health.

A national research programme is needed so as to advance the development of sustainable network infrastructures and equipment (separating outdoor and indoor areas according to the AefU concept<sup>3</sup>). Sustainable means low radiation and hence less harm to health, sparing use of resources and energy efficiency.

## 5 Informing the population: «reducing radiation»

We have long become an information and communication society. Nevertheless, there is a shortage of independent information about the health risks posed by mobile telephony and how to minimise the radiation from indoor networks and terminal devices.

Recommendations for action are intended to show how the radiation risks at home, in schools, offices, public buildings and vehicles etc. can be reduced. Children and adolescents need to be made aware of the radiation risks. They are particularly sensitive as their brains are still de-

veloping and they will probably use mobile communications technologies all their lives. Appropriate funding should be provided for these campaigns.

At present, the law does not require any precautionary protection against radiation emitted by mobile devices (babyphones, smartphones, laptops etc.) They merely have to satisfy technical standards, with compliance confirmed by the manufacturers themselves. AefU therefore calls for statutory requirements for terminal devices, based on the principle of minimising radiation.

## 6 Environmental medicine <NIR> counselling centre

There is currently no central point where those affected, or doctors and vets, can report the symptoms they link to mobile communications exposure. The Federal Council is therefore now planning an interdisciplinary environmental medicine 'NIR' counselling centre headed by doctors.

The centre is intended to support those affected by radiation, inform and advise doctors and vets and systematically record observations on individual cases. These are to form part of independent, practically orientated research projects.

<sup>3</sup> Working party on mobile telephony and radiation (publ. 2020): Report on mobile telephony and radiation. Commissioned by UVEK. Chapter 9.2; Markus N. Durrer: Recipe for low-radiation mobile telephony. OEKOSKOP 2/19, p. 10.

# Conclusion: High time for sustainable network planning

What always applies to doctors' actions is also at the heart of Swiss environmental protection law: prevention is better than cure. If a technology can be expected to have harmful effects, they must be kept to a minimum or prevented altogether.

It took decades before the harmfulness of DDT, asbestos, tobacco and glyphosate, to mention only a few, were considered scientifically proven, even though there had long been indications. That should not be repeated with mobile telephony radiation.

## **Precautionary principle against avoidable risks**

The precautionary principle may delay the introduction of new technologies. But it does ensure as well as possible that people are not exposed to unknown or avoidable risks. What is more, it leads to more innovation and competitiveness if industry has to face up to the the negative aspects of its new products at an early stage.

## **Networks emitting minimum radiation**

The future therefore belongs to networks emitting minimum radiation which have been planned sustainably, with a wired glass fibre network right into the building, combined with wired local networks (LAN) or, where desired, with low-emission local networks (cell phones, femtocell, WiFi), which do not cause exposure to the surrounding area.

For future digitalisation, a glass fibre network is indispensable anyway. Even today it offers more power, data security and reliability than 5G promises. Every 5G antenna needs a glass fibre connection itself, so that we cannot avoid the glass fibre infrastructure even with 5G.

Precautions in connection with cell phones and radiation also include low-emission devices and informed users who know how to use cell phones in ways that are less harmful to health.