**Some comments**

**concerning ICNIRP Guidelines for limiting EMF exposure**

**for frequencies 100 kHz – 300 GHz,**

**and C 95.1- 2005, review 2018**

**Terminology**

ICNIRP: adverse health effects from **direct,** non-medical exposures to both **short- and long-term**, **continuous and discontinuous** radiofrequency EMFs

C 95.1: EMF **biological effects** reveals that **electrostimulation** is the dominant effect at low frequencies, and **thermal effects** dominate at high frequencies

***My opinion:*** the definitions in C 95.1 are more clear, only “biological effects” should be distinguished from “adverse health effect” as it is very well defined in Section 3.1. Definitions.

**Terminology**

ICNIRP: There is no list of definitions and acronyms

C 95.1: Section 3. Definitions, acronyms… exists

***My opinion:*** It is better to have this chapter 3. Where definitions, acronyms, terms and abbreviations to be included as it is done in C 95.1. There, all differences in terms and definitions used by the two documents can be explained, eliminate or uniform.

ICNIRP: **basic restrictions** (BRs) and **reference levels** (RLs)

C 95.1: **dosimetric reference limits** (DRLs) and **exposure reference levels** (ERLs)

***My opinion:*** they are identical, only the terms are different. Better to use the Directive 2013/35/EC terminology for occupational exposure, and the ICNIRP terminology for the general population.

ICNIRP: **occupational exposure**: **EMF-derived threshold**, and **operational threshold**.

C 95.1: **controlled environment**; action levels; two tires – lower and upper

***My opinion:*** the ICNIRP definition for the type of exposure is more clear and understandable. Concerning the two tier levels, the C 95.1 is better and closer to the terms used in Directive 2013/35/EC. Moreover, the definitions in Section 3.1. Definitions in C 95.1 very clear explain that occupational exposure is the same as restricted area.

ICNIRP: electrostimulation **up to 10 MHz – non-thermal effect**

C 95.1: electrostimulation **up to 5 MHz for pulsed fields**

***My opinion:*** 5 MHz for pulsed fields is more acceptable from biophysical point of view but 10 MHz is the boundary between thermal and non-thermal effects in the Directive 2013/35/EC. It is better to be closer to the terms in the EU Directive 2013/35/EC.

ICNIRP: **more information about health effects** above 100 kHz by the scientific literature

C 95.1: **less information about health effects** above 100 kHz by the scientific literature

***My opinion:*** I think that here there is no need so many literature sources to be cited as the C 95.1 approach is better for me.

ICNIRP: very good explanation about the influence of RF exposure to the **body core temperature**, **local temperature** and for possible **rapid temperature rise**

C 95.1: **thermal crossover** at frequencies where electrostimulation occurs, and **thermal effects** for CW exposure at higher frequencies

***My opinion:*** combination of the two explanations will be good.

***In my opinion***, the ICNIRP reference levels are more simple and usable than these in C 95.1. This is better for comparison with the EU Directive 2013/35/EC, and better for use by national control bodies.

On the other hand, the exposure limits for unrestricted areas presented in C 95.1 are more detailed and include local exposures, different modulations of the field, graphs for better understanding, and I like them much more than the ICNIRP Guidelines.

In my opinion, both approaches are good and should be kept. The first one - the C 95.1 approach, for detailed and strict evaluations, and the second one - the ICNIRP approach, for simplifying the procedure of the exposure assessment.

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