What other devices emit microwave radiation?

There are many other devices that emit the same radiation as Wi-Fi. These include:

- DECT (digitally enhanced cordless telecommunications) and DECT-style baby monitors. Most of these devices emit pulsing microwave radiation from their base station (even when the phone is not being used), and are frequently placed by the bedhead or on the work desk.
- wireless home entertainment systems and game consoles (also known to emit microwaves even when switched off)
- some wireless security/alarm systems
- wireless interactive whiteboards and paging systems.

What should I do to reduce my exposure?

Due to the increasing concerns over the possible hazards from the use of wireless networks (and similar wireless technologies), the best way to reduce your exposure to unnecessary microwave radiation is to use cables wherever possible.

The other advantages of cabled networks are speed (Wi-Fi is slower than wired networks), security (Wi-Fi is insecure – even with WEP or WPA encryption) and reliability (Wi-Fi is often known to drop connections).

If it is not possible to remove your wireless connections, it is advised that you take other precautions:

- do not sit in close proximity to a wireless router (keep it in an unoccupied room if possible)
- turn off any wireless devices at night time while you sleep – as these devices emit microwaves at all times – not just when the device is transmitting data.
- avoid using a wireless laptop on your lap for extended periods of time
- take note of the short-term health effects – if you notice any symptoms try to remove or reduce your exposure to the wireless device.

Where can I get more information?

Visit the following websites to obtain further information including the reports referred to in this brochure.

www.bioinitiative.org
www.emfacts.com/wlans.html
www.energyfields.org
www.healthandenvironment.org
www.hese-project.org/hese-uk/
www.icems.eu
www.iegmp.org.uk
www.mastsanity.org
www.powerwatch.org.uk/rf/wifi.asp
www.radiationresearch.org

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Consumer Health and Safety Advice

Wireless Networks (Wi-Fi)

The use of wireless devices by consumers is increasing rapidly, yet there is concern in the scientific community that this technology could have adverse side effects. Read on to find out the facts and recommended precautions.

What is Wi-Fi?

Wi-Fi stands for Wireless Fidelity, and is a term used to describe the way computers can connect to a network without the need for cables. Instead, the connection is made using microwave radiation, along which the data are sent in pulses.

This is relatively new technology that has taken off at a rapid pace. The first wireless sytems were developed in the early 1990s (such as WaveLAN); however, it was not until 1999 that wireless technologies were widely accepted. The most common 802.11g protocol has only been around since 2003.

Is the radiation emitted from Wi-Fi safe?

Because there is such a high demand for wireless convenience, the rate at which Wi-Fi technologies are being deployed exceeds the rate at which researchers can study its long-term effects on humans.

Although no studies have specifically looked for health effects from Wi-Fi, there is a growing amount of scientific research on related wireless technologies that suggests possible adverse health effects.

A survey of this research, conducted by Powerwatch in the UK, found a number of significant health effects from mobile phone masts (which use a frequency from 0.9 to 2.1ghz, close to the 2.4ghz used for Wi-Fi). There is, in fact, very little research looking at phone masts that has failed to find an effect.

The number of studies and research papers that point to adverse effects from wireless technologies has prompted a number of leading scientists and organisations to advise a precautionary approach to the use of wireless devices.

What are the health effects?

People may be affected in many different ways. Reported health effects from this type of radiation are one or more of the following:

Neurological: headaches, dizziness/nausea, memory and concentration difficulties, insomnia, depression/anxiety, fatigue/weakness, numbness/tingling, muscle and joint pains.

Cardiac: heart palpitations, shortness of breath, heart arrhythmias, high blood pressure.

Eyes: pain/discomfort, pressure in the eyes, deteriorating vision, cataracts.

Ears: ringing in the ears, hearing loss.

Other: skin problems, digestive problems, dehydration, nosebleeds, impaired sense of smell and light sensitivity.

Research has also pointed to an increased likelihood of ***long-term effects*** – including cancer, neurological diseases, genetic effects such as male sterility, miscarriage and birth defects, as well as asthma, diabetes, thyroid dysfunction and bleeding disorders.

It is also known that microwave radiation penetrates the body of a younger person more than an adult, so the possible long-term effects on young, developing children are of particular concern.

Aren't there safety standards to protect us?

Most nations set safety standards that regulate exposure to radiation based on short-term thermal injury (in other words, burning or heating of body tissue in a short period of time).

These guidelines were last updated in the late 1990s (before Wi-Fi was widely adopted), and are inadequate as they do not address the non-thermal health effects that are of concern to so many scientists.

Despite there being calls for the safety standards to be reviewed, at present manufacturers and providers of wireless technologies are only required to meet the government safety standards.

Who are the experts concerned over using wireless technologies?

Probably the most well-known is ***The Stewart Report*** (2000), published by a committee set up by the UK Government to look into the effects of microwave radiation. The committee was chaired by Professor Sir William Stewart (former chief scientific adviser to the UK Government, and now chairman of the Health Protection Agency).

The Stewart Report stated that there may be biological effects occuring at exposures below the government safety guidelines, and that a precautionary approach was required for these technologies.

In an interview in 2004, Sir William Stewart said he was even more concerned, mentioning four new studies that worried him – including the ***Naila Study*** in Germany, where doctors found a trebling of cancers after five years in patients who lived within 400m from mobile phone masts (radiation levels similar to those of a Wi-Fi network).

More recently, the ***Bioinitiative Report*** (2007) – published by an international working group of distinguished scientists, researchers and public health policy professionals – reviewed over 2000 studies. Their final report raised serious concerns about the existing public exposure limits, and documented brain tumour risks and other health risks from exposure to wireless technologies.

Who else is concerned?

Several schools in England and France have dismantled their Wi-Fi systems after concern from teachers and parents. In late 2007, the French National Library removed all Wi-Fi systems in Paris due to health complaints from staff.

In 2005, the Austrian Medical Association published a recommendation to use cables instead of Wi-Fi. The Salzburg Government, the Frankfurt Local Education Authority and the German Teachers Union have also banned or advised against the use of Wi-Fi in schools.

In mid-2007, the European Environment Agency released a statement advising precaution regarding exposure to Wi-Fi networks until more is known through science.

In September 2007, the German Government issued a warning to citizens to avoid using Wi-Fi in the workplace or at home, suggesting cabled connections instead.

In September 2007, following the *Bioinitiative Report*, Europe's top environmental watchdog, the European Environmental Agency, called for immediate action to reduce exposure to radiation from Wi-Fi, mobile phones and their masts. It suggested that delay could lead to a health crisis similar to those caused by asbestos, smoking and lead in petrol.