

Scientific Committee on Health, Environmental and Emerging Risks (SCHEER)

Request for a scientific Opinion on

Potential health effects of exposure to electromagnetic fields (EMF)

European Commission Department requesting the Opinion: Directorate-General for the Commission's Directorate-General for Communications Networks, Content and Technology (CNECT) Unit B4, Directorate-General for Health and Food Safety (SANTE) Unit C2, Directorate-General for Employment, Social Affairs and Inclusion (EMPL) Unit C2, and Directorate-General for Research and Innovation (DG RTD) Units 03, D2 and E3.

1. Background

Council Recommendation of 12 July 1999¹ (hereafter Recommendation) on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz) sets out basic restrictions and reference levels for the exposure of the general public to electromagnetic fields (EMFs). These restrictions and reference levels are based on the guidelines published by the International Commission on Non Ionizing Radiation Protection in 1998 (ICNIRP)². In response to the Recommendation, all Member States have implemented measures to limit the exposure of the public to EMF, either by implementing the provisions and reference levels and limits proposed by the Recommendation, or by implementing more stringent provisions³. In particular, twenty (20) Member States follow the Recommendation/ICNIRP Guidelines, while seven (7) impose stricter limits than those of the Recommendation.

In relation to the protection of workers' health and safety, Article 153 of the Treaty on the Functioning of the European Union foresees that the European Parliament and the Council can adopt by means of directives minimum requirements for the improvement, in particular, of the working environment to protect workers' health and safety, in order to support and complement the activities of Member States. In this context, the Council and the Parliament adopted Directive 2004/40/EC of 29 April 2004⁴ on the minimum health and safety requirements regarding their exposure to the risks arising from physical agents such as electromagnetic fields which was repealed by Directive 2013/35/EU⁵. Member States had to transpose Directive 2013/35/EU by 1st July 2016. It lays down minimum requirements including action levels and exposure limit values for electromagnetic fields. In accordance with Article 153 of the TFEU, Member States are allowed to maintain or adopt more stringent protective measures for the protection of workers.

The Recommendation also invites the Commission to "*keep the matters covered by this recommendation under review, with a view to its revision and updating, taking into account possible effects, which are currently the object of research, including relevant aspects of precaution (paragraph 4)*". The ICNIRP guidelines were endorsed by the Scientific Steering

¹ (OJ. L 199/59, 30.7.1999)

² <http://www.icnirp.de/>

³ http://ec.europa.eu/health/electromagnetic_fields/role_eu_ms/index_en.htm

⁴ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32004L0040&from=en>

⁵ <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:179:0001:0021:EN:PDF>

Committee (SSC)⁶ in its Opinion on health effects of EMFs of 25-26 June 1998. The Scientific Committee on Toxicity, Ecotoxicity and the Environment (CSTEE) prepared an update of the Scientific Steering Committee's Opinion and concluded in its Opinion on "*Possible effects of Electromagnetic Fields (EMF), Radio Frequency Fields (RF) and Microwave Radiation on human health*", of 30 October 2001, that the information that had become available since the SSC Opinion of June 1999 did not justify revision of the exposure limits recommended by the Council⁷. The Opinions delivered by the SCENIHR in March 2007⁸, January 2009⁹, July 2009¹⁰ and January 2015¹¹ confirmed the earlier conclusion of the CSTEE and again highlighted the need for additional data and research on this issue and recommended that specific research areas should be addressed.

The Commission relies on the SCHEER to periodically review new information that may influence the assessment of risks to human health in this area and to provide regular updates on the scientific evidence base to the Commission.

Since June 2014, the cut-off date for the previous review by the SCENIHR, a sufficient number of new scientific publications have appeared to warrant a new analysis of the scientific evidence on possible effects on human health of exposure to EMF.

In addition, ICNIRP has released new guidelines for the protection of humans exposed to radiofrequency electromagnetic fields in March 2020. While the 1998 guidelines already provide protection regarding EMF exposure in all frequency bands for existing technologies, and all bands currently envisaged for 5G, the new guidelines provide additional guidance on a set of issues relevant to the latest developments in 5G technology and cover the range 100 kHz to 300 GHz¹².

The full guidelines are published in the scientific journal *Health Physics* and are accessible at the website of ICNIR¹³.

Consequently, the SCHEER is being asked to examine this new scientific evidence and to address in particular the questions listed in the Terms of Reference.

⁶ http://europa.eu.int/comm/food/fs/sc/ssc/index_en.html

⁷ The main frequencies in the ELF frequency range are 50 Hz in Europe and 60 Hz in North America. The RF and lower microwave frequencies are of particular interest for broadcasting, mobile telephony. The 2.45 GHz frequency is mainly used in domestic and industrial microwave ovens

⁸ http://ec.europa.eu/health/ph_risk/committees/04_scenihr/docs/scenihr_o_007.pdf

⁹ http://ec.europa.eu/health/ph_risk/committees/04_scenihr/docs/scenihr_o_022.pdf

¹⁰ http://ec.europa.eu/health/ph_risk/committees/04_scenihr/docs/scenihr_o_024.pdf

¹¹ https://ec.europa.eu/health/scientific_committees/emerging/docs/scenihr_o_041.pdf

¹² <https://www.icnirp.org/en/publications/article/rf-guidelines-2020.html>; <https://www.icnirp.org/en/rf-faq/index.html>

¹³ <https://www.icnirp.org/en/publications/index.html>

2. Terms of reference

The scientific committee SCHEER is consulted on the need of a (technical) revision of the Council Recommendation 1999/519/EC annexes and of the annexes of Directive 2013/35/EU in view of the latest scientific evidence available, in particular the ICNIRP guidelines updated in 2020¹⁴ with regard to radio frequency (100 kHz to 300 GHz).

Opinion I

To advise on the need of a (technical) revision of the Council Recommendation 1999/519/EC annexes and of the annexes of Directive 2013/35/EU in view of the latest scientific evidence available, in particular that of the ICNIRP-guidelines updated in 2020, with regard to radio frequency 100 kHz to 300 GHz.

Opinion II

To update the SCENIHR Opinion of 2015 in the light of the latest scientific evidence with regard to frequencies between 1Hz and 100 kHz.

3. Deadline

Preliminary Opinion I: July 2022

Preliminary Opinion II: July 2023

¹⁴ <https://www.icnirp.org/cms/upload/publications/ICNIRPrfgdl2020.pdf>