

Comment on the energy of radio-frequency radiation

Prepared by

Michael Peleg, ORCID 0000-0002-7520-8741, peleg.michael@gmail.com

In the past, a frequently used argument claimed that radio frequency (RF) radiation is too weak to cause biological harm because the energy of a single radio frequency photon is too low. This argument is mostly irrelevant to discussion about health effects because:

1. A single RF photon changes the state of an atom in an atomic clock, no one can guarantee that similar effects cannot happen in complex biological systems.
2. Most of uses of RF energy involve many photons. For example, cellular communication uses thousands to millions of photons to transmit a single bit of information and cellular transmission involves, frequently, millions of bits per second. No one can guarantee that many photons will not induce a biological change jointly.
3. From a thermodynamic perspective, the RF radiation is extremely strong, its effective temperature is immense. This is proved in the two attached files, one in form of a scientific paper, the second in the form of popular presentation. Both require very basic understanding of undergraduate thermodynamics.

Reference to the paper:

M. Peleg: A Thermodynamic Perspective on the Interaction of Radio Frequency Radiation with Living Tissue, *International Journal of Biophysics*, Volume 2, Issue 1, April 2012, DOI: [10.5923/j.biophysics.20120201.01](https://doi.org/10.5923/j.biophysics.20120201.01)
<http://www.sapub.org/global/showpaperpdf.aspx?doi=10.5923.j.biophysics.20120201.01>