International Commission on Non-Ionizing Radiation Protection
ICNIRP – 2004/2005 REPORT

Introduction
This report summarises the activities of the Commission for the period between the meetings held in May 2004 and April 2005.

Commission Membership
The term of the former Commission expired at the end of the 11th International Congress of IRPA, Madrid, Spain, 23-28 May 2004. The new Commission acknowledges the invaluable contribution of all retired Members to the advancement of ICNIRP. The composition of the Standing Committees (SC) has also been renovated. The full list of new membership is available on ICNIRP's website www.icnirp.org.

Scientific Secretariat
Gunde Ziegelberger, Ph.D, has been appointed as Scientific Secretary. Karine Chabrel, M.P.A, has been confirmed as Deputy Secretary. Their valid support is highly appreciated by the Commission.

Annual General Meeting in Munich
The Annual General Meeting of the Commission was held at Bundesamt für Strahlenschutz (BfS) in Munich, 9-11 September 2004. The Commission thanks Rüdiger Matthes, M.S.E., and the Secretariat for the excellent organization and hospitality.

Focus Group Meetings
The Chairman's Focus Group met at BfS in Munich on July 16 and December 3, 2004. In these occasions, business and administration issues were discussed, as well as details of organization of Commission meetings and scientific events sponsored by, or with the participation of, ICNIRP.

Workplan
The workplan for the next years has been updated and tasks have been assigned to respective SCs.
Guidelines:
Based on the recent review of "Exposure to static and low frequency electromagnetic fields, biological effects and health consequences (0-100 kHz)" (Blue Book), the revision of the corresponding guidelines was initiated.
An update of the guidelines for "Broad-band incoherent optical radiation (0,38-3mm)", which needs to be revisited in one very specific and narrow aspect, is on the way.
The need for a revision of the "Guidelines on airborne ultrasound" was considered.
Statements:
A statement on the "Use of optical radiation in ophthalmology" was finalised and sent to the Journal "Applied Optics". Its publication is expected in April 2005.
Considerable progress in developing guidelines for high power LEDs emitting short wavelengths was made since the publication of the first statement on LEDs.

A statement on "Far-infrared radiation" awaits approval by the Commission. It provides guidance for the special conditions where lengthy periods of far-infrared skin exposure occurs (e.g. infrared warming cabins).
A draft on "Optically aided viewing of lasers and other optical souces" is in progress.
The work of a statement on "New EMF-emitting technologies" has started and will include not only the variety of new telecommunication technologies, but also transportation systems.
The need for a statement on "Medical Ultrasound" and on "Airborne Ultrasound" was discussed and it was decided to start data collection.
Review:
The expected comprehensive RF-review, which will lead to a Blue Book, was initiated.
In addition, "topical information sheets" on different endpoints are on the way.

Publications
The following ICNIRP documents have been published in 2004:

Review of the Epidemiologic Literature on RF and Health

Standing Committee I (Epidemiology) drafted a review of the latest epidemiologic literature and studies on exposition to RF and health. It has been published in December 2004 in the Journal of Environmental Perspectives.

SCI has undertaken a broad review of epidemiological knowledge about the effects of RF on human health in order to summarize the current state of knowledge, to explain the methodological issues that are involved, and to aid in the planning of future studies. SCI looked at epidemiological studies on chronic disease causation; for completeness it has also included epidemiological studies on symptoms although such studies are usually better conducted by laboratory volunteer experiments. For the purpose of this review SCI has divided the literature into studies of RF exposure from occupational sources, from transmitters, and from mobile phones.

Results of epidemiological studies to date give no consistent or convincing evidence of a causal relation between RF exposure and any adverse health effect. On the other hand, these studies have too many deficiencies to rule out an association. A key concern across all studies is the quality of assessment of RF exposure. Despite the rapid growth of new technologies using RF, little is known about population exposure from RF sources and even less about the relative importance of different sources. An important element in improving future studies would be the use of a meter to monitor individual exposure. The need for better exposure assessment is particularly strong in relation to transmitter studies, because the relation between distance and exposure is very weak. Although the likelihood is low fields emanating from base stations would create a health hazard, because of their weakness, this possibility is nevertheless a concern for many people. Another general concern in mobile phone studies is that the lag periods that have been examined to date are necessarily short. The implication is that if a longer period is required for a health effect to occur, the effect could not be detected in these studies. The majority of research has focused on brain and head and neck tumours but studies on other health effects may be equally justified. Another gap in research is children. Children are increasingly heavy users of mobile phones, they may be particularly susceptible to harmful effects, and they are likely to accumulate many years of exposure.

Guidelines on limits of exposure to UV Radiation of wavelengths between 180 nm and 400 nm (incoherent optical radiation)

Since the publication of the ICNIRP *Guidelines on UV Radiation Limits* (1996), recent research has made it appropriate to update the guidelines for protection. While no significant changes are made in the values, the biological basis can be strengthened, and the limitations on use can be

clarified. The revised guidelines were published in Health Physics in August 2004 and are available for download at www.icnirp.org.

The purpose of this document is to provide guidance on maximal limits of exposure to UVR in the spectral region between 180 nm and 400 nm. The limits represent conditions under which it is expected that nearly all individuals may be repeatedly exposed without acute adverse effects and, based upon best available evidence, without noticeable risk of delayed effects (see paragraph on Special Considerations). These EL values for exposure of the eye or the skin may be used to evaluate potentially hazardous exposure from UVR; e.g. from arcs, gas and vapour discharges, fluorescent lamps, incandescent sources, and solar radiation. The limits do not apply to lasers that emit UVR. Most incoherent UVR sources are broadband, although single emission lines can be produced from low-pressure gas discharges. These values should be used as guides in the control of exposure to both pulsed and continuous sources where the exposure duration is not less than 1 μs. These ELs are below levels that would be used for UV exposures of patients required as a part of medical treatment or for elective cosmetic purposes. These ELs are exceeded for exposed skin by noonday summer sunlight overhead at 0º-40º latitude within 5-10 minutes. The ELs should be considered absolute limits for direct exposure of the eye, and "advisory" for skin exposure because of the wide range of susceptibility to skin injury depending on skin type. The ELs should be adequate to protect lightly pigmented individuals.

Statement “Medical Magnetic Resonance (MR) Procedures: Protection of Patients”
Magnetic resonance imaging (MRI) has become an established diagnostic imaging modality. The clinical usefulness of in-vivo magnetic resonance spectroscopy (MRS) has been demonstrated in several clinical applications and is being explored further. These techniques involve exposure of the patient to static and time-varying magnetic fields, radiofrequency electromagnetic fields, and acoustic noise. In particular exposure conditions, these fields may pose a health hazard or increased risk. The International Non-Ionizing Radiation Committee of the International Radiation Protection Association (IRPA/INIRC) has published a guideline on protection of the patient undergoing a magnetic resonance examination (IRPA/INIRC 1991). The new statement by ICNIRP takes into account several recent reviews concerning safety aspects of MR procedures have been published (e.g., Ordidge et al. 2000; Shellock 2001; Shellock 2003). The ICNIRP statement was published in Health Physics in August 2004 and is available for download at www.icnirp.org.

Statement related to the Use of Security and Similar Devices utilizing Electromagnetic Fields
Over one million Electronic Article Surveillance (EAS) systems, developed to protect against theft, are installed world-wide. Even more Radiofrequency Identification (RFID) systems are in operation to provide identification of persons or objects, or to improve the controlled transportation and logistic of various items. Millions of metal detectors systems are used to locate a ferrous or conductive target. All of these systems use electromagnetic fields to detect or communicate over a short distance (usually up to a few meters). For the general public, they involve brief exposure times of generally less than a few seconds. For occupational exposure, extended exposure times may occur.
The objective of the ICNIRP statement is to address the possible adverse effects from exposure to pulsed and continuous wave (cw) electromagnetic fields (EMFs) associated with the use of electronic security and similar devices. This document summarizes the results of the Concerted Action QLK4-1999-01214 “Development of advice to the EC on the risk to health of the general public from the use of security and similar devices employing pulsed and continuous electromagnetic fields” within the program Quality of Life (QoL), Key Action 4 “Environment and Health” of the Fifth Framework Programme of the European Commission (EC) (full report: ICNIRP 2002). The statement was published in Health Physics in August 2004 and is available for download at www.icnirp.org.

Collaboration with International organizations

World Health Organization (WHO)
ICNIRP's co-operation with WHO is mainly related to the EMF and the INTERSUN Programmes of WHO. Within this frame, ICNIRP actively participated in workshops and seminars organized by WHO. Invited lectures on Commission's activities, guidelines and scientific positions were presented at the WHO/Asia EMF Conference (Bangkok, 26-30 January 2004), 9th International Advisory Committee (IAC) Meeting of the International EMF Project (Istanbul, 7-8 June 2004), the Workshop on "Sensitivity of Children to EMF Exposure" (Istanbul, 9-10 June 2004), the Workshop on "Mobile Communication and Health: medical, biological, and social problems" (Moscow, 20-22 September 2004). Members of ICNIRP participated as speakers in the above events as well as in the International Seminar on "EMF Hypersensitivity**"** (Prague, 25-26 October 2004).
The Scientific Secretariat is actively working on the organization of joint WHO-ICNIRP workshops, already formally approved by the Commission.
An agreement has been reached between WHO and ICNIRP for the joint publication of a report on the exposure of workers to UV radiation.

European Commission (EC)
ICNIRP continues providing scientific advice to EC especially Directorate General Health and Consumer Protection, Enterprise Directorate General, and Directorate General for Employment, Social Affairs and Equal Opportunities. This role has been enhanced with the participation of ICNIRP in two relevant projects within the 6th Framework Programme of Research, namely EMF-NET and EIS-EMF. ICNIRP will provide scientific advice for the evaluation and interpretation of scientific data (EMF-NET), and for their dissemination (EIS-EMF).
Through Standing Committee IV, ICNIRP members were invited to speak at the Experts' Seminar on Optical Radiation . In addition, ICNIRP has repeatedly provided advice to EC in the development of the Directives on the protection of workers from exposure to EMFs and optical radiation.

International Radiation Protection Association (IRPA)
At the IRPA International Congress in Madrid (May 2004), the IRPA Board expressed appreciation for the activities of ICNIRP in the last four years, and confirmed its economic support to the Commission. ICNIRP also hosted a special session at the Congress.

European Society for Skin Cancer Prevention (EUROSKIN)
The mutual interest of ICNIRP and EUROSKIN to continue fruitful collaboration was confirmed at the Commission Meeting in Munich. The joint organization of a workshop on Solar radiation and Vitamin-D has been proposed and accepted.

International Radio Science Union (URSI)
Commission K of URSI organised its Seminar in connection with ICNIRP's workshop in Seville.
The jointly organization proved extremely positive and contributed to the relevant success of the event. An active participation of ICNIRP in the forthcoming General Assembly of URSI (New Delhi, October 2005) has been planned.

International Commission on Occupational Health (ICOH)
ICOH co-sponsored ICNIRP's International NIR Workshop in Seville. In that occasion, the intention was expressed on both sides to strengthen cooperation. Professor Jorma Rantanen, ICOH

President, offered to ICNIRP the organization of a special scientific session on NIR within the Centenary ICOH Conference, scheduled in 2006.

International Telecommunication Union (ITU)
The Arab Regional Office of ITU organized in Cairo (October 2004) a workshop on "The Role of ICT in Protecting Man and Environment: How to Limit the Impact of its Use". A lecture on the scientific criteria for the development of protection guidelines was held by the ICNIRP Chairman. Official delegation of around twenty Arab countries attended the workshop.