



EUROPEAN COMMISSION
DIRECTORATE-GENERAL FOR HEALTH AND FOOD SAFETY

Public health, country knowledge, crisis management
Health determinants and international relations

Luxembourg,
SANTE.DDG1.C.4/(2020)3300135

Dear Prof Nyberg, dear Prof Hardell, dear Prof Buchner,

Thank you for your email and letter of 18 April 2020 to President von der Leyen, who asked me to reply to you directly.

Firstly, let me recall the already comprehensive correspondence with you, namely our letters of 13 October 2017, 29 November 2017, 19 February 2018, 20 March 2018 and 27 April 2018, which has already covered a range of the issues you raised again in your letter.

You have called to invoke the precautionary principle. Please be advised that the applicable Council Recommendation 1999/519/EC already follows a precautionary approach, and is in line with the International Commission on Non-Ionising Radiation Protection (ICNIRP) guidelines. Please compare the levels of exposure linked to the presumed health effects established based on available scientific evidence with the exposure levels as set out in the ICNIRP guidelines and in the Council Recommendation. For workers the recommended protective exposure levels are 10 times lower than the health effect levels, and for the public they are even 50 times lower. Accordingly, there is already a lot of conservatism built into the guidelines and the Recommendation. In addition, according to the Implementation Reports of the Council Recommendation the Member States are following the Recommendation. A number of Member States have set exposure limits that are even significantly lower.

As regards the safety limits, ICNIRP concluded that lowering the levels would not add any additional safety.

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To support risk assessment, the Commission has invested EUR 49 million in research projects on electromagnetic fields through its Framework Programmes for Research and Innovation and has through its Framework Programmes of Research and Innovation funded research on non-technological means of reducing exposure to electromagnetic fields. Under the Health Cluster of Horizon Europe, the next EU Framework of Research and Innovation, health risks of digitalisation have been identified as a possible research challenge. Projects co-funded by the Commission are:

- MOBI-KIDS, which assessed the potential link between the risk of brain tumours and environmental risk factors, including use of communication devices.
- GERONIMO, which concerned generalized EMF research using novel methods following an integrated approach from research to risk assessment and support to risk management.
- SEAWIND, which studied the effects of the pervasive and prolonged EMF exposure on human health due to the exponential growth of wireless network device usage in homes, offices and schools.
- ARIMMORA, which aimed to scrutinize the underlying biophysical mechanisms and to clarify a possible causal relationship between ELF MF exposure and cancer, especially childhood leukaemia.

You claim that the introduction of 5G would increase the exposure to electromagnetic (EMF) fields. Firstly, the protection of public health is of paramount importance and is always taken into account in all of the Commission's proposals and initiatives, including on 5G. New wireless technologies such as 5G are likely to create new cumulative EMF characteristics including reduced emission power levels with small cells, on the one hand, and more focused EMF effects with beamforming emissions, on the other hand. 5G is expected to use smaller cells with lower power levels and the overall electromagnetic fields exposure is, therefore, expected to decrease in areas where 5G is deployed and the older generations of mobile networks are phased out. The introduction of 3G and 4G did not increase exposure to electromagnetic fields and this has been confirmed in peer-reviewed journals. In particular, the introduction of 3G lowered exposure of mobile phone users for calls, compared to 2G. 5G rollout is under the responsibility of the Member States. There is currently no conclusive scientific evidence available to prove that the higher 5G frequencies are dangerous as long as they are below the recommended limits.

One of the most important conclusions from recent expert meetings is that the power consumption per bit on 5G is 90% less than on 4G. This really constitutes an important improvement.

The third point I would like to make is that measurements carried out by the Australian Radiation Protection and Nuclear Safety Agency have shown that even if in a 5G setting mobile communication is operated at maximum level of capacity the level of exposure of the test persons only reached a tiny fraction of the recommended maximum exposure levels. This is, I believe a very reassuring message.

And finally, we know that the bulk of our daily exposure to electromagnetic fields is related to the use of mobile phones. However, the overall evaluation of all the research on High Frequency fields as emitted by mobile phones leads to the conclusion that High Frequency exposure below the thermal threshold is unlikely to be associated with adverse

health effects. In addition, every user has means to limit exposure, which can be managed fairly easily. We can avoid overly long phone calls, make sure we only use mobiles when the connection is good, use headphones or simply communicate via SMS.

The limits recommended by the Council are based on independent guidance issued by the International Commission on Non-Ionizing Radiation Protection. Following the recent review of this guidance, the Commission is now reassessing the situation, in collaboration with the Scientific Committee, and, if needed, with the Scientific Advice Mechanism. This will include an in-depth review of the scientific evidence currently available.

This second option would include referring the guidance to the Scientific Advice Mechanism for an opinion, which would cover both public health protection and the necessary legislative changes. The Group of Chief Scientific Advisors is an expert group of the European Commission and provides independent scientific advice to the College of European Commissioners to inform their decision making. The Group is supported by a dedicated Unit staffed by the European Commission's Research and Innovation and Joint Research Centre Directorates General. The Group of Chief Scientific Advisors and the Unit work closely with the Science Advice for Policy by European Academies consortium, which consists of the five European Academy Networks. The consortium brings together the outstanding knowledge and expertise of Fellows from over 100 Academies and Learned Societies in over 40 countries across Europe, spanning the disciplines of engineering, humanities, medicine, natural sciences and social sciences. Together, the Group of Chief Scientific Advisors, the Unit and the consortium are known as the Scientific Advice Mechanism. The Group of Chief Scientific Advisors can be asked to provide advice.

Yours sincerely,

Wojciech Kałamarz
Head of Unit