



Wi-Fi - the HPA research project



Exposure to electromagnetic fields from wireless computer networks (Wi-Fi) - report on results, September 2011

Following the announcement by the Board of the HPA on 12 October 2007, a systematic programme of research has been undertaken to assess exposures of children from wireless computer networking equipment used in schools. At the start of the project, comprehensive test facilities were set up at the HPA site at Chilton and a review of technical standards and wireless equipment used in UK schools was carried out. The main objectives of the project were as follows.

Measurements of the electromagnetic field strengths around selected Wi-Fi devices during transmission, and calculations of radiated powers.

Computer modelling of Wi-Fi equipment in use by children in order to predict the specific absorption rate (SAR) of energy in the body.


Measurements of the proportion of the time that individual Wi-Fi computers transmit during typical school lessons.

The original announcement can be found in the archive of HPA press releases for 2007 (these are listed in chronological order).

Due to the popularity of laptops in classrooms and the likelihood that the majority of Wi-Fi exposure would come from these devices, because they are generally nearer to children than access points, it was decided that the experimental measurements would begin with laptops and then continue with access points, the points of entry to the wired network. A total of 15 laptops and 12 access points were chosen from among the most popular models used in the education sector in the UK. Both 2.4 GHz and 5 GHz frequency bands were considered during the assessments.



The objectives of the laboratory measurements were to establish the radiation pattern (ie the angular distribution of electric field strength around each device under test) during transmission, identify the angles at which the field was at a maximum, and then measure the electric field strength at these angles as a function of distance.

A more detailed description of the experimental set-up and some early results were presented here  [Wi-Fi in schools \(PDF, 276 KB\)](#).

The results of the laboratory measurements are published in the following paper - Peyman, A et al (2011). Assessment of exposure to electromagnetic fields from wireless computer networks (Wi-Fi) in schools; results of laboratory