



Cooking an egg by two mobile phones: Hoax

Some articles have been circulating on the internet claiming that it is possible to cook an egg using the electromagnetic energy from one or more transmitting mobile phones^{1,2}. Such articles are a hoax. The website of webzine "Gelf Magazine"³ shows the hoax was started by Charles Ivermee of UK in 2000. When asked why he put the article on the internet, Ivermee replied that "It was 6 years ago but I seem to recall that there was a lot of concern about people's brains getting fried and being from a radio/electronics background I found it all rather silly...So I thought I'd add to the silliness."

Even if we did not have this acknowledgment, the claim that RF energy from two mobile phones can cook an egg in 60 minutes cannot be true as it is impossible for the egg's temperature to rise to a level that will cook the egg. We can demonstrate this as follows: even if you assume that each mobile phone is emitting RF energy at its maximum average power of 0.25 W (based on a peak power of 2 W per phone) for 60 minutes; and even if the total power ($2 \times 0.25 \text{ W} = 0.5 \text{ W}$) of both phones was completely absorbed by the egg (assuming it weighs 50 g), then the result would be a maximum temperature rise after 60 minutes of only 13 °C. Even if the egg was at room temperature before starting the experiment, the result would still be far below the temperature actually needed to cook an egg (which is approx. 65 - 70 °C)^{4, 5}.

In reality, an egg placed between two phones would have a much lower temperature rise because the egg is not thermally insulated and it would only absorb a small portion of the energy emitted. In October 2007 the Australian Centre for RF Bioeffects Research (ACRBR) conducted an experiment to de-bunk the myth that cell phone exposure can cook an egg. The video can be downloaded from the internet.⁶

Taking all of this into account it is obvious that the story is a hoax. For further information debunking this hoax you may also refer to <http://www.snopes.com/science/cookegg.asp>.

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¹ <http://www.wymsey.co.uk/wymchron/cooking.htm>

² <http://www.kp.ru/daily/23694.4/52233/print/> (in Russian)

³ http://www.gelfmagazine.com/mt/archives/how_to_cook_an_egg_and_create_a_viral_sensation.html

⁴ C.D.H. Williams, "The Science of Boiling an Egg," <http://newton.ex.ac.uk/teaching/CDHW/egg/>

⁵ P Roura, J Fort and J Saurina, "How long does it take to boil an egg? A simple approach to the energy transfer equation," *European Journal of Physics*, vol. 21, page 95–100, 2000.

⁶ <http://www.acrbr.org.au/ScienceWeek.aspx>.