



## Wi-Fi in Schools

Parents who are concerned about whether there are any health risks to children in classrooms arising from the use of Wi-Fi equipment, should feel reassured by the results from a number of studies as well as the advice from leading health agencies around the world.

In terms of exposure levels, a recent study<sup>1</sup> undertaken by the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) measured radiofrequency (RF) exposure from Wi-Fi and other sources in 23 schools in two Australian states. The measurements were undertaken inside classrooms and libraries as well as outside in the playground. The resulting measurements found that the typical exposure from Wi-Fi inside the classroom was around 0.0002% of the Australian (and international) exposure reference levels. The study noted that, in the classroom, the Wi-Fi signal levels were similar or lower than those from radio broadcasting. The authors of the study concluded:

*The results of this study showed that children's exposure to RF fields from Wi-Fi in schools is several orders of magnitude below exposure reference levels recommended by international guidelines for protection against established health effects. Further, the exposure from Wi-Fi is typically comparable or lower to other common sources in the environment.*

A case study undertaken by Industry Canada in 2012<sup>2</sup> also concluded:

*Based on the results of this case study, the aggregated RF exposure of multiple Wi-Fi access points and Wi-Fi-enabled devices in this indoor location was well below the [Canadian] limits.*

And an earlier University of Pennsylvania study<sup>3</sup> undertook 356 measurements at 55 Wi-Fi sites in four countries under conditions involving higher than normal exposures. That study found:

*In all cases, the measured Wi-Fi signal levels were very far below international exposure limits (IEEE C95.1-2005 and ICNIRP) and in nearly all cases far below other RF signals in the same environments.*

These results consistently show that regardless of the different frequencies used by Wi-Fi networks over the years, they operate well below the international exposure guidelines.

In terms of health assessments, the guidance from Public Health England states<sup>4</sup>:

*On the basis of current scientific information, exposures from wi-fi equipment satisfy international guidelines. There is no consistent evidence of health effects from RF exposures*

<sup>1</sup> K. Karipidis et al, *Exposure To Radiofrequency Electromagnetic Fields From Wi-Fi In Australian Schools*, Radiation Protection Dosimetry (2017), Pp. 1–8

<sup>2</sup> Industry Canada. Case Study: measurements of radio frequency exposure from Wi-Fi devices (2012). [https://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/Wifi-e.pdf/\\$FILE/Wifi-e.pdf](https://www.ic.gc.ca/eic/site/smt-gst.nsf/vwapj/Wifi-e.pdf/$FILE/Wifi-e.pdf). Accessed on 6/03/17

<sup>3</sup> Foster, KR. Radiofrequency exposure from wireless LANs utilizing Wi-Fi technology. Health Phys. 92(3), 280–289 (2007).

<sup>4</sup> <https://www.gov.uk/government/publications/wireless-networks-wi-fi-radio-waves-and-health/wi-fi-radio-waves-and-health> accessed on 06/03/17

*below guideline levels and no reason why schools and others should not use wi-fi equipment.*

The Health Council of the Netherlands<sup>5</sup>, which has looked in particular into the potential impact of RF exposure on children's health, has concluded:

*There is no scientific evidence for a negative influence of exposure to electromagnetic fields of mobile telephones, base station antennas or Wi-Fi equipment on the development and functioning of the brain and on health in children.*

These conclusions are consistent with the advice of the WHO, as outlined in its Fact Sheet on wireless networks<sup>6</sup>, which states:

Considering the very low exposure levels and research results collected to date, there is no convincing scientific evidence that the weak RF signals from base stations and wireless networks cause adverse health effects.

In summary, parents should be aware that the weight of scientific evidence remains that exposures from Wi-Fi equipment are well below international guidelines and that there is no established evidence of any adverse health effects associated with the use of wireless networks for children or indeed for any members of the community.

*March 2017*

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<sup>5</sup> Health Council of the Netherlands, 2011, *Influence of radiofrequency telecommunication signals on children's brains*. The Hague: Health Council of the Netherlands, 2011; publication no. 2011/20E. ISBN 978-90-5549-859-8

<sup>6</sup> <http://www.who.int/peh-emf/publications/factsheets/en/> accessed on 06/03/17.