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.

**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: Mann, Simon on behalf of PHE | Email address: | Affiliation (if relevant): Public Health England (PHE) |
| If you are providing these comments officially **on behalf** of an organization/company, please name this here: Public Health England | | |
| 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. | | |

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

| **S.no** | **Document**  **(Guidelines, App A,**  **App B)** | **Line Number**  **#** | **Type of comment (General/ Technical/ Editorial)** | **Comment. Proposed change. Context.** |
| --- | --- | --- | --- | --- |
|  | Guidelines  and Appendices |  | General | We would like to thank and congratulate ICNIRP on providing these proposals for updated guidelines, as well as for seeking input through this consultation process as part of their development. The inclusion of appendices with details of the dosimetry and health rationales for the guidelines is particularly welcome, and provides for increased transparency over the previous guidelines  Timing is a key consideration for the updated guidelines and, while there is no evidence of harm resulting from people not being protected by the current guidelines, there are an increasing number of questions being raised by new dosimetry studies that need to be addressed. Moreover, the imminent widespread use of mm-wave frequencies makes it especially important to update and provide improved justification for the guidelines at those frequencies.  We encourage ICNIRP to address the comments from this consultation carefully and to proceed with the publication of updated guidelines.  The guidelines are needed |
|  | Guidelines  and Appendices | Whole-document | General | Referencing and providing support for the decisions/rationale in the guidelines is a difficult area to strike a balance with. As explained in the documents, the main supporting health reviews are those by WHO and SCENIHR, such that there is no need to replicate those reviews in the document, but there still needs to be a robust and largely self-contained narrative in the guidelines themselves. This narrative is largely in place but it may still be helpful to look again at the places where important aspects of the guidelines and appendices seem to be supported by just one reference.  ICNIRP should consider including more references or supporting explanation at various points in the document. See specific comments for the details |
|  | Guidelines  and Appendices | Whole-document | General | It may be helpful to those who have to consider adopting the new guidelines (and moving away from earlier ones), if a short document summarising the changes to the restrictions, and the reasons for those changes, is provided. Possibly, that could be in a tabular format.  Consider issuing an accompanying document to explain/justify the changes succinctly |
|  | Guidelines  and Appendices | Whole-document | General | As an international guidelines document it would be helpful for ICNIRP to be consistent in its use of units and in particular to use SI units and prefixes as this is the internationally agreed standard system for science. For example the SI "mm" should be used in preference to the non-SI "cm". Similarly it would be helpful to readers to be consistent in the use of unit symbols, rather than a mix of units expressed as symbols and words.  Replace "cm" with "mm" or "m" throughout. Replace "degrees centigrade" (non-standard unit) with "°C". Replace ″Ohm″ with "Ω". If units are written in full, it should be noted that all except Celsius are written in lower case.  To improve consistency and clarity all units should be expressed according to the internationally agreed scientific convention, the Système International d'Unités (SI). |
|  | Guidelines | 17 | General | There is potential for confusion in applying the reference levels in the overlapping frequency regions of the low and high frequency guidelines.  Insert additional advice on application of the reference levels in the 100 kHz – 10 MHz region, for example state that both sets of guidelines are to be applied one after another.  The overlapping reference levels are based on different metrics and therefore differ substantially. In practice it is not clear which reference level to use in this frequency range. |
|  | Guidelines | 35 | Editorial | Suggestion of word change.  Replace "treats" with the word "considers".  The word "treats" inplies that ICNIRP is applying a treatment. |
|  | Guidelines | 104 | General | The term "additional precautionary measures" is potentially confusing.  Suggest change term to "further reduction factors".  This will avoid the misinterpretation of the term precautionary measures , which is poorly defined and therefore subject to different meanings, depending on context. |
|  | Guidelines | 117 | Technical | Missing RF – body interaction phenomenon.  Include the term "absorption".  Apart from other phenonmenons such as reflection and transmission, the EMF is also absorbed, hence it seems necessary to include this effect. |
|  | Guidelines | 129 | Editorial | Spelling.  Change "dialectric" to "dielectric" |
|  | Guidelines | 133-138 | Technical | The text, whilst not technically incorrect, is misleading. It gives the impression that there is a breakpoint in absorption characteristics around 6 GHz. In fact penetration depth changes gradually over a wide range of frequencies, as discussed in Appendix A, and 6 GHz is selected as an arbitrary breakpoint for the purposes of setting guidelines. This should be clearly stated. In addition, greater justification should be provided for the selection of 6 GHz as the breakpoint frequency used in the guidance. The frequency selected has not been too critical in the past as there have been few uses in the vicinity of this frequency. However, new technologies, such as 5G will result in widespread use of similar devices operating both below and above 6 GHz, so it is important to be clear on this issue. (See also comment at lines 380-383).  Include a clear statement that 6 GHz is selected for the purposes of convenience, rather than a reflection of any underlying frequency-specific change in absorption characteristics. In addition, include some justification for the selection of 6 GHz, rather than say 5 GHz or 10 GHz.  Appendix A. |
|  | Guidelines | 156 | Technical | The symbol for the quantity of transmitted energy density (Htr) could be confused with a quantity relating to magnetic field strength.  Consider using a different symbol.  It is understood that in the optical part of the electromagnetic spectrum radiant exposure is given the symbol H, however this link need not be preserved in the RF part of the spectrum, and indeed may cause confusion in the new guidelines. It is suggested that transmitted energy density should be given an alternative symbol. |
|  | Guidelines | 164 | Editorial | Make referencing styles consistent. SCENIHR is not spelt out, but WHO is at the moment.  Write sentence as "review from the World Health Organization that will be released as a Technical Document in the near future (WHO, 2014) and by the European Commission’s Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR, 2015)." Also change format of reference at 991 to become "WHO (2014) ..."  As per comment. |
|  | Guidelines | 184-187 | Editorial | The sentence is long and difficult to follow.  Suggest that it is broken into shorter sentences. |
|  | Guidelines | 194,203,292,302, 391 | General | There are several points in the guidelines where important principles and decisions are supported by only one reference  Add more references or explain why the provided reference is considered to be sufficiently authoritative on its own  See general comment about the need to support and justify the guidelines as robustly as possible based on the evidence that is available |
|  | Guidelines | 200 | Editorial | Suggest adding reference to Appendix B.  Use the words "also see Appendix B" in the brackets. |
|  | Guidelines | 201-215 | General | Membrane permeabilisation requires extremely strong internal field strengths that are well in excess of those that would cause thermal effects. It could never be a limiting factor and there is therefore no need to consider it in the guidelines document.  Delete this section from the guidelines document. If it is necessary to discuss it at all, it should be restricted to Appendix B.  Appendix B. |
|  | Guidelines | 256 | Editorial | Suggested word change.  "readily" should be replaced with "rapidly". |
|  | Guidelines | 350-353 | General | It is not necessary to describe reversible male infertility as insufficient to impair health. Exposures of sufficient magnitude to induce reversible impairment of male fertility are most likely to occur in an occupational setting. Occupational exposures are likely to be repeated on a regular basis. Hence, whilst the effect of a single exposure may be reversible given sufficient recovery time, repeated occupational exposures would not allow time for recovery and the effect would be a decrease in male fertility that would persist throughout the employment. Male infertility is a recognised adverse health effect.  The persistent reduction in male fertility that would result from repeated occupational exposures should be recognised and the proposed guidelines revised to prevent this. |
|  | Guidelines | 380-383 | Technical | It may be helpful to provide this explanation of the rationale for choosing 6 GHz as a break-point earlier in the document, e.g. around lines 133-138.  Consider overall organization of the narrative around selection of the 6 GHz break-point throughout the document. Cross-referencing at lines 133-138 to lines 380 to 383 may help |
|  | Guidelines | 394 | Editorial | Improve precision of text  Change "value" to "threshold" (to which the margin will be applied later on for basic restrictions/reference levels). |
|  | Guidelines | 397, 400 | Technical | The phrase "some types of exposure" should be given further explanation perhaps by means of example. The same comment applies at Line 400. |
|  | Guidelines | 436 | Editorial | Suggested change for the word "relation".  Replace with "relationship".  Better use of English. |
|  | Guidelines | 442-445 | General | It would be helpful here to provide supporting references . |
|  | Guidelines | 455 | Editorial | Text adjustment.  Suggest using another word for "modification", or expansion of what this means.  The word "modification" is unclear and the sentence regarding modification of blood perfusion needs clarification. It probably refers to changes in vasculature affecting blood flow. |
|  | Guidelines | 468-470 | General | The text makes an important assertion that should be ideally be backed-up with evidence.  Provide more explanation and/or references as to justify why these two aspects of uncertainty are considered to have reduced |
|  | Guidelines | 522-526 | Editorial | This is a long and complicated sentence  Consider breaking-up the sentence to make the text easier to understand  Explain the context of your comment. |
|  | Guidelines | 537 | General | Change "value" to "threshold". Sometimes it seems "threshold" is referred as "value" or 'level' or "limit". "Threshold" is when the health effect is observed and no margins have been applied (e.g. factor of 2 and 10 for occupational and public respectively), while exposure limit values refer to basic restrictions and thus when a margin has already been applied. If this is the case then suggest using the same word throughout. |
|  | Guidelines | 564 | Editorial | Repetition of text.  Removal of repeated text.  Duplicated text in lines 582-585. |
|  | Guidelines | 567-569 | Technical | The suggestion that workers should be provided with a means of verifying their core body temperature is inappropriate. This implies risk control at the individual level and as a matter of personal responsibility. This is contrary to accepted principles of risk mitigation, which require an established hierarchy of risk control measures to be implemented, with priority clearly given to collective protection over individual protection.  Remove the suggestion of workers verifying core body temperature and replace with recommendation for employers to undertake a proper risk assesment that accounts for all other factors that can affect core body temperature, followed by implementation of appropriate and effective risk mitigation. |
|  | Guidelines | 597 | Technical | The equivalent incident plane wave power density has been mentioned above but there hasn't been any explanation about what is meant by "equivalent". Is it assumed that the reader knows? |
|  | Guidelines | 610 | General | It is noted that the new reference levels have been relaxed in the 100 kHz to 20 MHz range when comparing with those in the 1998 guidelines.  Include a clear statement to explain why the levels are now more relaxed in this range.  For instance does this result from changes in the basic restrictions and/or refinements in the dosimetric models? Has dosimetric uncertainty reduced so that smaller reduction factors can be accommodated now in developing the reference levels? |
|  | Guidelines | 623-625 | General | It would be helpful to provide supporting references |
|  | Guidelines | 643 | Editorial | Word addition.  Add the word "distances" after "as a rough guide". |
|  | Guidelines | 648-649 | General | Clarify what is meant by "the compliance community".  Change "compliance community" to "technical standards bodies and users". |
|  | Guidelines | 656 | General | How small are the differences?  Delete "small" and clarify meaning.  Small is subjective, the request is to explain what judgements are being made here more clearly. Does it even matter whether the difference is small or large if there is no health effect? |
|  | Guidelines | 664-667 | General | It would be helpful to provide references here. |
|  | Guidelines | 675-678 | General | Repetition from previous paragraph(lines 656 to 660).  Bring the text together and avoid repetition. |
|  | Guidelines | 683-695 | Technical | The footnotes to table 4 are confusing. Note 3 indicates that for frequencies up to 2 GHz it is only necessary to demonstrate compliance with one reference level. Note # then clarifies that for freqencies up to 400 MHz for reactive and radiative near field exposures it will be necessary to demonstrate compliance with the reference levels for both E- and H-fields. In practice, almost all occupational exposures that are assessed are likely to occur in the reactive and radiative near fields, but it is likely that the requirement will be widely misunderstood with assessment made against only one reference level.  The footnotes should be redrafted to make the requirements for near field assessments much clearer. |
|  | Guidelines | 752 | Editorial | Additional words are required.  Insert "such as those that are".  Additional words required. |
|  | Guidelines | 899 | Editorial | Line space required.  Insert line between references. |

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|  | Appendix A | 38 | Editorial | r is actually a vector and the increment should be a volume  E\_ave = sqrt( 1/V int\_V{ |E(x,y,z)|^2 }dx\*dy\*dz) |
|  | Appendix A | 65 | Technical | "Weight" is the incorrect technical term.  Replace "weight" with "mass" here and elsewhere in the three documents.  Nothing is gained in terms of clarity by using the wrong term. |
|  | Appendix A | 67-70 | Editorial | It is not actually divided by 10 grams but by the weight of a 2.15^3 cm^3 cube of tissue, so wording above perhaps should be along the lines of:  "SAR10g is defined as the total power absorbed in a 10 g cubic volume divided by its mass:  [...]  Note the denominator is not exactly equal to 10g, as a 10 g volume [...] defined as [..]." |
|  | Appendix A | 76 | Editorial | "0.4 mm at 6 GHz" is inconsistent with Table 3.1 which says penetration depth is 0.23mm at 300 GHz.  "0.2 mm at 6 GHz". |
|  | Appendix A | 85 | Technical | Shouldn't the RHS of this equation be a closed surface integral if we are using Poynting vector? |
|  | Appendix A | 87 | Editorial | "with the normal direction of the integral area 𝐴" is confusing.  "with its direction normal to the integral area". |
|  | Appendix A | 95 | Technical | Aren't E and H here the unperturbed fields and the ones in Eqn 2.10 the perturbed/internal ones? If this is the case then maybe best to specify this? |
|  | Appendix A | 99 | Editorial | The main document should refer to this appendix when first mentioning the equivalent incident power density. |
|  | Appendix A | 102 | Editorial | It would be useful to have some of the information from p.18 mentioned here.  Add the sentence of p 18 here:  "The reflection coefficient is derived from the electrical properties of the surface tissues, shape of the body surface, incident angle and polarization.” (line 732). |
|  | Appendix A | 113 | Editorial | Superfluous words.  Delete "at the".  Remove otherwise sentence doesn’t make sense. |
|  | Appendix A | 164-165 | Editorial | Revision of wording.  Write as"...naked body exposed to a plane wave at 65 ..."  Otherwise current sentence doesn’t make sense. |
|  | Appendix A | 207 | Technical | Clause after semicolon seems to be about metabolic heat output, not imposed SAR.  Write as "...adult; greater metabolic heat output is required to ...". |
|  | Appendix A | 243 | Editorial | "pregnant woman" should be "pregnant worker". |
|  | Appendix A | 250 | Editorial | Improve grammar.  Replace "occupation" with "occupational".  Amend as per comment. |
|  | Appendix A | 266 | General | Suggested word change.  Replace "sweating" with "physiological state".  Sweating alone may not be responsible, maybe better to say physiological state to include conditions of increased heart rate etc. | |
|  | Appendix A | 280 | Editorial | Improve grammar.  Replace "are" with "is" at beginning of line.  Amend as per comment. | |
|  | Appendix A | 312, 370 | Editorial | Suggest using abbrevation.  Replace gram with g.  For consistenty with other areas of the document. | |
|  | Appendix A | 341 | Editorial | "(i.e. 0.1 [°C kg W-1] x 2 [W] = 0.2 [°C])" should be  "(i.e. 0.1 [°C kg W-1] x 2 [W/kg] = 0.2 [°C])" |
|  | Appendix A | 359 | Editorial | Wouldn't *z* rather than *x* be consistent with the definition at the beginning of the document? |
|  | Appendix A | 370 | Technical | Wrong unit.  Change "mm" to "cm" after "2.15".  To align with rest of document and the need for 10 g averaging mass. |
|  | Appendix A | 391 | Editorial | "30-300 GHz"  ">30 GHz"  Suggested change. |
|  | Appendix A | 420 | Technical | Address confused meaning.  Replace first instance of "exposure" with "heating".  Intended meaning of sentence not entirely clear. Make this change, if appropriate. |
|  | Appendix A | 426 | Editorial | Suggested change for consistency.  Change "6 minute" to "6-minute". Search document and amend any other instances (e.g. lines 460, 480, 488).  Amend as per comment. |
|  | Appendix A | 444 | Technical | Is the fact that the head was "Japanese" relevant? If so, please explain why, or  Delete "Japanese".  The ethnic/racial background of the voxel phantoms used is not generally provided in the document. |
|  | Appendix A | 445 | Technical | Meaning of "dispersive" not clear in this context.  Not able to suggest change as Kodera reference not published yet.  Reconsider wording. |
|  | Appendix A | 446 | General | The guidelines here are relying on unpublished data (Kodera), which presents a challenge to reviewers of the guidelines.  Consider carefully here and elsewhere, whether the references provide sufficient support.  Explain the context of your comment. |
|  | Appendix A | 456 | General | For a document that may be used for a decade or more, it is best not to use the word "recent" to describe studies.  Delete "recent" here. Check for other instances elsewhere in the document and amend similarly.  The study will not be "recent" for very long, in the context of the guidelines themselves. |
|  | Appendix A | 456 | Editorial | Grammatical change.  Change "show" to "shows".  Amend as per comment. |
|  | Appendix A | 457 | Technical | Syntax problem as one cannot protect a temperature elevation.  Possibly write as "... temperature elevation in Type-2 tissue (i.e. the brain) is kept below 1 degree C by complying with the SA restriction for the skin ...".  Suggested amendment, but need to consider intended meaning of sentence. |
|  | Appendix A | 460 | Technical | Why specify "cumulative"?  Remove "cumulative". |
|  | Appendix A | 460 | Editorial | Is "basic restriction" missing after the word "SAR"? |
|  | Appendix A | 471 | Editorial | Avoid use of "significant" in this context.  Suggest replacing "not significant" with "is negligible". |
|  | Appendix A | 490 | Editorial | Is "basic restriction" missing after the word "transmitted energy density"? |
|  | Appendix A | 522 | Editorial | Improve grammar.  Insert "a" before "uniform".  Amend as per comment. |
|  | Appendix A | 532 | Editorial | Suggestion to use symbol.  Replace ohm with symbol Ω.  To make consistent with other areas of the guidelines. |
|  | Appendix A | 538 & 539 | Editorial | Improve grammar.  Write as " ...characteristics as a plane wave, which generally appears far away from radiation sources, and if there is no reflecting object to ...".  Amend as per comment. |
|  | Appendix A | 544 | Editorial | Additional letter required.  Change "dimension" to "dimensions".  Use of English. |
|  | Appendix A | 554 | Technical | Paragraph should consider the measurement situation where the wave impedance is < 377 ohm.  Append the following sentence to paragraph "Conversely, if the H-field is dominant (E/H < 377 ohm), only the H-field reference level needs to be met".  It would be useful to explain the situation for making measurements around inductive sources. |
|  | Appendix A | 564 to 568 | Technical | Modelling by Dimbylow showed that, with a person stood on a conducting ground plane and exposed to a plane wave of field strength equal to the reference level in the 1998 guidelines, the localised SAR in the ankle could be exceeded for frequencies between 20 and 60 MHz. Thus, the limb current reference level had to be complied with in addition to the field strength reference levels in this frequency range to be sure the guidelines were complied with. However, a contiguous averaging mass was used in the work, rather than the cubic mass used in these updated guidelines. Nevertheless, it would be a good idea to check very carefully whether the change in averaging mass specification has removed the need to consider limb current if the E & H reference levels are complied with.  Check carefully – spreadsheets and graphs based on the Dimbylow data can be provided, if requested. |
|  | Appendix A | 574 | Editorial | Improve grammar.  Write "whole body" as "whole-body" here. Search and make changes elsewhere in the document to ensure consistency.  Amend as per comment. |
|  | Appendix A | 574 | Editorial | Improve grammar.  Write "...to the plane wave" as "...to plane waves...". |
|  | Appendix A | 583-585 | Technical | Same question as at lines 564 to 568 about conservativeness of E/H reference levels over ankle SAR between 20-60 MHz.  Check carefully. |
|  | Appendix A | 602 | Editorial | Improve grammar.  Write "... at the field strength of reference level..." as "...to a field strength equal to the reference level..."  Amend as per comment. |
|  | Appendix A | 613 | Editorial | Avoid the word "recent" for the reason explained earlier.  Delete "recent".  Amend as per comment. |
|  | Appendix A | 635 | Technical | Use correct quantity.  Change "weight" to "mass". Also change at lines 642 and 643.  Mass is the correct term. |
|  | Appendix A | 636 | Technical | Use correct quanity.  Write as "...SAR in low body mass index (BMI) adults can ...".  BMI is the correct term. |
|  | Appendix A | 640 | General | Suggested revision of wording.  Change "her/her" to "the".  Amend as per comment. |
|  | Appendix A | 642 | Editorial | Improve grammar.  Delete "the" before "pregnant" and insert commas at the beginning and end of the following clause: "whose mass is heavier".  Amend as per comment. |
|  | Appendix A | 646 | Editorial | Improve grammar.  Write as "...the same as, or lower than, that of the non-pregnant...".  Amend as per comment. |
|  | Appendix A | 648 | Editorial | Suggestion of word change.  Replace "women" with "woman".  Better use of English. |
|  | Appendix A | 650 | Editorial | Improve grammar.  Insert "for" before "the mother".  Amend as per comment. |
|  | Appendix A | 651 | Editorial | Additional letter required.  Change "trimester" to "trimesters".  Better use of English. |
|  | Appendix A | 670 | Editorial | There was also a mention of 45%.  Replace 40% with 45%. |
|  | Appendix A | 672 | Technical | What are the "internationally standardized child models"?  Provide a reference or explain where these can be found.  Amend as per comment. |
|  | Appendix A | 677 | Technical | Unclear –"dry" repeated when one instance should probably be "wet".  Change one instance of "dry" to "wet".  Amend as per comment. |
|  | Appendix A | 681 | Editorial | Improve grammar.  Change "3 year" to "3-year". Check for similar instances elsewhere and amend.  Amend as per comment. |
|  | Appendix A | 682 | Editorial | Improve grammar.  Insert "that" before "in an adult female".  Amend as per comment. |
|  | Appendix A | 690 | Editorial | Reference usage.  Include both references in full.  References listed incorrectly. |
|  | Appendix A | 691 | Technical | Unclear to use dB here when percent is generally used in the document. Readers may be less familiar with dB than %.  Write in percentage terms rather than dB.  Simplify to give %, not dB. |
|  | Appendix A | 693 | Editorial | Improve grammar.  Insert "at" before "other frequencies".  Amend as per comment. |
|  | Appendix A | 706 | Editorial | It would be helpful to give a cross reference here to Equation 3.2.  End sentence "... deeper regions (see Eqn 3.2).".  Amend as per comment. |
|  | Appendix A | 716 | Technical | Use correct terminology.  Insert "area" after "surface".  Amend as per comment. |
|  | Appendix A | 732-737 | Technical | Confusing text – line 734 states that maximum transmittance is USUALLY at normal incidence, whereas line 736 seems to remove the "USUALLY" caveat. What is correct?  Needs clarification. Also need to check earlier mention of Brewster angle at line 113 and ensure consistency/clarity of with this text  Check and update text. |
|  | Appendix A | 753 | Editorial | Improve grammar – inappropriate use of optical radiation terminology.  Change "focuses" to "concentrates", or "flows preferentially".  As per comment. |
|  | Appendix A | 762 | Technical | Need to define *J* as current density. |

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|  | Appendix B | 98 | Editorial | Word replacement.  Replace "relation" with "relationship".  Use of English. |
|  | Appendix B | 142 | Editorial | Re-ordering of sentence.  Alter to read "functions such as".  Use of English. |
|  | Appendix B | 161-176 | Editorial | Suggest text to be amended and moved.  Paragraph should be moved from Section 2.3 to Section 3.  Text is currently in a section on other brain physiology and related functions but it would be better placed within the auditory, vestibular and ocular function section since it is about the eye.  Also, the section from 168-173 needs to be re-worded. A suggestion might be...However, rabbits can be a good model for damage to superficial structures of the eye (e.g., give example) at higher frequencies (30-300 GHz), due to the shape of the facial structure. The baseline temperature of the anterior portion of the eye (including the cornea) is relatively low (compared with the posterior portion of the eye that would be exposed at lower frequencies), very high exposure levels are required to cause harm superficially. |
|  | Appendix B | 162 | Editorial | Additional letter required.  Change "cataract" to "cataracts".  Use of English. |
|  | Appendix B | 164 | Editorial | Suggestion to use symbol.  Replace "degrees centigrade" with"oC".  To make consistent with other areas of the guidelines. |
|  | Appendix B | 177-180 | General | The possibility of eye damage, particuarly cataracts, from thermal exposures of the eyes has been long accepted and ophthalmic examination is part (often the only significant part) of most medical examinations following potential overexposure. If ICNIRP is proposing to change its advice in this area then there needs to be clear and unambiguous evidence presented in support of the change, including an explanation of why previous advice is now thought to have been incorrect.  Provide clear and unambiguous evidence to justify why ophthalmic injury is now thought to be unlikely and an explanation of why previous advice is now thought to be incorrect. |
|  | Appendix B | 178 | Editorial | Suggested sentence adjustment.  Alter sentence to read "impair human health".  Use of English. |
|  | Appendix B | 183 | Editorial | Suggested sentence adjustment.  Sentence to read... pathology of "the auditory, vestibular and ocular systems".  The current wording of "these" systems is ambigious. |
|  | Appendix B | 189-194 | Technical | The evidence for a threshold for the microwave hearing effect is presented so that it implies that the auditory effect is barely audible and consequently not significant. This is incorrect. By definition the threshold for the effect constitute the point at which it is barely audible, but this does not mean it can be assumed that exposure at higher pulse energies would similarly be barely audible. In fact there is considerable anecdotal evidence from exposure of military personnel that the effect is clearly audible even in the presence of other noise, such as strong winds. Such effects can cause annoyance and distraction.  The text should be amended to distinguish between threshold data and the magnitude of the effect that will occur in typical occupational settings. |
|  | Appendix B | 238 | Editorial | Suggested sentence adjustment.  Suggested wording might be..."autophagy in the absence of apoptosis in neurons", rather than "which was not accompanied by apoptosis".  Use of English. |
|  | Appendix B | 242-243 | Editorial | Suggested text adjustment.  Add "s" to the end of the disease names,so change to Alzheimer’s disease, dementias, and Parkinson’s disease.  Accepted use of disease terminology. |
|  | Appendix B | 245 | Editorial | Suggested text adjustment.  Rather than "Results for multiple sclerosis", it is technically "Risks for....".  Clarification of words. |
|  | Appendix B | 252 | Editorial | Suggested text adjustment.  Change "too much heat" to "an increased temperature".  Use of English. |
|  | Appendix B | 279 | Editorial | Suggested text adjustment.  Remove "thus their thermoregulatory systems" and adjust sentence to read ...humans are more-efficient thermoregulators than rodents, and can deal effectively with "increased temperature resulting from" higher exposure levels than rodents. Taberski et al. (2014) reported that in hamsters, no body core temperature elevation is seen at 4 W kg-1, with the only detectable **health** effect **being** a reduction **in** food intake (which is consistent with "observations of" reduced eating in humans when warmer). However the last word "warmer" needs clarification as it is not clear whether you mean enviromental temperature or body core temperature.  Clarification. |
|  | Appendix B | 346-367 | General | Emphasis on NTP study and Falcioni 2018 study.  Perhaps less discussion on the NTP and Falcioni studies, and draw in other animal literature as a balance.  There seems to be too much emphasis on the NTP and Falcioni studies given the recent ICNIRP note on recent animal carcinogenesis studies, and draw in other animal literature as a balance. In addition, the focus of the discussion is around cardiac schwannoma but there is no mention of glioma. |