Dear Contributor,

Thank you for participating in the public consultation of the ICNIRP draft guidelines.

Please note that it is important that ICNIRP understands exactly the points that you are making. To facilitate our task and avoid misunderstandings, please:

* be concise
* be precise
* provide supporting evidence (reference to publication, etc.) if available and helpful.

**How to complete the comments table:**

Please use 1 row per comment. If required, please add extra rows to the table.

This response document asks you to provide your ‘comment’, your ‘proposed change’, and the ‘context’ to this comment and proposed change. What is meant by these is the following:

**Comment :** A brief statement describing the issue that you have identified (and that you would like ICNIRP to take into account in the final version of the guidelines).

**Proposed Change:** A brief statement describing how you would like the document changed to account for this issue.

**Context:** A brief statement identifying relevant documents in support of your comment and proposed change.

**Please, provide your details below as per the online form and the provision of the privacy policy**

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| --- | --- | --- |
| Last name, first name: GOICEANU, Cristian | Email address: | Affiliation (if relevant): National Institute of Public Health, Romania |
| If you are providing these comments officially **on behalf** of an organization/company, please name this here: organization/company | | |
| ☒ I hereby agree that, for the purpose of transparency, **my identity (last and first names, affiliation and organization where relevant) will be displayed** on the ICNIRP website after the consultation phase along with my comments.  ☐ I want my comments to be displayed anonymously. | | |

|  | **Document**  **(Guidelines, App A,**  **App B)** | **Line Number**  **#** | **Type of comment (General/ Technical/ Editorial)** | **Comment. Proposed change. Context.** |
| --- | --- | --- | --- | --- |
| **1** | Guidelines | Table 1 | Editorial | In Table 1, the quantity “**incident energy density**” was omitted.  An additional row should be inserted to the table to include this quantity (Hinc).  Reference levels (RL) are provided for incident energy density, therefore, this quantity needs to be included in Table 1. |
| **2** | Guidelines | 243 | Technical | The expression “**same** absorbed radiofrequency **power**” might be misleading to the reader.  It would be advisable to change “power” with”energy”: “same absorbed radiofrequency **energy**”.  The two exposure scenarios concerning“steady-state temperature elevations” and “brief temperature elevations” are related to different incident power densities that lead to different absorbed powers. It is the amount of briefly absorbed energy that cannot rapidly dissipate through thermal processes which is of importance in this matter. In this draft guidelines, basic restrictions for brief exposures are based on quantities related to energy: specific absorption and transmitted energy density. |
| **3** | Guidelines | Table 4 | Technical | Below 1.5 MHz, the frequency-dependent RL values for E-field are large. At 100 kHz, the occupational RL is extremely large: 12.2 kV/m. That is much larger than the RL for nerve stimulation in the 3 kHz - 10 MHz frequency band that is 170 V/m (ICNIRP 2010).  Below 10 MHz, RL for E-field should not exceed about 850 V/m rms. Therefore, I propose to change the E-field RL function below 20 MHz from 1220/f to 272/ f1/2 , i.e. 272/sqrt(f). This function gives the following values at 100 kHz, 1 MHz and 20 MHz, respectively: 860 V/m, 272 V/m and 61 V/m. Therefore, the target of not exceeding 850 V/m is well accomplished and the value at 20 MHz remains unchanged (61 V/m).  The large RL values for the E-field below 1 MHz, especially downwards 100 KHz do not fit to the RL values and philosophy of the low-frequency ICNIRP guidelines from 2010. ICNIRP recommended that the low-frequency restrictions be regarded as “instantaneous values which should not be time averaged”. Moreover, considering a reduction factor of 5 for occupational exposure was used to set basic restriction for nerve stimulation, we may conclude that thermal RL for E-field in the 100 kHz - 10 MHz frequency band should not exceed by more than 5 times the RL for nerve stimulation, i.e. 850 V/m. |
| **4** | Guidelines | Table 4 | Technical | Same as in the case above of the RL for occupational exposure, the E-field RL for general public at frequencies below 1 MHz are very large. At 100 kHz, the general public RL is 5.6 kV/m which is much larger than the RL for nerve stimulation in the 3 kHz - 10 MHz frequency band of 83 V/m (ICNIRP 2010).  In the case of general public, considering an additional reduction factor of 2, the RL for E-field should not exceed about 425 V/m rms. Therefore, I propose to change the E-field RL function below 20 MHz from 560/f to 125/ f1/2 , i.e. 125/sqrt(f). This function gives the following values at 100 kHz, 1 MHz and 20 MHz, respectively: 395 V/m, 125 V/m and 28 V/m. Therefore, the target of not exceeding 425 V/m is well accomplished and the value at 20 MHz remains unchanged (28 V/m).  The reasons for the proposed change are similar to the ones presented for occupational exposure. Large RL values for the E-field below 1 MHz do not fit to the RL values and philosophy of the low-frequency ICNIRP guidelines from 2010. Considering the additional reduction factor of 2 for the general public, we may conclude that thermal RL for E-field in the 100 kHz - 10 MHz frequency band should not exceed 425 V/m. |
| **5** | Guidelines | 688 | Editorial | The mention “… reference levels; only one is required” needs some clarification.  Proposed text: “… reference levels; only one is required, **except for near field conditions as specified below**.”  Working with various partners like practitioners in the domains of EMF measurement, occupational health and safety, as well as risk management showed the need of clear and complete mentions in a note in order to help good practice. |
| **6** | Guidelines | 694 - 695 | Editorial | The mention “…; no reference level is provided for reactive near-field exposure conditions” needs a little clarification.  Proposed text: “…; no reference level is provided for reactive near-field exposure conditions, **where compliance with basic restrictions needs to be assessed**.”  Experience with practitioners in the domains of EMF measurement, occupational health and safety, as well as risk management showed that clearly mentioning the steps to be done helps good practice. |
| **7** | Guidelines | Table 5 | Technical | Not clear why in Table 6 that specifies RL only for incident power density, the first frequency range starts with 100 kHz. The note 2 for that row redirects to Table 4 where incident power density got values only for frequencies higher than 30 MHz.  The first frequency range should be changed from 100 kHz - 400 MHz to 30 - 400 MHz. Alternatively, if besides the RL for incident power density, the use of the RL for E-field and H-field from Table 4 is intended, this should be clearly mentioned in note 2.  The proposed change is meant to make the Table 5 clearer to reader and to avoid confusions. |
| **8** | Guidelines | Table 5 | Technical | For frequencies between 400 MHz - 6 GHz, note 3 of Table 5 directs to Table 6 where RL are specified only for incident energy density. But the header of Table 5 specifies RL only for incident power density and not for incident energy density.  To meet the values of 10 W/m2 at 400 MHz and 200 W/m2 at 6 GHz, I propose the following function to specify RL for incident power density between 400 MHz - 6 GHz: 27.5f1.1 , i.e. 27.5\*f^1.1  To meet the values of 10 W/m2 at 400 MHz and 200 W/m2 at 6 GHz, I propose the following function to specify RL for incident power density between 400 MHz - 6 GHz: 27.5f1.1 , i.e. 27.5\*f^1.1 in the case of occupational exposure. For the general public, proposed function is 5.5f1.1 , i.e. 5.5\*f^1.1 that meets the values of 2 W/m2 at 400 MHz and 40 W/m2 at 6 GHz as required by RLs from adjacent frequency ranges. |
| **9** | Guidelines | 709 | Editorial | Current text: 66-30 GHz  To change to : 6-30 GHz  Typing mistake |
| **10** | Guidelines | 724 | Editorial | Current text: “(the 6 minute average reference levels described in Table **5** are to be used)”  Question: Is it “Table **4”**, actually?  It seems that Table 4 describes the needed RL. |
| **11** | Appendix A | Line number | Editorial | Current text: “between dry skin and dry skin”  To change to: “between dry skin and **wet** skin”  Typo |
| **12** | Appendix A | 771 | Editorial | Current text: “reference levels at 100 mA and **20** mA”  To change to: “reference levels at 100 mA and **45** mA”  Typo |
| **13** | Appendix B | 192 - 194 | Technical | Current text: “There is no evidence that the microwave hearing effect can affect health, and so the present Guidelines do not provide a restriction to specifically account for microwave hearing.”  Question: Why not making the distinction between health and sensory effects and using the related restrictions as the Directive 2013/35/EC does? A sensory effect restriction may be exceeded if the health effects restrictions are not exceeded.  Maybe keeping providing a restriction in terms of peak SA for hearing effect, together with setting a reference level for peak Hinc would help occupational risk assessors and managers to implement the right measures ? |