

UK and international regulations and guidelines

The current ICNIRP Standard is based upon research examining the threshold for thermal (heat) damage to tissue (specifically, the amount of radiation that would cause cataract development). The power density necessary to produce cataracts is considered to be approximately 100 mw/cm² to which a safety factor of 10 has been applied. Thus, a maximum permissible level of 10 mW/cm² was established, a simplistic calculation, with no relevance for non-thermal effects.

Exposure places and bans

A study (Hillert [2006](#)) looking at the different factors that need to be considered when designing research into mobile phone usage, suggested that one of the important factors is that high mobile phone output power is more frequent in **rural areas**, see Hallberg's research ([2007](#)).

Russia, a country that has put in a lot of time and effort into researching the possible health effects, has far more precautionary guidelines on the subject than we have in the UK. The RNCNIRP (Russian National Committee on Non-Ionizing Radiation Protection) gives the following advice (2002):

1. Children under the age of 18; pregnant women; people with pacemakers should not use mobile phones.
2. Those people suffering from neurasthenia, psychopathy, sleep disorders, memory loss, epilepsy, etc should not use mobile phones.
3. Calls should be limited to 3 minutes, and 15 minutes should be allowed to elapse before a further call is made. Headsets and hands-free systems are encouraged. They say that retailers should include the following information at the point of sale a) all of the above recommendations with regard to restrictions on use b) all relevant health and epidemiological data on mobile phones, together with the radiation exposure levels associated with the phone and the name of the measurement lab.

In September 2007, the Kamataka government in **India** banned the sale of mobile phones to children under 16, and the use of the phones in schools and colleges. The Health Minister said parents should discourage the use of mobile phones by under-age children at home also, because of health effects, including brain cancer. Professor Girish Kumar of IIT-Bombay' department of electrical engineering warns against excessive use of cell phones, especially by children, due to increased risk of cancer, brain tumours and other health hazards.

France's health ministry warned parents to prevent children using mobile phones when reception is poor or during high-speed travel. They advise limiting the use of mobiles overall, and recommend that children and pregnant women limit their mobile phone use and use land lines wherever possible. France is introducing legislation to ban advertising of mobile phones to under-14s and their use in nurseries and primary schools.

Japanese research by Dr Hondou, reported in New Scientist in May 2002, claimed that exposure to RF radiation in **trains** could theoretically exceed ICNIRP levels (over 40 V/m) due to metal train bodies making "hot spots" if many people were using their phones, when the train is not very full. The level can exceed 6 V/m in the heads of passengers who are sitting next to, or behind, a phone user (Hondou, 2002).

Now WiFi is also available for laptop computer use in **trains**, general exposure is increasing. We believe it is a very antisocial practice to radiate non-users anyway, and phones (or internet connected laptops) should not be used in trains, except in an emergency.

In Graz, **Austria**, mobile phones are supposed to be switched into 'silent' mode in public transport. Although not illegal to use a phone, the drivers of the bus can ask you to leave the vehicle if you do so (news report June 2008).

In November 2008, Paul Magnette, the **Belgian** minister responsible for consumer protection, refused to authorise the marketing of mobile phones intended for children. *"With this type of phone children can actually be exposed to mechanical dangers or the risks of radiation. In fact scientists all recognise that it is necessary to limit children's exposure to cumulative amounts of radiation, even if not much is yet known about how sensitive they are to radio waves."*

The Belgian Foundation Against Cancer warns that intensive use of a mobile phone can increase the risk of contracting cancer. They suggest that children younger than 12 should not use a mobile phone, and that using a mobile phone as an alarm clock is not desirable because the phone is in close proximity to the head the entire night. The Cancer Foundation also strongly advises people not to use a mobile phone in the car or a train.

The European Parliament Commission on the Environment, Public Health and Food Safety published, in February 2009, a report concerning the effects on human health of EMFs. It explained the reasons for its resolutions that the human body has a natural capacity to emit electrical fields. The electrical activity of the heart as well as that of the brain can be recorded by an electrocardiogram and an electroencephalogram. They questioned whether this natural electrical activity could interact with the EMFs generated by human activity. The resolutions included:- to lower 1999 exposure guidelines; to set up a dialogue between industry and groups to keep children and the sick away from phone masts; to investigate the biocompatibility between the radiation and human natural fields; to condemn marketing mobile phones to children; to look at WiFi and cordless phones in the home as they expose people to emissions.

The use of phones can affect the general public in many ways. **Hospitals** generally require mobile phones to be switched off in order not to affect the operation of some of the highly sensitive life support and other machines used in medical treatment (Hietanen [2007](#), Hans [2008](#)) including ECG machines (Baranchuk [2009](#)).

In the **USA**, various places and organisations have made suggestions as to mobile phone use. State Representative for Maine, Andrea Boland, said she is convinced from what she has read that the radiation from cellphones increases the risk of brain cancer when held at the ear, especially in children under 18. She is pushing for Maine to be one of the first US States to make mobile phones display health warnings about brain cancer, in a similar way to the warnings on packets of cigarettes.

In San Francisco, Mayor Gavin Newsom plans to introduce a measure to make mobile phone packages display the amount of radiation a phone emits.

A memo sent by Dr Ronald Herberman, director of the University of Pittsburgh Cancer Institute, supported by Devra Lee Davis, the director of the University's centre for environmental oncology, said children should use mobile phones only for emergencies because their brains are still developing. Herberman also sent a memo to staff members warning them to limit their phone use and to use hands-free sets in light of *"a growing body of literature linking long-term cellphone use to possible adverse health effects including cancer."*

Remember that you are unlikely to win compensation for ill-health damage caused by mobile phone use - the powerful vested interests have strongly fought every potential compensation claim to date. Sensible people should think hard and long before making or taking that mobile call. [www.emfacts.com/papers/children_mobiles.pdf]

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