

ICNIRP ACTIVITIES

ANNUAL REPORT 2025

This report summarizes the activities of the Commission for the period between 1st January 2025 and 31st December 2025.

Science

Work Plan Activities

ICNIRP through a range of project groups is developing statements and guidelines providing important outputs which will contribute to improving non-ionizing radiation (NIR) health and safety.

Statements on RF Knowledge Gaps

A Project Group (PG) on "Knowledge gaps identified during guidelines' development" was set up under the leadership of Dr Carmela Marino to draft a research agenda for the whole NIR spectrum, based in particular on the gaps identified during guidelines development. The ICNIRP research agenda aims at identifying knowledge gaps relevant for giving protection guidance. After publication in 2020 of the ICNIRP Statement on Gaps in Knowledge Relevant to the "Guidelines for Limiting Exposure to Radiofrequency Time-Varying Electric and Magnetic Fields (1 Hz - 100 kHz) 2010" ([Health Physics 118\(5\):533-542; 2020](#)), the Project Group also developed a similar document on radiofrequency (RF) Knowledge Gaps. The PG produced a final draft document which was published in Health Physics in January 2025.

The ICNIRP Statement: Gaps in Knowledge Relevant to the "Guidelines for Limiting Exposure to Time-Varying Electric, Magnetic and Electromagnetic Fields (100 kHz to 300 GHz)" (Health Phys 128(2):190–202; 2025) is available [here](#).

Revision of the Statement on Laser Pointers

ICNIRP published a Statement on laser pointers in 1999 ([Health Phys 77\(2\):218-220:1999](#)) as the switch from helium-neon lasers to more compact and cheaper GaAlAs semiconductor (diode) lasers had resulted in much wider availability of these products. Since then there have been further substantial developments in laser technology resulting in products emitting a much wider range of wavelengths, often at much higher powers. Moreover, the range of handheld products emitting visible laser beams is now much wider. Such products can cause temporary visual disturbance (glare, dazzle and after-images), if the beam enters someone's eye. If the affected person is undertaking activities such as piloting an aircraft, driving a vehicle, or operating machinery, the visual disturbance may have extremely serious consequences. If the output power of a handheld laser product is sufficiently high, exposure may result in serious retinal injury.

The PG is preparing a revised Statement that will provide an update on the current state of the technology and assess the current state of knowledge about the consequences of exposure with particular consideration of serious retinal injuries to children. With greater experience of retinal injury, the post-exposure management of patients has evolved and advice on this will also be provided. The purpose of the statement is to increase awareness with the aim of preventing incidents and accidents involving retinal injuries, visual disturbances and other adverse effects of exposure.

The PG, under the leadership of Dr Nigel Cridland, worked via online and in person meetings and electronic exchanges to advance the draft statement.

Effects of EMFs on the Environment

A PG is developing a statement on the effects of electromagnetic fields (EMFs) on the environment (plants and animals in their natural environment). As identified in 2000 by ICNIRP (Proceedings of the International Seminar on Effects of Electromagnetic Fields on the Living Environment, Ismaning, Germany) and confirmed more recently in 2019 by the German Federal Office for Radiation Protection (BfS) (see [report on the BfS website](#), and [review paper in Health Physics](#)), there is yet to be determined whether there are effects of EMFs on the living environment, with this uncertainty largely due to the lack of adequate data. Accordingly, this ICNIRP PG intends to present an overview of the environmental effects of EMFs and, where possible, analyze whether the current human exposure guidelines are sufficiently protective for plants and animals in their natural environment.

The PG has put together the outline of the report and agreed inclusion and exclusion criteria for included reviews across all Chapters, which are currently being developed.

The Project Group worked via electronic exchanges and hybrid meeting under the leadership of Dr Eric van Rongen initially and Dr Frank De Vocht currently.

Revision of the Laser Guidelines

In light of the 2020 ICNIRP Comments on the Laser Guidelines and recently published laser radiation safety data, an ICNIRP Project Group (PG) is in charge of revising the 2013 ICNIRP Laser Guidelines ([Health Phys 105\(3\): 271-295: 2013](#)). The primary objective of the PG is to identify the major gaps in the current ICNIRP Laser Guidelines and 2020 ICNIRP Comments ([Health Phys 118\(5\):543-548; 2020](#)), and to address the gaps by updating the guidelines using recently reported studies and data, as well as to revisit the guidelines according to ICNIRP procedures for setting guidelines.

Lasers are used in a wide range of industrial, consumer, scientific, and medical applications, including optical fiber communication, welding, cutting, drilling, sensing, entertainment, optical computing, and emerging laser diagnostic and therapeutic technologies. To protect the general population and workers from exposure to laser radiation of wavelengths between 180 nm and 1,000 μm , the ICNIRP published guidelines in 2013 ([Health Phys 105\(3\): 271-295: 2013](#)) which set the maximum permissible exposure levels to avoid adverse biological effects to the eyes and the skin. These guidelines also assist with the development of principles of protection against laser radiation hazards.

Since the publication of the ICNIRP 2013 guidelines, the application of the exposure limits has shown that some additional guidance is needed for complex exposure cases. These issues were addressed in the 2020 ICNIRP Statement “Comments on the 2013 Laser Guidelines”. As mentioned in that Statement, and as discussed during the initial 2025 PG meetings, the revision of the ICNIRP laser guidelines will aim to provide additional guidance in relation to address the identified major gaps, including updates on the following gap laser characteristics and variations:

- The reduction of safety factors for skin and ocular tissues;
- Long-term exposure limits (EL) in the far ultraviolet wavelength range below 280 nm;
- Small-spot exposures of durations less than 1 ns;

- Correction factor defining the wavelength dependence of retinal EL in the wavelength range above 1200 nm for larger beam diameters at the cornea for exposure duration of 100 μ s to 100 ms;
- Correction factor related to the EL for multiple pulses in the exposure duration range of microseconds and less;
- Minimum retinal image diameters as well as extended sources (retinal irradiance diameter of 100 μ m or larger) for safety evaluation of multiple-pulse reduction factor;
- Laser induced corneal injury thresholds in the range of 1200 nm to 1500 nm;
- Laser radiation exposure limits for the skin for exposure duration below 1 ns in the picosecond and femtosecond range.

The updated Laser Guidelines will primarily reflect the newly available data identified as necessary by ICNIRP.

The PG under the leadership of Dr Ilko Ilev is working via electronic exchanges and hybrid meetings and started discussions to prepare a draft statement.

Revision of the LF Guidelines (≤ 10 MHz)

ICNIRP works at updating the low frequency guidelines, combining the previously published [ICNIRP 2009](#) (static magnetic fields), [ICNIRP 2010](#) (low frequency fields) and [ICNIRP 2014](#) (induced electric fields). Where appropriate, the underlying logic of the 2020 RF guidelines will be used. The output of this Project Group may subsequently be combined with the 2020 RF guidelines to form a single set of guidelines (up to 300 GHz). Three sub-groups (human experimental, human observational, in-vivo/in vitro/in silico) are preparing reviews on the evidence related to the effects of low frequency fields to be published separately. Their conclusions will be integrated in an annex of the LF guidelines.

The PG sub-groups have now published the protocol of their respective reviews in Prospero and have finalized the literature search. Study selection is close to completion.

The PG under the leadership of Dr Ken Karipidis and the sub-groups under the leadership of Dr Carmela Marino, Dr Gunnhild Oftedal and Dr Martin Rösli, worked via online and onsite meetings and electronic exchanges.

LF Dosimetry Review

ICNIRP is currently developing an extensive review and quantitative analysis of the available literature. The comprehensive manuscript is to provide a structured and in-depth overview of the current state of knowledge in dosimetry, with a particular focus on methodological consistency and remaining challenges. This will provide the dosimetry basis for the revision of the LF Guidelines (see above).

The Project Group under Akimasa Hirata's leadership worked via online and onsite meetings and electronic exchanges.

Long-Term Effects of Chronic UV Exposure

ICNIRP is developing guidance on long-term exposure to UV. A Project Group has reviewed the evidence for both adverse and beneficial effects of exposure to the eye and skin. A number of

adverse effects are associated with cumulative exposure to the eye, including cataract, pterygium, pingueculae, climatic droplet keratopathy, and ocular tumours, some of which are associated with high mortality rates. There are no established beneficial effects of eye exposure to UV. Cumulative UV exposure of the skin can cause skin cancers, photoageing, and pigmentary disorders. However, there are also beneficial effects of skin exposure to UV, most notably vitamin D synthesis. Moreover, the balance between detrimental and beneficial effects varies with skin phototype and guidance needs to reflect this.

The PG, led by Dr Nigel Cridland, worked via online and onsite meetings and electronic exchanges to finalise the guidance.

Radiation Protection System

Following a series of international workshops held with WHO, ICRP, ILO and IRPA and discussions about the NIR & IR radiation protection systems, ICNIRP has initiated a PG expected to clarify the similarities and differences between the non-ionizing radiation and ionizing radiation protection systems and their relevance for ICNIRP and ICRP.

The Project Group has summarized the current status of stratification and individualization approaches in EMF radiation protection. The outcomes of this work were presented and discussed at the ICRP protection system meeting, providing input to ongoing discussions on refined protection concepts.

This PG chaired by Dr Akimasa Hirata worked via online meetings and electronic exchanges.

Gap between RF Guidelines and Optical Radiation Guidelines (Sub THz)

The PG is expected to clarify the gap in the limits at 300 GHz between the radiofrequency guidelines ([Health Phys 118\(5\): 483–524; 2020](#)) and the optical radiation guidelines ([Health Phys 105\(1\):74-96; 2013](#) and [105\(3\):271-295; 2013](#)).

Focused discussions were conducted in 2025 to identify and clarify existing data gaps at the interface between radiofrequency (RF) and optical radiation, with particular attention to their implications for exposure assessment and protection frameworks.

The PG chaired by Dr Akimasa Hirata and co-chaired by Kensuke Sasaki worked via dedicated meetings and continuous information exchange.

Communication and Publications

Standing Committee on Communications

The core activity of ICNIRP is to develop and disseminate science-based advice on limiting exposure to NIR in the form of guidelines, statements and reviews. ICNIRP also liaises with a range of stakeholders and communicates its work in a number of fora.

ICNIRP has set up a Standing Committee (SC) on Communications which is chaired by Dr Ken Karipidis. The SC Communications will provide advice, develop programs and prepare material that aims to consolidate ICNIRP's visibility as a scientific, reliable and independent body for guidance on NIR protection.

The SC has developed the ICNIRP United Nations Sustainable Development Goals (detailed below). It has also drafted internal guides related in particular to the ICNIRP communication strategy and the work flow between the Board, the Commission and the SC.

The SC worked via online meetings and electronic exchanges.

Website & Newsletter

ICNIRP communicates its activities mainly via its website where it provides all its Journal publications, notes and web streams of its workshops in open access. The website is also where the ICNIRP news are communicated in regards to membership changes and calls addressed to the radiation protection community in Europe and worldwide. ICNIRP sends newsletters to those registered on the basis of the topic selected.

Social Media

Communication via Social Media is becoming more prominent and ICNIRP has decided to intensify its presence on the LinkedIn platform. This media was identified as the most appropriate to convey the ICNIRP messages to the radiation protection community allowing also to reach the interested public not specialized in radiation protection issues with the best level of information on NIR topics of interest.

Specific activities

In acknowledgement of its support to the United Nations Sustainable Development Goals (UN SDGs) ICNIRP displayed communication content on its [website](#) delineating where and how the United Nations Sustainable Development Goals (UN SDGs) impact the ICNIRP protection effort.

Publications

ICNIRP Statements

ICNIRP Statement: Gaps in Knowledge Relevant to the "Guidelines for Limiting Exposure to Time-Varying Electric, Magnetic and Electromagnetic Fields (100 kHz to 300 GHz)" (Health Phys 128(2):190–202; 2025) is available [here](#).

ICNIRP Review Protocols

Review Protocol registered in Prospero: [Epidemiological research on health effects of static and extremely low frequency electric and magnetic fields: an Umbrella+ review](#)

Review Protocol registered in Prospero: [Effects of Static, Low, and Intermediate Frequency Electric and Magnetic Fields in In Silico, In Vivo, and In Vitro Studies](#)

Review Protocol registered in Prospero: [Systematic review of human experimental studies on health effects of static, low frequency and intermediate frequency electric and magnetic fields](#)

Collaboration

Collaboration with International Organizations

World Health Organization (WHO)

ICNIRP is officially recognized by the World Health Organization as a collaborative NGO for all aspects of NIR protection within the Framework of Engagement with Non State Actors (FENSA). The collaboration is mainly related to WHO's International EMF project, Global Forum on Medical Devices, INTERSUN Program, and the activities related to developing the Radiation Protection System. Within the cooperation, ICNIRP provides technical input to support the development of guidance on NIR exposure. ICNIRP contributed in particular to the WHO World Patients Safety Day 2025 related to "Safe care for every newborn and every child", to the WHO Global Forum Medical Device - Post Session "Ensuring Health and Safety in Use of Radiation-Based Medical Devices" and to the International Advisory Committee meeting.

European Commission (EC)

ICNIRP advances radiation protection science throughout Europe and the World, in particular through the support provided by the European Union (ESF/SOCPL). The ICNIRP guidance is used by the European Commission as reflected in directives related to optical and EMF protection (in particular the Directive 2006/25/EC and EU EMF Directive (2013/35/EU). ICNIRP provides, upon request, scientific advice for the evaluation and interpretation of scientific data, and for their dissemination, especially to the Directorate General "Employment, Social Affairs and Inclusion". Communication with the DG unit takes place also through participation to workshops and meetings.

International Labour Organization (ILO)

The partnership between ICNIRP and ILO dates back to 1994 when ICNIRP was admitted on the ILO's Special List of Non-Governmental Organizations. Since then, several publications have been jointly issued, particularly in relation to EMF and Ultraviolet radiation. Collaboration also is set up in an ad hoc manner on topics discussed within the radiation protection community.

International Radiation Protection Association (IRPA)

ICNIRP and IRPA are linked through their Charter and their cooperation is within this framework. IRPA provides information on ICNIRP activities on the IRPA website regarding ICNIRP publications, current online consultations, the organization of conferences, and its elections. IRPA is invited to provide comments on the ICNIRP guidelines drafts and to provide nominations at ICNIRP Commission elections. ICNIRP is invited to the IRPA Congress which is held every 4 years. Represented by its Chair and selected members based on the program, ICNIRP provides presentations related to ICNIRP and its NIR protection activities.

International Commission on Radiological Protection (ICRP)

ICNIRP and ICRP are linked through the ICRP Special Liaison Organization (SLO) framework. ICNIRP, represented by its Scientific Secretary, participates as an observer or contributor to the SLO conferences and to the Working Party on Sustainable Development (WPSD). The former is a broad framework which foster collaborations between radiation protection bodies which are facing similar demands and challenges. The latter is a more specific project aiming at embedding sustainable

development at the core of the radiation protection concept. ICNIRP's participation provides the opportunity to follow-up and discuss the latest developments on this topic with a view to consider an adequate application in the NIR environment.

Other collaboration

Part of the ICNIRP mission is to provide scientific advice on NIR protection in many countries worldwide (see below list of meetings and conferences). These activities are performed mostly through participation in seminars, round tables, provision of lectures in training courses and scientific conferences, as well as meetings with protection agencies and electronic exchanges.

Workshops and Meetings with ICNIRP participation

As a widely recognized international organization in non-ionizing radiation protection, ICNIRP is invited to participate in, or co-sponsor, many international scientific events. In the period covered by this report, ICNIRP has organized and/or contributed to the following meetings.

Participation of ICNIRP representatives in Workshops, Scientific Meetings and Courses

•	WHO Medical Devices Pre-Meeting	Online	01.04.2025
•	IEEE Wireless Power Technology Conference	Rome, Italy	04.06.2025
•	WHO Global Forum Medical Device - Post Session "Ensuring Health and Safety in Use of Radiation-Based Medical Devices"	Online	05.06.2025
•	WHO DTO/ICNIRP Secretariat Coordination Meeting	Online	06.02.2025
•	National Seminar on Non-Ionizing Radiation Safety of the Radiation Protection Authority of Zimbabwe	Bulawayo/Online	11.06.2025
•	WHO International Advisory Committee (IAC)	Online	17.06.2025
•	WHO World Patient Safety Day	Online	17.09.2025
•	ICRP Working Party on Sustainable Development Meeting on Non-Ionizing Radiation	Online	25.07.2025
•	ITU Regional Conference	Chisinau/Online	23.09.2025
•	ICRP Working Party on Sustainable Development	Online	24.09.2025
•	ICRP Conference 2025	Abu Dhabi	7-9.10.2025
•	Global Coordination of Research and Policy on RF Electromagnetic Fields) meeting	Tokyo, Japan	16-17.10.25
•	ICRP Working Party on Sustainable Development	Online	15.12.2025

Scientific & Administrative Meetings

Commission meetings

This year the main Commission at its meeting focused on strengthening international collaboration with WHO, discussing the current projects and fulfilling the administrative requirements. Project Groups met to work on the tasks assigned in the ICNIRP Work Plan. Commission and Project Group meetings are held either online or onsite with online access.

ICNIRP Commission, Board, Project Group (PG), and Standing Committee (SC)

• ICNIRP PG LF Dosimetry Review	Online	20.01.2025
• ICNIRP PG LF Subgroup In Vivo	Online	22.01.2025
• ICNIRP PG LF Subgroup Human Observational	Online	27.01.2025
• ICNIRP SC Communication	Online	30.01.2025
• ICNIRP PG LF Subgroup Human Experimental	Online	03.02.2025
• ICNIRP Board Meeting	Online	05.02.2025
• ICNIRP SC Communication	Online	10.02.2025
• ICNIRP PG LF Subgroup In Vivo	Online	11.02.2025
• ICNIRP PG Sub-THz Gap	Online	12.02.2025
• ICNIRP PG Protection System	Online	12.02.2025
• ICNIRP Board Meeting	Online	20.02.2025
• ICNIRP PG UV Chronic Effects	Online	25.02.2025
• ICNIRP PG LF Subgroup Human Experimental	Online	03.03.2025
• ICNIRP SC Communication	Online	18.03.2025
• ICNIRP PG LF Subgroup Human Observational	Online	20.03.2025
• ICNIRP PG LF Subgroup In Vivo	Online	27.03.2025
• ICNIRP PG LF Subgroup Human Experimental	Online	31.03.2025
• ICNIRP SC Communication	Online	01.04.2025
• ICNIRP SC Communication	Online	09.04.2025
• ICNIRP PG LF & Subgroups	Munich/hybrid	12.05.2025
• ICNIRP Annual General Meeting	Munich/hybrid	13 & 14.05.2025
• ICNIRP PG Protection System	Munich/hybrid	14.05.2025
• ICNIRP PG Laser Guidelines	Munich/hybrid	14.05.2025
• ICNIRP PG Environment	Munich/hybrid	14.05.2025
• ICNIRP PG Sub THz	Munich/hybrid	26.05.2025
• ICNIRP PG Laser Pointers	Online	06.06.2025
• ICNIRP PG LF Subgroup Human Observational	Online	16.06.2025
• ICNIRP PG LF Subgroup Human Experimental	Online	16.06.2025
• ICNIRP PG Laser Guidelines	Online	02.07.2025

• ICNIRP PG LF Subgroup Human Experimental	Online	28.07.2025
• ICNIRP PG LF Subgroup Human Experimental	Online	08.09.2025
• ICNIRP PG Laser Guidelines	Online	15.09.2025
• ICNIRP PG LF Subgroup Experimental (in vivo, in vitro, etc.)	Online	29.09.2025
• ICNIRP PG LF Subgroup Human Observational	Online	10.10.2025
• ICNIRP PG LF Subgroup Human Experimental	Online	13.10.2025
• ICNIRP PG LF Guidelines	Online	27.10.2025
• ICNIRP PG LF Subgroup Human Experimental	Online	10.11.2025
• ICNIRP PG Environment	Online	12.11.2025
• ICNIRP Commission Meeting	Online	12&13.11.2025
• ICNIRP PG LF Subgroup Human Observational	Online	14.11.2025
• ICNIRP PG LF Subgroup Human Experimental	Online	15.12.2025

Structure and Governance

Working Groups

To consolidate the scientific and collaborators team, ICNIRP established in November 2024 a Collaboration Group (CG). The CG supports ICNIRP in fulfilling its mission, primarily by contributing to specific tasks and/or limited tasks within working groups (WGs) when assistance is required beyond that available from the Commission and the Scientific Expert Group (SEG). It is composed of professionals selected on the basis of their professional credentials in a discipline relevant to NIR such as biology, epidemiology, physics and engineering, biophysics, medicine or in a discipline relevant to the ICNIRP activities, such as communication. CG members are elected from nominations by Members of the Commission, or the Scientific Expert Group, the Executive Council of the International Radiation Protection Association ([IRPA](#)), the IRPA Associate Societies, national and international public radiation protection bodies, and other collaborating partners of ICNIRP following a call for nominations. The election takes place in general every four years at the beginning of a new term of office and any time there is a need for additional support.

Declaration of personal interests (DOI)

The declarations of personal interests are completed by all Commission, SEG, CG members and the Scientific Secretariat on a yearly basis. The declarations of personal interests are screened and evaluated by the Board and Commission with the objective of safeguarding ICNIRP's scientific independence. All declarations of personal interests are available on the ICNIRP website at www.icnirp.org.

Financial Support

ICNIRP funding stems from public and governmental agencies only. In the reporting period the ICNIRP activities were supported by the German Federal Ministry for the Environment, Nature

Conservation, Nuclear Safety and Consumer Protection (BMUV), the European Union*, and the International Radiation Protection Association (IRPA). In addition, the Australian Radiation Protection and Nuclear Safety Authority (ARPANSA) also provided a general subsidy. Further support was also received from the Nagoya Institute of Technology, Japan, UK Health Security Agency, Institute of Information and Communications Technology Planning and Evaluation, Korea, ADERA France, and the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) via direct partial covering of travel expenses of Commissioners.

Financial Report 2025 - Amounts in Euro		
Income		
Subsidies		142.519,71
Workshops and Books		316,90
Total Income		142.836,61
Expense		
Staff & Training	- 110.889,30	
Meetings & Workshops	- 8.269,68	
Publications & Communication	- 7.086,36	
Administrative Expense	- 3.196,22	
Total Expense	- 129.441,56	
Finance Income		0,00
Finance Costs	- 327,06	
Financial results	-327,06	
Result of the Year		13.067,99

*Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or its granting authority. Neither the European Union nor the granting authority can be held responsible for them.