

# Frequently Asked Questions (FAQ) on Radiofrequency (RF) Energy and Health

The following FAQ has been jointly developed by Health Canada and Industry Canada in order to address various questions related to RF exposure of the general public. Health Canada, in its mandate to protect the health of Canadians, is responsible for research and investigation to determine and recommend the health protection limits for exposure to RF electromagnetic energy. Accordingly, Health Canada regularly updates its guideline document entitled *Limits of Human Exposure to Radiofrequency Electromagnetic Energy in the Frequency Range from 3 kHz to 300 GHz*, commonly known as Safety Code 6.

As the regulator of radiocommunication and broadcasting installations and apparatus, Industry Canada has adopted this guideline for the purpose of protecting the general public. As such, Industry Canada requires all radiocommunications installations and apparatus to comply with these regulatory limits.

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Frequently Asked Questions (FAQ) on Radiofrequency (RF) Energy and Health  
(PDF, 134 KB, 16 pages) [PDF Readers](#)

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## **Radiofrequency (RF) Energy**

### **(1) What is radiofrequency (RF) energy?**

RF energy is one form of electromagnetic energy that is a component of the electromagnetic spectrum, which covers microwaves, visible light and X-rays, as well as many more kinds of energy emissions. RF energy, sometimes called "RF emissions," "RF waves" or "RF fields," is generated when a source current, such as a transmitter, is fed to an antenna. This current excites electrons within the antenna and the energy moves outward in the form of an electromagnetic wave.

RF energy in the electromagnetic wave has electric and magnetic components. Its strength can be described by each component. The units “volts per metre” (V/m) and “amperes per metre” (A/m) are used to express the “electric” and “magnetic” field strength components respectively. Another common way to describe the RF energy strength is by power density or the power per unit area, e.g. “watts per squared metre” ( $W/m^2$ ).

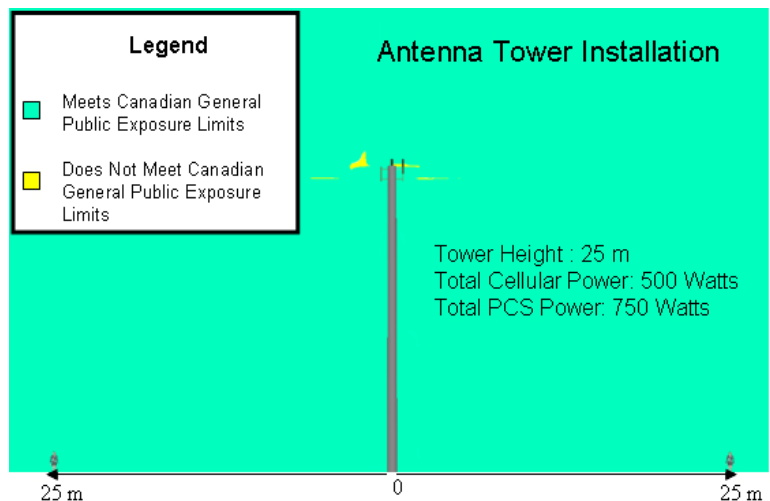
## (2) Why is radiofrequency (RF) energy important and what are the benefits?

Probably the most important use for RF energy is in providing radiocommunication services to the public, industry and government. Radio and television broadcasting, cell phones, radiocommunications for emergency services, weather radar and satellite communications are examples of important applications. Non-communication uses of RF energy include industrial heating and microwave ovens. Some consumer uses of radiocommunication include baby monitors, garage door openers, cordless telephones, Wi-Fi, remote keyless car entry devices and various medical devices, just to name a few. As well, certain non-radio devices, including computers and other digital devices, also emit RF energy.

## (3) What can I find at radiocommunication and broadcasting installations?

At radiocommunication and broadcasting installations, you will generally find radio transmitters and receivers, transmission lines and antennas, as well as their supporting structures. Radiocommunication and broadcasting transmitters are electronic devices that generate RF signals which carry the information intended for receivers. The signals are transmitted by antennas and then picked up by receivers (via receive antennas), which then extract the information carried, be it a cell phone conversation or a television program.

Antennas are often located on top of a tower or other supporting structure, such as a building or water tower. Occasionally, the tower itself will be used as an antenna, but rarely and only with certain services such as AM broadcasting. As RF energy moves away from the transmitting antenna, the RF power density (see Question 1) decreases very rapidly.



## Radiofrequency (RF) Exposure Limits

## (4) How is the general public protected from overexposure to radiofrequency (RF) energy?

To protect the general public, Health Canada maintains its guideline document entitled *Limits of Human Exposure to Radiofrequency Electromagnetic Energy in the Frequency Range from 3 kHz to 300 GHz*, which is commonly referred to as Safety Code 6. This document has been adopted by many organizations across Canada and is referred to in several regulations. Industry Canada has adopted this guideline for the purpose of protecting the general public.

## (5) What amount of radiofrequency (RF) exposure is considered safe?

Exposure to RF energy at levels below the regulatory limits is considered to be safe. These limits are based on the lowest exposure level at which the potential harmful effects to humans could occur. Safety factors are then incorporated to arrive at recommended exposure levels for protection of the general public.

## **(6) What is time averaging and how does it apply to exposure?**

Health Canada's guideline document and most other RF exposure standards specify "time-averaged" maximum exposure limits. The purpose is to "smooth out" the short-term highs and lows of the exposure intensity to arrive at an "average" with which to compare to the limit. The averaging time is the time period over which exposure is averaged. The averaging time should not be interpreted as the maximum allowable exposure time.

As per Health Canada's guideline document, it is permissible to exceed the recommended exposure limits for short periods of time as long as the average exposure over the averaging time (0.1 hour or 6 minutes) does not exceed the limit.

## **(7) Are the exposure limits specified in Health Canada's guideline document radiofrequency (RF) dependent? If yes, why?**

Yes, the exposure limits specified in Health Canada's RF exposure guideline document vary in a way that reflects the different absorption characteristics of the human body at various frequencies. For example, the most restrictive limits are in the 30-300 MHz frequency range where absorption is highest.

## **Biological Effects Associated with Radiofrequency (RF) Exposure**

### **(8) What is the difference between a biological effect and a health effect?**

A biological effect occurs when a change can be measured in a biological system after an introduction of some type of stimulus (e.g. RF energy). The observation of a biological effect, in and of itself, does not necessarily suggest the existence of a health effect. A biological effect only becomes a health effect when it causes detectable impairment of health. According to the World Health Organization, health is "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."

### **(9) What biological effects are associated with exposure to radiofrequency (RF) energy?**

The biological effects from laboratory studies reported in scientific peer-reviewed literature include those related to changes in temperature, blood brain barrier, melatonin, calcium efflux, DNA damage and gene expression. However, not all these biological effects have been established or are considered to be health effects. For example, blood brain barrier and melatonin effects have not been consistently replicated. Studies on DNA strand breaks have also failed numerous independent attempts at confirmation and calcium efflux changes are considered to be more of a biological response than an adverse health effect.

Several laboratory studies have looked into whether RF energy can initiate and promote cancer. The overwhelming majority of these studies have found no evidence that RF energy damages DNA or that it is likely to act as an initiator or a promoter of carcinogenesis.

### **(10) Which biological effects associated with radiofrequency (RF) exposure are considered "established effects"?**

An "established effect" is one that, based upon peer-reviewed scientific reports, is demonstrated to be reproducible (in more than one laboratory), consistent (within the same laboratory and across other laboratories) and causal (due to the exposure agent). Although several articles in the scientific literature report RF biological effects within a study, these effects do not necessarily stand up to scientific rigour because they are often not reproducible within the same (or other) laboratories or are subsequently found to arise as a result of confounding factors such as sample/tissue heating or vibration.

### **(11) What is an epidemiological study? Are there any epidemiological studies of RF exposure?**

An epidemiological study is the investigation of the occurrence and causes of health effects in human populations. There have been numerous epidemiological studies on RF exposure and its impacts on human health. The majority of these studies have failed to find any association between such exposure and any adverse health effects.

### **(12) What is signal modulation? Do different types of modulation change biological effects?**

Signal modulation is a process whereby certain characteristics of a radio wave are varied with transmitted information (voice, pictures and data). Different signal modulations in both analogue (e.g. AM and FM) and digital (numeric) formats have been used in radiocommunication. Although most radio technologies originally used analogue signals, modern wireless telecommunications use digital transmissions. Detailed scientific reviews conducted so far have not revealed any hazard specific to different RF modulations.

### **(13) What is electromagnetic hypersensitivity (EHS)?**

EHS is a term used to describe a variety of non-specific symptoms, such as headache, fatigue, nausea, ringing in the ears, digestive disorders, skin redness and burning sensations, which some individuals attribute to electromagnetic field (EMF) exposure.

At levels normally encountered in our daily lives, EMFs are unperceived by our senses. Although EHS symptoms are real, numerous scientific studies have failed to demonstrate that they are associated with EMF exposure. In studies where human subjects (including EHS sufferers) were intentionally exposed to EMFs, most individuals were unable to detect whether EMFs were present, or showed symptoms that did not correlate with their actual exposure condition. The causes of EHS symptoms are unclear. There are suggestions that they might arise from environmental factors unrelated to EMFs. It is the opinion of Health Canada that there is no scientific evidence that the symptoms attributed to EHS are indeed caused by exposure to EMFs.

Additional information about EHS can be found at:

[Health Canada – Electromagnetic Hypersensitivity](http://www.hc-sc.gc.ca/ewh-semt/radiation/cons/electri-magnet/electromagnet-eng.php)

[www.hc-sc.gc.ca/ewh-semt/radiation/cons/electri-magnet/electromagnet-eng.php](http://www.hc-sc.gc.ca/ewh-semt/radiation/cons/electri-magnet/electromagnet-eng.php);

[World Health Organization - Electromagnetic fields and public health](http://www.who.int/mediacentre/factsheets/fs296/en/index.html)

<http://www.who.int/mediacentre/factsheets/fs296/en/index.html>.

## **(14) Is there evidence that electromagnetic energy emitted by power lines or cell phones can cause changes in stress protein levels in human cells?**

Stress proteins are a family of naturally occurring proteins that are found in all cells. Some of these stress proteins are expressed in response to heat, cold or other environmental stressors. Some researchers have speculated that EMFs may exert biological effects on cells by altering the levels of these stress proteins. Health Canada's own research studies have found no evidence that EMFs can alter stress protein levels in human cells, even at levels far above Health Canada's RF exposure limits. In addition, Health Canada recently reviewed all the available scientific evidence on this potential EMF effect and concluded that there is no credible scientific evidence that low-level EMFs emitted by power lines or cell phones can cause changes in stress protein levels in human or animal cells.

## **Establishing Radiofrequency (RF) Exposure Limits**

### **(15) How were the radiofrequency (RF) exposure limits established?**

The limits specified in Health Canada's RF guideline document were established from the results of hundreds of studies over the past several decades where the effects of RF energy on biological organisms were examined. These limits are similar to other national and international standards that are based on established effects. All recognized standard-setting bodies use the same scientific data and a similar general approach to develop safety guidelines. Differences in interpreting the biological effects under certain exposure conditions sometimes result in small differences in the exposure limits. These small differences will not affect a person's health. Canada's exposure limits are among the most stringent guidelines that are based on established effects.

### **(16) What scientific studies support the exposure limits outlined in Health Canada's guideline document for radiofrequency (RF) exposure?**

The guidelines for RF exposure are based on peer-reviewed literature from reputable scientific journals, whose peer review panels are experts in this subject area. Information published in non peer-reviewed journals or anecdotal reports posted on the Internet carry much less weight because it is difficult to evaluate the quality of the work.

It should also be emphasized that no single study is used as a basis for establishing the limits in Health Canada's guideline document. Rather, they are based on the bulk of scientific evidence contained in the literature. It is well known that, even among the body of peer-reviewed literature, there is a range of quality and therefore each manuscript must be judged on its own merits.

### **(17) Does Health Canada's guideline document take into account the possible non-thermal effects associated with exposure to radiofrequency (RF) energy?**

The Health Canada guideline document takes into account all biological effects, whether they are related to heating of the tissue (thermal) or exposure levels too low to cause significant tissue heating (non-thermal). The understanding that the exposure limits specified in the guideline document are

based entirely on thermal effects is incorrect. For frequencies from 3 kHz to 100 kHz, the biological end point on which the limits are based is nerve and muscle stimulation. Although these are acute effects, they are non-thermal in nature. At higher frequencies, non-thermal effects are not well established and currently do not form a scientifically acceptable basis for restricting human exposure to RF energy.

Health Canada has no scientific reason to consider that RF exposures have any link to cancer initiation or promotion. The body of peer-reviewed literature in this area overwhelmingly demonstrates a lack of linkage, and where the few reports of linkage effects were found, it was concluded that these results could be attributed to factors other than RF energy.

### **(18) Is Health Canada's radiofrequency (RF) guideline document up-to-date? How often is it revised?**

Health Canada typically updates its guideline document every five to 10 years. However, between these updates, Health Canada scientists continually monitor the scientific literature and conduct research on the potential biological effects of RF energy. If future scientific evidence were to demonstrate that exposure to RF energy at levels below the current limits were harmful, the Government of Canada would take appropriate action to protect the health of Canadians.

### **(19) Are there any internationally recognized procedures for radiofrequency (RF) exposure standard development?**

In 2006, the World Health Organization published a document entitled [Framework for Developing Health-based EMF Standards](http://www.who.int/peh-emf/standards/framework/en/) (<http://www.who.int/peh-emf/standards/framework/en/>). The Framework provides advice on how to develop science-based limits that will protect the health of the population from exposure to electromagnetic fields (EMFs).

Health Canada's guideline development procedures are in line with the guiding principles outlined in the above-mentioned Framework.

### **(20) Why did Canada develop its own radiofrequency (RF) exposure guideline rather than adopt an existing international standard?**

Most industrialized countries consider it important to have guidelines for the protection of their citizens from exposure to RF energy. Two approaches are possible for achieving this protection: developing national guidelines or adopting guidelines from other countries or organizations. Canada was one of the first countries to recognize the need for an RF exposure guideline document and first developed it in 1979. Since then, this document has been regularly updated. However, as international tendencies are moving towards universal standards, it is not unforeseeable that Canada may in the future adopt an internationally accepted standard.

### **(21) Why do some countries have more stringent radiofrequency (RF) exposure standards? Are individuals in those countries receiving a greater level of protection?**

RF exposure standards have been developed by several organizations and countries over the past three decades. In North America and most of Europe, these standards have generally been based on the lowest exposure level at which potential harmful effects to humans could occur. Safety factors are then incorporated to arrive at recommended exposure levels for protection of the general public and personnel working in controlled environments.

Not all standards throughout the world have the same recommended exposure limits; some are more stringent than others. The variations of recommended limits may be attributed to differences in the philosophy, the methodology and the interpretation of scientific data used for standard development.

However, recognized exposure standards that are based on established effects should be distinguished from some municipal and/or state guidelines that are based on socio-political considerations.

There is no scientific basis to support a conclusion that individuals living in countries with more stringent exposure standards receive a greater level of protection.

## **(22) What is the precautionary principle and when should it be used?**

The precautionary principle is a public policy approach for risk management of possible, but unproven, adverse health effects. The extent of the precautionary principle ranges from monitoring scientific developments and providing information to stronger measures, such as lowering exposures. The increasing public concern over the RF health issue has led to demands for industry and regulatory authorities to apply the precautionary principle to the use of cell phones and the proposed construction of new broadcasting and radiocommunication installations.

The application of the precautionary principle should be proportional to the level of risk and its associated uncertainty, the severity of the outcome and the level of societal benefit. In the context of RF energy from broadcasting and radiocommunication installations and apparatus, health risks from exposure below the limits specified in Health Canada's guideline document have not been established. Therefore, if precautionary measures are introduced to reduce exposure levels, it is recommended that they be made voluntary.

Levels of public exposure to RF energy from radiocommunication installations are typically thousands of times below those specified in health-based exposure standards.

## **Industry Canada's Role in Protecting the General Public from radiofrequency (RF) Exposure**

### **(23) Who regulates broadcasting and radiocommunication installations and apparatus in Canada?**

Radiocommunication, including technical aspects related to broadcasting, falls under the responsibility of Industry Canada, which has the power to establish standards, rules, policies and procedures. Industry Canada, under this authority, has adopted Health Canada's guideline for the purpose of protecting the general public from RF overexposure. All installations and apparatus must comply with Industry Canada's regulatory limits.

### **(24) How does Industry Canada ensure that radiocommunication and broadcasting installations respect its regulatory limits for the protection of the public from radiofrequency (RF) energy?**

Industry Canada requires that all proponents and operators ensure that their radiocommunication and broadcasting installations comply with its regulatory limits at all times. Proponents and operators must also consider the combined effects of nearby installations within the local radio environment. For additional information, consult [CPC-2-0-03, Radiocommunication and Broadcasting Antenna Systems](#). Furthermore, Industry Canada conducts its own assessments and audits as required. See questions 26 and 30 for further details.

### **(25) Are radiofrequency (RF) field measurements required? Why or why not?**

RF field measurements take into consideration local terrain and structures and indicate actual levels, whereas calculation is a prediction that includes certain assumptions, erring on the side of caution. Industry Canada requires proponents and operators of radiocommunication and broadcasting



installations to take RF field measurements to demonstrate compliance where it is suspected that the regulatory limits might be exceeded.

Every year there are tens of thousands of new and amended radiocommunication and broadcasting installations in Canada. The vast majority of these installations comply with the regulatory limits by a very wide margin. Industry Canada has confirmed this by conducting many RF field measurements. Experience has also shown that calculations based on sound engineering practices ensure the protection of the general public. This is because Industry Canada has compared the results of calculations with those from actual measurements and because certain safety factors are included in the calculations. For example, the analysis assumes that all transmitters are operating at the same time, which has a low probability of actually occurring for most radiocommunication installations. Several other precautionary assumptions serve to further ensure the protection of the public.

In rare cases where Industry Canada believes that regulatory limits for the protection of the general public might be exceeded, the Department will immediately approach the proponent or operator. If the operator wishes to continue transmitting, or if the proponent wishes to continue with the proposal, Industry Canada will work with them to ensure that the installation complies with the regulatory limits. Asking for RF field measurements to demonstrate compliance is one of several methods that Industry Canada may employ. For example, in the case of a proposed new installation, Industry Canada may choose to issue conditional authority. Once the installation is built, the proponent will be required to take measurements to demonstrate compliance and to take immediate action to bring the installation into compliance with the regulatory limits should the measurement results show non-compliance. Industry Canada will only issue final authorization when it is satisfied that the installation complies with the regulatory limits for the protection of the general public.

## **(26) Are multiple antenna towers and broadcast antennas safe?**

Yes, provided that they comply with Health Canada's RF exposure guideline.

Industry Canada requires antenna proponents and operators to evaluate all radiocommunication and broadcasting installations to ensure compliance with its regulatory limits at all times, including consideration of combined effects of nearby installations within the local environment. See Question 25 for details regarding RF field measurement.

## **(27) I am concerned whether a site in my area is in compliance with Industry Canada's regulatory limits. What should I do about it?**

Industry Canada requires all radiocommunication and broadcasting installations to comply with its regulatory limits on an ongoing basis so that the general public is not subjected to exposure levels above them. Antenna proponents are required to perform an assessment of RF exposure on proposed antenna systems prior to installation to ensure compliance, and to keep records of the assessment.

If you require information regarding compliance of a radiocommunication or broadcasting proposal or installation in your area, you should contact the proponent or operator of the installation. If the proponent/operator does not provide the pertinent information within a reasonable time frame, contact your [local Industry Canada office](#). Industry Canada may ask the proponent/operator to provide the information or, where the Department has concerns about compliance, it may carry out its own assessment. If the information provided and/or the Department's own assessment suggest that there is a potential for non-compliance, Industry Canada will verify that the radiocommunication or broadcasting proponent/operator has taken the necessary mitigation measures (Please refer to Question 29) to ensure compliance with its regulatory limits.

## **(28) How do I get an independent radiofrequency (RF) field measurement to ensure that the site I am concerned about meets the regulatory limits? What should I look for?**

You can procure the services of competent technical personnel from reputable associations/companies to take independent measurements. The person making such an assessment must: be knowledgeable in the area of RF measurements using Health Canada's "Technical Guide" for interpretation and compliance assessment; have the appropriate instruments to perform a proper RF field survey; and be able to interpret the measurement results.

The results should be accurately documented in a report, including a site map, the locations surveyed and the measurement results, details on the instrument(s) used, the method of measurement, abnormalities observed, as well as the measurement uncertainties. A well documented report, in addition to the measurements conducted by competent personnel, provides a proper record of the survey and confidence in the results.

If you want to conduct your own measurements, be aware that, over the years, tools (RF survey meters) have been marketed directly to consumers by vendors for this purpose. However, most of these tools work only on selected frequencies and are not calibrated (against a known standard), and therefore cannot provide reliable results. Before buying or using such electronic instruments, make sure that you understand its specifications and limitations, as well as how the tool works.

## **(29) Who inspects or audits radiocommunication and broadcasting installations to ensure compliance with Industry Canada's regulatory limits?**

All proponents and operators of antenna systems are required by Industry Canada to comply with its regulatory limits on an ongoing basis, taking into consideration the local radio environment. Industry Canada also conducts audits to ensure compliance. Our experience from field measurements has demonstrated that, for the vast majority of radiocommunication and broadcasting installations in areas accessible to the general public, the RF field levels are at a very small fraction of the regulatory limits. Therefore, Industry Canada concentrates its auditing efforts in ensuring compliance at congested sites with multiple antennas and sites with one or more high-power transmitters where these sites are in proximity to publicly accessible areas.

Industry Canada requires proponents and operators of antenna systems to take immediate action at any site if the Department believes that the regulatory limits are not being respected. Mitigation measures may include area demarcation (signs), access control (fences) and/or changes to the station(s) parameters.

## **(30) Are amateur radio stations checked for compliance with Industry Canada's regulatory limits and are these emissions considered safe?**

All amateur radio operators must operate their amateur radio installations in compliance with Industry Canada's regulatory limits. Unless given specific reasons for doing so, Industry Canada generally does not verify amateur radio installations for compliance, but relies on the operators to ensure compliance. Amateur radio operators are knowledgeable about radio equipment and many amateur radio associations provide extensive information and training to their members about RF safety and compliance with the regulatory limits. If you have concerns about an amateur radio installation in your neighbourhood, you should discuss them with the operator. In most cases, amateur radio operators are quite willing to discuss such issues with their neighbours.

### **(31) What if radiofrequency (RF) exposure limits are proposed by a land-use authority (LUA) or municipality?**

Industry Canada requires all antenna proponents to respect its regulatory limits for the protection of the general public.

Radiocommunication, including the technical aspects of broadcasting, falls under the responsibility of the Minister of Industry, who has the power to establish standards, rules, policies and procedures regarding radiocommunication. The Minister, under this authority, has adopted the exposure limits specified in Health Canada's RF exposure guideline document as regulatory limits. All proponents and operators of radiocommunication and broadcasting installations and apparatus must demonstrate that their proposals will comply with the regulatory limits before constructing any installation and must continue to operate within these limits at all times.

Industry Canada requires antenna proponents to consult with LUAs before building or modifying antenna systems. Proponents must follow the public consultation process outlined in [CPC-2-0-03, \*Radiocommunication and Broadcasting Antenna Systems\*](#), including participation in the applicable local LUA consultation process for reviewing antenna system proposals. However, Industry Canada will uphold its regulatory limits in cases where an LUA proposes RF exposure limits that are higher or lower than these limits, or where there is no position taken by the LUA.

## **RF Exposure Limits for Transmitting Base Stations and Hand-held/Portable Devices**

### **(32) Are the exposure limits for portable transmitters (e.g. cell phones) and antenna towers the same?**

The exposure limits for portable transmitters (e.g. cell phones) and antenna towers are different because of different exposure conditions. Portable transmitters are normally used in close proximity to the body and result in partial body exposure. On the other hand, antenna towers are located at far distances from the body, and thus RF energy from them gives rise to whole body exposure. However, both must comply with Industry Canada's regulatory limits for the protection of the general public.

### **(33) What is "specific absorption rate (SAR)"? Where can I obtain SAR data for my cell phone?**

The SAR is the rate at which radiofrequency energy is absorbed by a defined amount of mass of a biological body. SAR is expressed in units of watts per kilogram (W/kg).

The SAR value of a specific cell phone model can be obtained for almost all cell phones using the Industry Canada (IC) Certification Number for that model. The IC Certification Number is an alphanumeric code that is typically printed on a label or embossed somewhere on the case or in the battery compartment of the phone or device. Once the IC Certification Number is located, enter it in the Certification Number criteria field in the *Radio Equipment List* (REL) database search page, available at the following link:

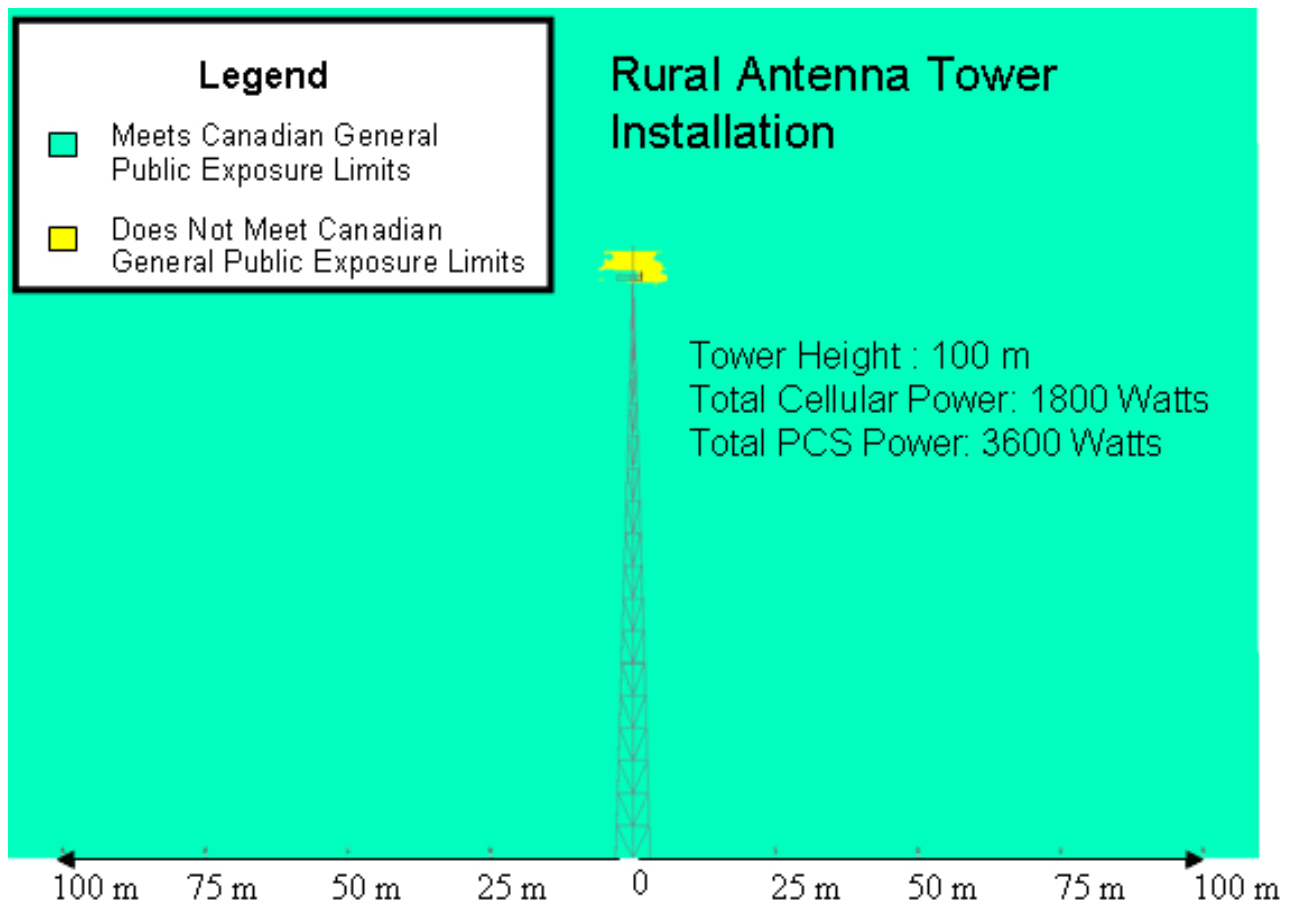
<http://www.ic.gc.ca/app/sitt/reltel/srch/nwRdSrch.do?lang=eng>.

Click on "Search" and the cell phone model will appear. Click on the phone model to obtain the applicable SAR value(s) for your phone as measured at the time of certification.

Industry Canada requires that all portable and hand-held radiocommunication devices sold in Canada, including cell phones, comply with the regulatory SAR limits.

## For Further Information

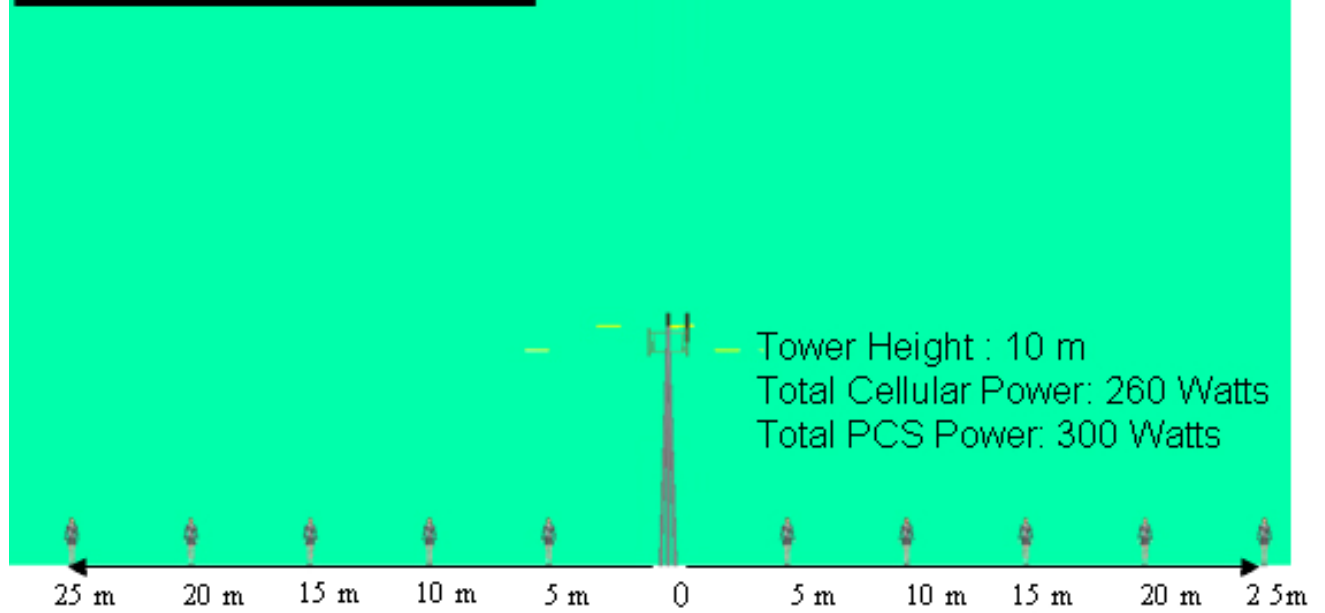
(34) What do some different towers and their RF emissions look like?

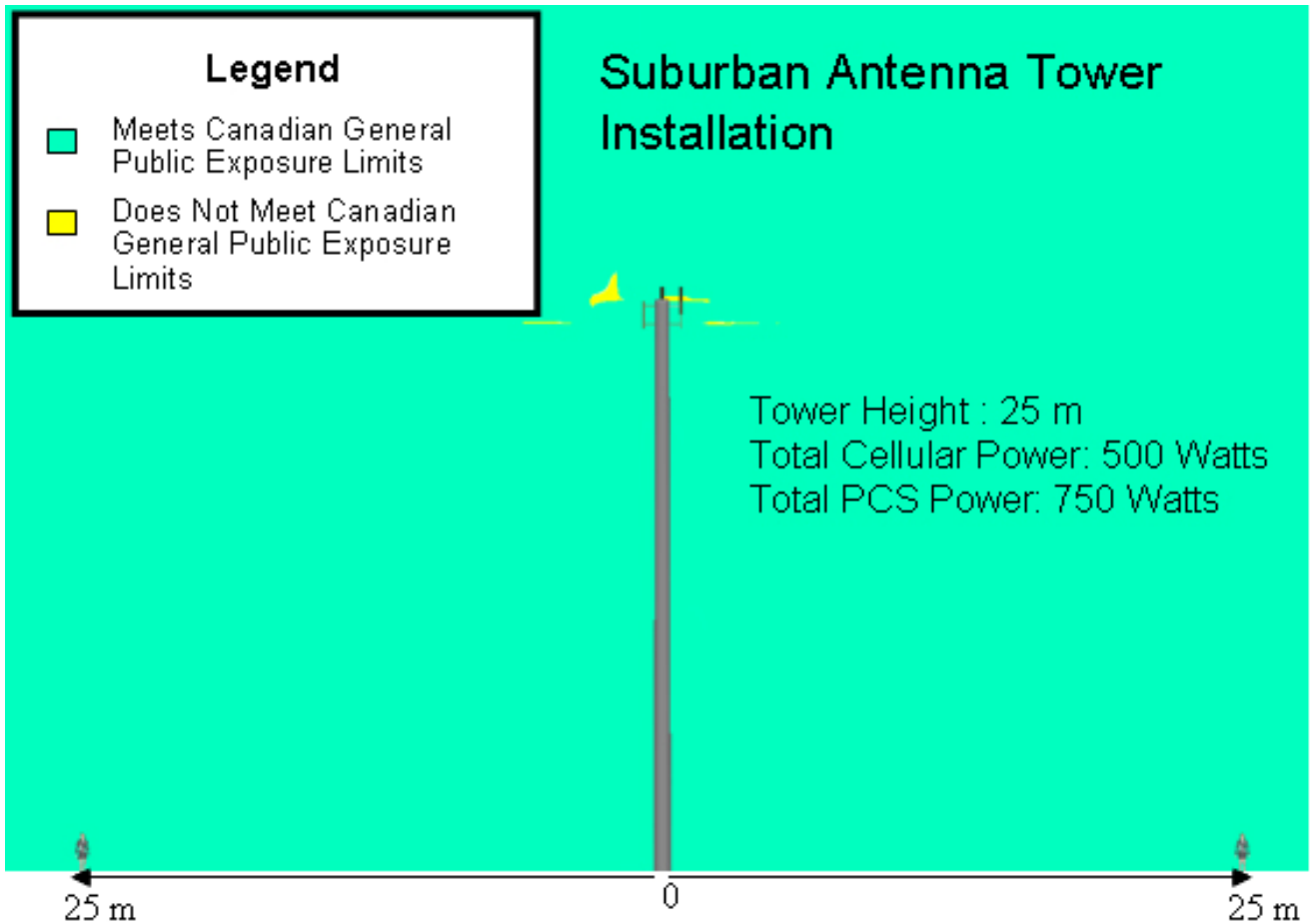


### Legend

- Meets Canadian General Public Exposure Limits
- Does Not Meet Canadian General Public Exposure Limits

## Urban Antenna Tower Installation





**(35) Where can I find more information on RF exposure standards and health?**

More information on RF exposure and health is available at the following websites:

Health Canada

- [Cell Phone Towers](http://www.hc-sc.gc.ca/ewh-semt/radiation/cons/stations/index-eng.php)  
http://www.hc-sc.gc.ca/ewh-semt/radiation/cons/stations/index-eng.php
- [Consumer Radiation](http://www.hc-sc.gc.ca/ewh-semt/radiation/cons/index_e.html)  
http://www.hc-sc.gc.ca/ewh-semt/radiation/cons/index\_e.html
- [Information](http://www.hc-sc.gc.ca/ahc-asc/branch-dirgen/hecs-dgsesc/psp-ppp/ccrpb-bpcrpcc_electromag-eng.php) on what Health Canada does to protect Canadians from exposure to electromagnetic fields  
http://www.hc-sc.gc.ca/ahc-asc/branch-dirgen/hecs-dgsesc/psp-ppp/ccrpb-bpcrpcc\_electromag-eng.php
- [Report on: Measurement of Cellular Base-station Emissions Using a Newly Developed RF Field Mapping System](http://www.hc-sc.gc.ca/ewh-semt/pubs/radiation/cell_base_stations/index-eng.php)  
http:// www.hc-sc.gc.ca/ewh-semt/pubs/radiation/cell\_base\_stations/index-eng.php
- [Safety of Cell Phones](http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/prod/cell-eng.php) and Cell Phone Towers  
http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/prod/cell-eng.php
- [Health Canada's RF Exposure Guideline - Safety Code 6](http://www.hc-sc.gc.ca/ewh-semt/pubs/radiation/radio_guide-lignes_direct-eng.php)  
http://www.hc-sc.gc.ca/ewh-semt/pubs/radiation/radio\_guide-lignes\_direct-eng.php

### [Industry Canada](#)

- <http://www.ic.gc.ca/antenna>

### [The World Health Organization](#)

- <http://www.who.int/peh-emf/en>

[The Royal Society of Canada](#) - Expert Panel on Potential Health Risks of Radiofrequency Fields from Wireless Telecommunication Devices

- <http://www.rsc.ca/home.php>

### [The University of Ottawa](#)

- <http://www.rfcom.ca/welcome/index.shtml>

### [The U.S. Food and Drug Administration](#)

- <http://www.fda.gov>

[The U.S. Federal Communications Commission](#) - *Questions and Answers about Biological Effects and Potential Hazards of Radiofrequency Electromagnetic Fields*

- [http://www.fcc.gov/Bureaus/Engineering\\_Technology/Documents/bulletins/oet56/oet56e4.pdf](http://www.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet56/oet56e4.pdf)

## **(36) Where can I get more information about Industry Canada's requirement to comply with its regulatory limits?**

The following Industry Canada procedures contain information on compliance with Industry Canada's regulatory limits:

- [CPC-2-0-03 - Radiocommunication and Broadcasting Antenna Systems](#)  
<http://www.ic.gc.ca/eic/internet/smt-gst.nsf/en/sf08777e.html>
- [Broadcasting Procedures and Rules, Part 1, General Rules](#)  
<http://www.ic.gc.ca/eic/site/smt-gst.nsf/en/sf01326e.html>
- [RSS-102 - Radio Frequency Exposure Compliance of Radiocommunication Apparatus \(All Frequency Bands\)](#)  
<http://www.ic.gc.ca/eic/internet/insmt-gst.nsf/en/sf01904e.html>

The following Industry Canada guidelines contain information on RF field Measurements and Compliance Measures:

- [GL-01 - Guidelines for the Measurement of Radio Frequency Fields at Frequencies from 3 kHz to 300 GHz](#)  
<http://www.ic.gc.ca/eic/site/smt-gst.nsf/en/sf01451e.html>
- [GL-02 - Guidelines for the Protection of the General Public in Compliance with Safety Code 6](#)  
<http://www.ic.gc.ca/eic/site/smt-gst.nsf/en/sf05990e.html>

If you would like to contact your local Industry Canada district office, consult the following:

- [RIC-66 - Addresses and Telephone Numbers of Regional and District Offices](http://www.ic.gc.ca/eic/site/smt-gst.nsf/en/sf01742e.html)  
<http://www.ic.gc.ca/eic/site/smt-gst.nsf/en/sf01742e.html>

**(37) I have a question about Health Canada's RF exposure guideline. Who should I contact?**

For more information on the guideline, contact:

Consumer and Clinical Radiation Protection Bureau  
Health Canada  
Email: [CCRPB-PCRPPC@hc-sc.gc.ca](mailto:CCRPB-PCRPPC@hc-sc.gc.ca)

For more information please visit:

<http://www.hc-sc.gc.ca/ahc-asc/branch-dirgen/hecs-dgsesc/psp-ppsp/ccrpb-bpcrpcc-eng.php>