

Government
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Fact Sheet - What is Safety Code 6?

The Government of Canada is committed to protecting the health and safety of Canadians from environmental risks, including those posed by exposure to radiofrequency (RF) electromagnetic energy - the kind of energy given off by various electronic devices such as cell phones and Wi-Fi, as well as broadcasting and cell phone towers.

Health Canada has a guideline, known as Safety Code 6, which recommends limits for safe human exposure to RF electromagnetic energy. The limits established in Safety Code 6 incorporate large safety margins to provide a significant level of protection for all Canadians, including those working near RF sources.

Health Canada scientists monitor the scientific literature on this issue on an ongoing basis. Safety Code 6 is reviewed on a regular basis to verify that the guideline provides protection against all known potentially harmful health effects.

While Health Canada recommends limits for safe human exposure, Health Canada does not regulate the general public's exposure to electromagnetic RF energy. However, many provinces and territories apply the exposure limits in Safety Code 6 for general public exposure. Wireless devices and their associated infrastructure (such as cell towers) are regulated by Industry Canada, and are required to comply with Safety Code 6.

Canada's limits are consistent with the science-based standards used in other parts of the world (e.g., the United States, the European Union, Japan, Australia and New Zealand) and provide protection against all known adverse health effects from RF energy.

Busting Myths on Safety Code 6

Myth: Safety Code 6 limits only provide protection based on limited exposure for healthy adults. The guideline does not account for vulnerable populations such as children or people with electro hypersensitivity disorder.

Fact: *Even a small child, following continuous exposure from multiple sources of RF energy, would not experience adverse health effects provided that the exposure limits set in Safety Code 6 are respected.*

The Safety Code 6 limits for human exposure to RF energy are designed to provide protection for all age groups, including children, on a continuous (24 hours a day/seven days a week) basis.

This means that if someone, including a small child, were to be exposed to RF energy from multiple sources for 24 hours a day, 365 days a year, within the Safety Code 6 limits, there would be no adverse health effects.

A number of people have described an assortment of health symptoms that they attribute to exposure to electromagnetic fields. While the symptoms attributed to electrohypersensitivity conditions are real, scientific evidence has failed to demonstrate that they are caused by exposure to electromagnetic fields.

Myth: Frequent users of cell phones, such as children and teenagers, are at an increased risk of adverse health effects caused by exposure to RF energy.

Fact: *There is no evidence that children and teenagers are at increased risk when Safety Code 6 exposure limits are respected.*

The limits set out in Health Canada's Safety Code 6 are designed to protect people, of all ages and sizes, from all forms of exposure to RF energy, including continuous exposure (24 hours a day, seven days a week).

Given that cell phones are used frequently and in close proximity to the body, Health Canada provides additional guidance to concerned cell phone users so that they may take practical measures to reduce their exposure to RF energy. These measures include limiting the length of cell phone calls, using hands-free devices, and replacing cell-phone calls with texting.

While there is no evidence that children and teenagers are at increased risk, Health Canada encourages parents to limit their children's use of cell phones, as children are often at increased risk from a variety of environmental factors.

Myth: Many countries have limits 100 times lower than Safety Code 6. This must mean Safety Code 6 doesn't protect my health.

Fact: *Canada's limits are consistent with the science-based standards used in other parts of the world, including the United States, the European Union, Japan, Australia and New Zealand.*

The limits in Safety Code 6 are science-based exposure limits that are consistent with the science-based standards used in other parts of the world, including the United States, the European Union, Japan, Australia and New Zealand. Large safety margins have been incorporated into these limits to provide a significant level of protection for the general public and personnel working near RF sources.

When developing the exposure limits in Safety Code 6, Health Canada considers all peer-reviewed scientific studies. The exposure limits in Safety Code 6 are set well below the lowest exposure level (threshold) at which any scientifically-established, adverse health effects occur and take into account the total exposure from all sources of RF energy. Health Canada scientists have concluded, on the basis of current scientific

data, that no adverse health effects will occur from exposure to RF energy at the levels permitted by Safety Code 6.

Internationally, a few jurisdictions (cities, provinces or countries) have applied more restrictive limits for RF field exposures from cell towers, although there isn't scientific evidence to support the need for such restrictive limits. Additionally, in many instances these more restrictive limits are not applied to other wireless devices in these same jurisdictions.

Myth: Health Canada ignores certain studies, especially those that show adverse health effects resulting from exposure to RF energy.

Fact: *When developing the exposure limits in Safety Code 6, Health Canada scientists consider all peer-reviewed scientific studies and employ a weight-of-evidence approach.*

The weight-of-evidence approach takes into account both the quantity of studies on a particular endpoint (whether adverse or no effect), and, more importantly, the quality of those studies.

Poorly conducted studies (e.g. inadequate exposure evaluation, lack of appropriate control samples or inadequate statistical analysis), receive relatively little weight, while properly conducted studies (e.g. all controls included, appropriate statistics, complete exposure evaluation) receive more weight.

Myth: Safety Code 6 is based only on preventing thermal (heating) effects and doesn't consider other harmful non-thermal/biological effects.

Fact: *Health Canada scientists consider all peer-reviewed scientific studies and consider many different potential health effects including thermal, non-thermal and biological effects.*

When developing the exposure limits in Safety Code 6, Health Canada scientists consider all peer-reviewed scientific studies (which includes thermal, non-thermal and biological effects) and employ a weight-of-evidence approach.

At frequencies **below** 10 megahertz (MHz), the first effect to be experienced is non-thermal nerve stimulation (a tingling sensation). Therefore, the exposure limits in Safety Code 6 are set below the level at which such effects occur.

At frequencies **above** 10 MHz, the first scientifically-established effect to occur is heating. Numerous international expert panel reviews on this issue have reached the same conclusion. The exposure limits in Safety Code 6 for frequencies above 10 MHz are therefore set below the level at which heating (thermal effects) could occur. Harmful non-thermal/biological effects at levels below the limits in Safety Code 6 have not been scientifically established.

Myth: I live and work in a major city, so I am constantly exposed to RF energy, all the time. Safety Code 6 does not account for the cumulative effects of this exposure to RF energy.

Fact: *Canadians are protected from the cumulative effects of RF energy when Safety Code 6 is respected.*

Safety Code 6 exposure limits are not device-specific, but the limits do take into account the total exposure from all sources of RF energy. Health Canada scientists have concluded, on the basis of current scientific data, that no adverse health effects will occur from exposure to RF energy at the levels permitted by Safety Code 6.

Myth: Safety Code 6 does not protect my health, as it's based on an exposure time of only six minutes. Given our constant exposure to RF energy, especially in urban environments, this is not enough.

Fact: *Canadians are protected from continuous exposure to multiple sources of RF energy when Safety Code 6 is respected.*

The limits for human exposure to RF energy are designed to provide protection for all age groups, including children, on a continuous (24 hours a day/seven days a week) basis. This means that if someone, including a child, were to be exposed to RF energy from multiple sources for 24 hours a day, 365 days a year, within the Safety Code 6 limits, that person would experience no adverse health effects.

The six minute time-averaging period specified in Safety Code 6 is used as a reference period against which to make a comparison between the measured RF energy levels and the limits in Safety Code 6.

This reference period is not a maximum exposure time. It means that the levels of RF energy from *all sources combined* shall not exceed the exposure limits in Safety Code 6 in *any* six-minute time period throughout the day.

Myth: The International Agency for Research on Cancer (IARC) classified radiofrequency energy as potentially carcinogenic. This means that I will get cancer due to my exposure to RF energy.

Fact: *The IARC did not find a direct link between RF energy exposure and cancer.*

In 2011, the International Agency for Research on Cancer (IARC), which is part of the World Health Organization, classified radiofrequency electromagnetic fields as possibly carcinogenic to humans (Group 2B), based on an increased risk for glioma, a malignant type of brain cancer, associated with wireless phone use. However, the vast majority of research to date does not support a link between RF energy exposure and cancers in humans.

Health Canada is in agreement with the World Health Organization that additional research in this area is warranted.

On October 4, 2011, Health Canada updated its advice to cell phone users on practical ways of reducing exposure to RF energy from these devices. This advice pertains only to cell phone use, and not to RF energy exposure from Wi-Fi devices, since the intensity and distribution of the RF energy absorbed within the body from these devices are very different.

Myth: Because Health Canada regularly reviews Safety Code 6, it must mean the current Code doesn't offer me enough protection.

Fact: *The exposure limits recommended in Safety Code 6 protect the health of Canadians.*

To ensure that it continues to provide protection against all known adverse human health effects of RF fields, Safety Code 6 is reviewed on a regular basis.

Health Canada reminds all Canadians that their health is protected from RF fields by the human exposure limits recommended in Safety Code 6. Health Canada has established and maintains a general public exposure limit that incorporates a wide safety margin and is therefore far below the threshold for potentially adverse health effects. The Department continues to monitor and analyze ongoing scientific research on this issue and should new scientific evidence arise demonstrating that exposure to RF fields poses a health risk to Canadians, Health Canada will take the appropriate action to safeguard the health of Canadians.

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<https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/radiation/fact-sheet-what-safety-code-6.html>