

Concerning argumentation thermal/non-thermal effects

In line 122-128 of the main paper the conversion from radiation energy via translational and rotational energy into heat is sketched.

Then in line 168 temperature elevation is called a primary effect of radio frequency radiation. Further on in line 188-189 it is stated that evidence from low level ie. non-thermal effects is also taken into account even if the mechanisms have not been defined yet.

In chapter 4.3.3. (p. 6-10) and further on in the deduction of the SAR values only different temperature effects are addressed.

I do want to point out problems in this line of argumentation and suggest some idea for your consideration how to come by:

First of all the path of conversion from radiation energy into heat is not just via kinetic energy, there also is potential energy and chemical energy.

But even with the shortened conversion path stated up to now in the paper, one should not call temperature elevation a primary effect of radiofrequency radiation, it rather is a secondary effect.

Only one sentence in the paper is dedicated to non-thermal effects and it is not convincing, because further on there is no more discussion of such effects whatsoever. Given the fact, that critics always point out that those effects are forgotten altogether one should take more care to give a good reason of why such effects are usually already implied:

So please consider the following sketch of possible argumentation in your further discussion of this aspect:

Given that fact, that the conversion from radiation energy into heat also is via the path chemical energy, the chemical reactions imply various possibilities for physiological resp. biological effects. This means that either: an effect can be induced, which was due to such low level energy transfer that later on no temperature elevation is recorded or such an effect can be induced due to a higher energy transfer so that after the chemical reaction there still is enough energy to dissipate that also a temperature elevation can be recorded.

As far as I know the effects which happen at such low radiation levels that later on no temperature elevation can be recorded are not really robust. Should there be some, they have to be discussed, if not, they can be discarded.

If however a temperature elevation is recorded and there are effects, then those effects comprise the effect of heat i.e. the thermal effect as well as the effect of the foregoing chemical energy path which leads to physiological/biological effects - those per definition are non-thermal.