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20 May 2015

5:30 p.m.

Healthy Saanich Advisory Committee

At Saanich Municipality Hall

770 Vernon Avenue Victoria BC

<http://www.saanich.ca/living/mayor/boards/hsac.html>

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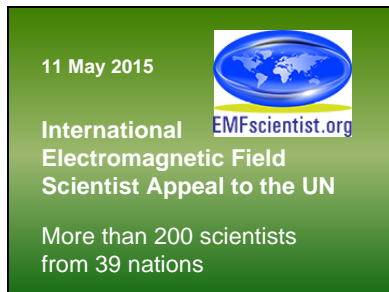


Congratulations to signing on to the Blue Dot Movement.

Though a safe electromagnetic environment is not mentioned in the original Declaration, the electromagnetic quality of our environment has a major impact on the well-being of humans, animals, and plants.

Source: <http://bluedot.ca>

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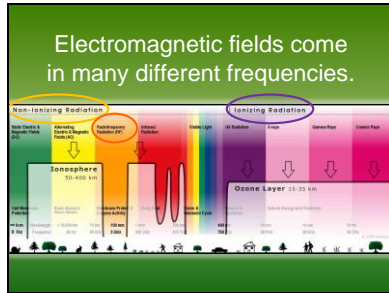
The Appeal thus calls upon all member nations of the United Nations to:

- Protect children and pregnant women from EMF;
- Make EMF standards more protective
- Encourage manufacturers to develop safer technology;
- Inform the public about the potential health risks from EMF and teach people how to reduce risks;
- Establish EMF-free areas;

ELF and RF should be classified as probable carcinogen

Source: www.EMFscientist.org

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Ionizing radiation exposure causes about 1/3 direct effects of DNA damage and 2/3 indirect effects of DNA damage, e.g. due to excess free radicals.

Nonionizing radiation can also cause thermal effects as well as nonthermal effects such as the formation of excess free radicals.

Graphics: Pelle Gustavs

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Canada	10,000,000 $\mu\text{W}/\text{m}^2$
Russia, China, Italy, Toronto	100,000 $\mu\text{W}/\text{m}^2$
Ukraine	24,000 $\mu\text{W}/\text{m}^2$
Salzburg Resolution 2000	1000 $\mu\text{W}/\text{m}^2$
BioInitiative Report 2007	1000 $\mu\text{W}/\text{m}^2$
Austrian Antenna System Guideline	1000 $\mu\text{W}/\text{m}^2$
Austrian Sustainable Building Council	10 $\mu\text{W}/\text{m}^2$
BioInitiative Report 2012	3-6 $\mu\text{W}/\text{m}^2$
Austrian Medical Association 2012	1 $\mu\text{W}/\text{m}^2$
Building Biology Guidelines 2015	0.1 $\mu\text{W}/\text{m}^2$
Natural background	0.000 001 $\mu\text{W}/\text{m}^2$

Canada has one of the highest RF exposure limits worldwide.

Precautionary guidelines tend to be 10,000 times lower or even lower.

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Review of 15 Studies on Cell Tower Radiation (2009)

Health symptoms are observed from 500-1000 $\mu\text{W}/\text{m}^2$, incl. cardiovascular symptoms, headaches, sleep problems

Michael Kundi and Hans-Peter Hutter (2009): Mobile phone base stations—Effects on wellbeing and health

<http://www.ncbi.nlm.nih.gov/pubmed/19261451>

Hutter, Moshammer, and Kundi (2002)

>1000 $\mu\text{W}/\text{m}^2$

Cardiovascular symptoms highly significant

In this study nobody knew it was a study about cell tower radiation, questions were about a whole range of environmental factors.

EMF levels measured in 336 households

http://www.stopumts.nl/pdf/studies/hutter_2002.pdf

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Why should a municipality not care about the health of its citizens?

This document recognizes the existence of “community sensitive locations” such as residences and recommends to “maximize the distance from residential areas.”

“The Municipality does not assess any submission for an Antenna System with respect to health and radiofrequency exposure issues or any other non-placement or non-design related issues. Any questions or comments the public may wish to make regarding health issues related to cell phones, cell towers and radiofrequency exposure guidelines (Safety Code 6) should be directed to Health Canada on-line at healthcanada.gc.ca and to the Proponent’s representative.”

(Page 5, Footnote 2)

Source: Federation of Canadian Municipalities
Canadian Wireless Telecommunications
Association

http://www.fcm.ca/Documents/tools/FCM/Antenna_System_Siting_Protocol_EN.pdf


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B.C. Local Government Act 1996

http://www.bclaws.ca/EPLibraries/bclaws_new/document/LOC/freeside/--%20L%20--/Local%20Government%20Act%20RSBC%201996%20c.%20323/00_Act/96323_19.xml#part15_division4
Division 4: Health

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Châteauguay vs.
May 2014
COUR D'APPEL DU QUÉBEC
100 ROGERS

- Well-being of citizens is a legitimate municipal purpose
- City of Châteauguay has the right to designate an **alternative location** for radiocommunication equipment

Châteauguay – Suburb of Montreal, ca. 46,000 inhabitants

2007 Rogers applies for installation of a cell tower
2009 Neighbors concerned about location and signed petition

Notice of land reserve to stop the installation of the Rogers cell antennas

Notice of expropriation to provide alternative location

30 May 2014 Quebec Court of Appeal rules that well-being of citizens is a legitimate municipal purpose

29 January 2015 Supreme Court of Canada granted leave to appeal to Rogers

Sources:

http://www.ville.chateauguay.qc.ca/en/COM54_Jugement_Rogers

<http://www.mcanshlaw.com/municipal-cell-tower-battles/#more-1423>

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Canada Industry Canada Industrie Canada

June 2014 Amendments to Antenna Tower Siting Procedures

- Local residents / municipal government at center of siting process
- Cell antennas at any height must go through consultation process
- Municipalities may set their own distance for notification radius

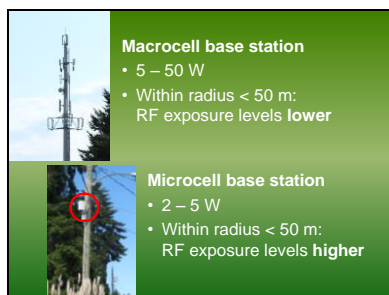
Canadian Antenna Tower Siting Procedures

Notification distance: within a radius of three times the tower height

Cell antennas below 15 m not anymore exempt from consultation process

Source: <http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf10840.html>

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Macrocell base station

- 5 – 50 W
- Within radius < 50 m: RF exposure levels **lower**

Microcell base station

- 2 – 5 W
- Within radius < 50 m: RF exposure levels **higher**

“Exposures were generally greater at microcell sites than at macrocell sites when locations within about 50 m from the antennas were considered.”

This study was funded by the UK Department of Trade and Industry.

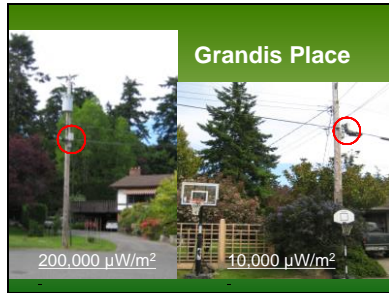
Source:

Cooper et al. (2004): Exposure of the General Public to Radio Waves near Microcell and Picocell Base Stations for Mobile Telecommunications.

www.infocell.org/imgs/uploads/research/NRPB_W62_Sep2004.pdf

Images: Katharina Gustavs

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Cadboro Bay Area on Vancouver Island
Telus microcell installations with 33 locations
Spot RF measurements taken with Gigahertz Solutions HFE59B RF meter with ultrabroadband antenna on 18 May 2015

Left image: Within 10 m of utility pole
Peak Hold: 20,000 – 30,000 $\mu\text{W}/\text{m}^2$, with correction factor 10 = 200,000 – 300,000 $\mu\text{W}/\text{m}^2$
Right image: Around basketball hoops
Peak Hold: 1000 – 5000 $\mu\text{W}/\text{m}^2$, with correction factor 10 = 10,000 – 50,000 $\mu\text{W}/\text{m}^2$

Images: Katharina Gustavs

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Cadboro Bay Area on Vancouver Island
Telus microcell installations with 33 locations
Spot RF measurements taken with Gigahertz Solutions HFE59B RF meter with ultrabroadband antenna on 18 May 2015

Left image: Measurements taken in front of entrance
Peak Hold: 1000-2000 $\mu\text{W}/\text{m}^2$, with correction factor 10 = 10,000 – 20,000 $\mu\text{W}/\text{m}^2$
Right image: Microcell unit on Arbutus Road closest to entrance of church hall, beam direction toward church

2012/2013 Telus approaches United Church on Arbutus Road about cell tower site
http://www.cadborobay.net/news/page.php?tag=cell_phone

Images: Katharina Gustavs

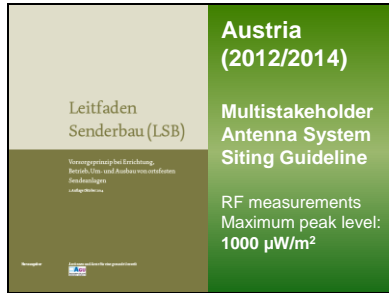
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Australia
Communications Alliance Ltd. (industry forum)
Issued since 2002

Source:
http://www.acma.gov.au/webwr/telcomm/industry_codes/codes/c564_2011.pdf

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Antenna System Siting Guideline—

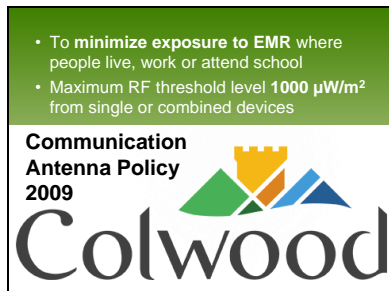
A Precautionary Approach to Installation, Operation, Retrofitting, and Expanding Fixed Transmitter Sites (2014) - Issued since 2012

- Precautionary target threshold level: **<1000 $\mu\text{W}/\text{m}^2$** sum total of all fixed wireless transmitters inside or outside a building
- Applies not only to cell tower emissions (e.g. GSM, UMTS, LTE, etc.) but any fixed wireless transmitter from 100 kHz (e.g. broadcasting, TV, Wi-Fi, TETRA, ham radio, etc.)
- Applies to sensitive areas where humans spend more than 4 hours per day (e.g. residences, schools, workplaces)
- List of scientific studies on nonthermal biological effects
- RF measurement protocol of average and peak levels (with broadband RF meter or spectrum analyzer)

Source:

https://www.wko.at/Content.Node/branchen/oe/Elektro-Gebaeude-Alarm-und-Kommunikationstechniker/Leitfaden_Senderbau.html

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Precautionary cell tower siting policy of Colwood found on pages 435 to 447

CVRD Electoral Area Services Committee meeting on 5 March 2013.

<http://www.cvrd.bc.ca/archives/71/March%205,%202013.pdf>

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- Cell tower applicant must petition all property owners **within 500 m** of proposed cell tower site
- Petition process must demonstrate support of **at least 80%** of those parties petitioned

Telecommunication Tower Bylaw 2013

The City of Langley



Source: Township of Langley Zoning Bylaw 1987 NO. 2055, Amendment (Telecommunication Towers) Bylaw 2013 NO. 5013

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Update Saanich Administrative Policy for Antennas (2009)

- Regardless of mounting height of cell antenna, have public consultation process
- Choose a large notification distance, e.g. 500 m

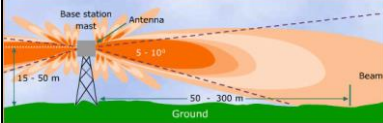



Image: Mobinil beam shape & direction
<https://www.mobinil.com/en/about/company-overview/social-responsibility/health/interesting-facts>

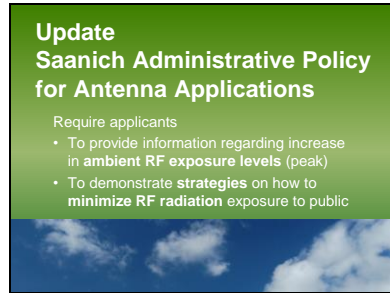
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Update Saanich Administrative Policy for Antenna Applications

- Include precautionary principle
- Mandate to minimize ambient RF radiation exposure levels, at least in sensitive areas such as residential areas



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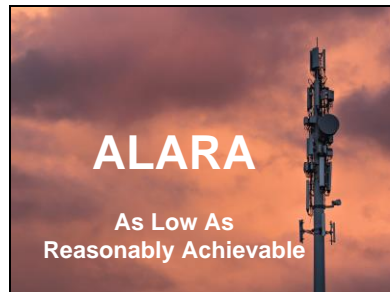


**Update
Saanich Administrative Policy
for Antenna Applications**

Require applicants

- To provide information regarding increase in ambient RF exposure levels (peak)
- To demonstrate strategies on how to minimize RF radiation exposure to public

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ALARA
As Low As
Reasonably Achievable

For ionizing radiation, the ALARA principle has been applied since the 1950s.

(US National Council on Radiation Protection and Measurement (NCRP) 1954)

For nonionizing radiation such as RF radiation, the application of the ALARA principle is now also being recommended.

2011 Council of Europe Parliamentary Assembly

Resolution 1815 on The potential dangers of electromagnetic fields and their effect on the environment

<http://assembly.coe.int/mainf.asp?link=/documents/adoptedtext/ta11/eres1815.htm>

*“Reconsider the scientific basis for the present standards on exposure to electromagnetic fields set by the International Commission on Non-Ionising Radiation Protection, which have serious limitations, and **apply ALARA principles**, covering both thermal effects and the athermic or biological effects of electromagnetic emissions or radiation.”*

Image: Pelle Gustavs