



## WHAT IS WI-FI AND IS IT SAFE?

Wi-Fi is an acronym for “*wireless fidelity*” and it refers to a wireless network for computers that uses radiofrequency radiation for communication just like cell phones and two-way radios (walkie-talkies) do. Communication across a Wi-Fi network is very similar to two-way radio communication:

1. A computer's wireless adapter translates data into a radiofrequency signal and transmits the data using an antenna to a nearby wireless router.
2. The wireless router receives the signal and decodes it. It sends the information to the Internet using a wired Ethernet connection. The Ethernet is a widely-used local area network (LAN) technology, with a local area network referring to a wireless computer network covering a small geographic area such as a home, an office, or a school.
3. The process also works in reverse, with the router receiving information from the Internet, translating it into a radiofrequency signal, and then sending it via an antenna to the computer's wireless adapter.

Since Wi-Fi systems emit high-frequency electromagnetic radiation (at either 2.4 GHz or 5 GHz, with a GHz [gigahertz] being a frequency of one billion cycles per second), some concern has been raised regarding the safety of using a Wi-Fi system. But these systems generally emit at a *very low power* -- typically about 0.1 Watt emitted from both the computer antenna and the router antenna. The power falls off very rapidly beyond a few inches from the antennas. In comparison, cell phones emit between 0.6 Watts and 3 Watts (typically at about 1 Watt), generally at 1.9 GHz.

There is a good deal of controversy nowadays about potential health effects caused by Wi-Fi radiation. **Currently, it is believed by most scientists that Wi-Fi radiation exposure is safe for most people with the possible exception being small children exposed for long periods of time.** Although no health effects in children have been identified, it is recommended that children not sit for hours daily with a Wi-Fi laptop on their laps; placing the computers on a table is much better. The same thing goes for cell phone use by children -- use is acceptable, but spending hours a day on a cell phone is discouraged as a precautionary measure even though definitive health effects have not been observed in studies.

Of course, the exposure to Wi-Fi radiation is somewhat additive if a person is in a room full of others on Wi-Fi. But since the radiation intensity drops off so rapidly with distance from the Wi-Fi emitting source (e.g., the laptop antennas), most of a user's exposure is from his/her own system unless other users are within a few feet away.

*In conclusion, exposure to Wi-Fi radiation is presently considered to be very safe.* Studies on possible health effects caused by long-term Wi-Fi (and cell phone) radiation exposure continue to be conducted. Some good websites for further reading regarding potential Wi-Fi radiation health effects are listed below:

<http://news.bbc.co.uk/2/hi/technology/6676129.stm>

<http://www.redherring.com/Home/3752>

[http://news.bbc.co.uk/2/hi/uk\\_news/magazine/6172257.stm](http://news.bbc.co.uk/2/hi/uk_news/magazine/6172257.stm)