

Date : Thu, 6 Oct 2005  
From : Olle Johansson [olle.johansson@ki.se](mailto:olle.johansson@ki.se)  
Subject :Re: WLAN in schools

Dear Concerned Parent/Governor/Teacher

I have read with great interest your letter below, and I certainly agree with your corrections. To begin with, one can not help wondering why children should need wireless networks. My experience is that they need knowledge, support, confirmation, help, understanding, tenderness and love under the guidance of responsible and mature grown-ups in the form of teachers and parents.

One may think that the WLAN computer networks only use 'low power radio transmitters', but compared to the natural background fields, in which living cells have developed during the last 3.8 billion years, these electromagnetic fields are actually very, very strong. It is, thus, wrong to believe that evolution has furnished us with a safety protection shielding layer against such WLAN signals, it has not.

Regarding the 'potential educational benefits', my experience is that such have never been properly evaluated and definitely not proven.

If it is 'impossible to give absolute guarantees of safety when dealing with new technology', or if a definite risk can not be calculated, such technologies must be reconsidered. Also, do not forget the new EU recommendations about the 'producer's legal responsibility', i.e. in this case – since the school is producing the teaching – one must hold the school fully responsible for any negative, short- or long-term, effects. Lack of knowledge can not be used as an excuse to use a certain technology!

'Radio waves have been used for over 100 years'. This is not true and, as you point out dear Parent, we are dealing with amplitude-modulated or pulsed microwaves in the 2.45 GHz range (or nearby), in a form which has only been around to any extent for the last 10-15 years.

'At present there is no scientific evidence of any harm from such systems'. This is not true, e.g. in my research group at the Karolinska Institute we have published a series of papers dealing with FM radio and cancer, mobile telephony and cancer, mobile telephony and long-term sickness, general health, the impairment electro hypersensitivity, etc. See, for instance, the following recent papers:

Hallberg Ö, Johansson O, 'Melanoma incidence and frequency modulation (FM) broadcasting', *Arch Environ Health* 2002; 57: 32-40

Hallberg Ö, Johansson O, 'Cancer trends during the 20th century', *J Aust Coll Nutr & Env Med* 2002; 21: 3-8

Johansson O, 'Screen dermatitis and electro sensitivity: Preliminary observations in the human skin', In: *Electromagnetic Environments and Health in Buildings* (ed. D Clements-Croome), Spon Press, London & New York, 2004, pp 377-389

Hallberg Ö, Johansson O, 'Malignant melanoma of the skin – not a sunshine story!', *Med Sci Monit* 2004; 10: CR336-340

Johansson O, 'Electro hypersensitivity: Observations in the human skin of a physical impairment', Symposium on 'Electrical Sensitivity in Human Beings', Royal Society of Medicine, London, U.K., September 11, 2004 (abstr.)

Hallberg Ö, Johansson O, 'Does GSM 1800 MHz affect the public health in Sweden?', In: Proceedings of the 3rd International Workshop 'Biological Effects of EMFs', Kos, Greece, October 4-8, 2004

Johansson O, 'Electro hypersensitivity: Observations in the human skin of a physical impairment', WHO Workshop on 'Electrical Hypersensitivity', Prague, Czech Republic, October 25-27, 2004 (abstr.)

Hallberg Ö, Johansson O, '1997 – A curious year in Sweden', *Eur J Cancer Prev* 2004; 13: 535-538

Hallberg Ö, Johansson O, 'Long-term sickness and mobile phone use', *J Aust Coll Nutr & Env Med*, 2004; 23: 11-12

Hallberg Ö, Johansson O, 'Mobile handset output power and health', *Electromag Biol Med* 2004; 23: 229-239

Hallberg Ö, Johansson O, 'FM broadcasting exposure time and malignant melanoma incidence', *Electromag Biol Med* 2005; 24: 1-8

Hallberg Ö, Johansson O, 'Alzheimer mortality – why does it increase so fast in sparsely populated areas?', *Europ Biol Bioelectromag* 2005, in press

Finally, dear Parent , you state yourself that 'There are many adverse health effects reported in the scientific literature as well as clusters of cancer around phone masts.' As a matter of fact, the number of scientific articles (in the thousands) is such, that one rightfully has to ask: When is it enough? Do we not know enough already about microwaves and biological and medical effects, enough to actually say 'STOP'?!

With my very best regards

Yours sincerely Olle Johansson

(Olle Johansson, Assoc. Prof. The Experimental Dermatology Unit Department of Neuroscience Karolinska Institute 171 77 Stockholm Sweden)

Dear Prof Johansson

Thanks you for saying you would help

I have some specific questions relating to WLAN computer networks as follows.

The HPA in the UK have issued, in my opinion a very misleading statement as follows: referring to wireless networks they state 'these systems require low power radio transmitters in the building and people should consider the potential educational benefits as well as any possible risks. It is impossible to give absolute guarantees of safety when dealing with new technology, but radio waves have been used for over 100 years and, at present there is no scientific evidence of any harm from such systems.'

I wonder if you could comment on my points as follows and if you could add any more information or advice on the matter?

Firstly the WLAN network gives off microwave radiation of a similar frequency to that of a microwave oven and the new 3G phone network. The radiation is amplitude modulated or pulsed. In this form it has only been around to any extent for the last 12 years. There are many adverse health effects reported in the scientific literature as well as clusters of cancer around phone masts. We would advise that a WLAN system should not be used in a school. The radiation intensity from transmitters in each classroom could often be similar to the intensity received from a nearby phone mast.

I look forward to your reply

Regards

Concerned Parent