

# **An Industry Perspective On Electromagnetic Fields (EMF) and Electromagnetic Radiation (EMR)**

## **HiBR 2018 Conference**

**Frank Clegg**

**Environmental Health Trust  
Canadians for Safe Technology**

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# Organization's Focus

## C4ST: Canadians for Safe Technology

- Not-for-profit, completely volunteer-based, national coalition of parents, citizens and experts
- To educate and inform Canadians about the dangers of the exposures to unsafe levels of radiation from wireless technology
- To work with all levels of government to create healthier communities for children and families from coast to coast.

## Environmental Health Trust

The only nonprofit in the world today that both:

- Carries out high-level critical research on controllable environmental health hazards and
- Works directly with local communities, teachers, parents and students as well as policy makers to understand and mitigate these hazards through research, education and advocacy.



# Our North American guidelines and regulations are behind other countries.

- China, Russia, Italy and Switzerland have guidelines that are 100 times safer than in Canada and the US.
- In 2015 French Legislators passed articles into law that:
  - Put restrictions on advertisements promoting cell phones
  - Either banned or restricted the use of wi-fi in schools.
- As of March, 2014, it is illegal to market cell phones to children less than seven years of age in Belgium.
- Our track record of protecting citizens in a timely manner is not exemplary: asbestos, cigarette smoking, bisphenol-A (BPA), thalidomide and urea formaldehyde insulation.

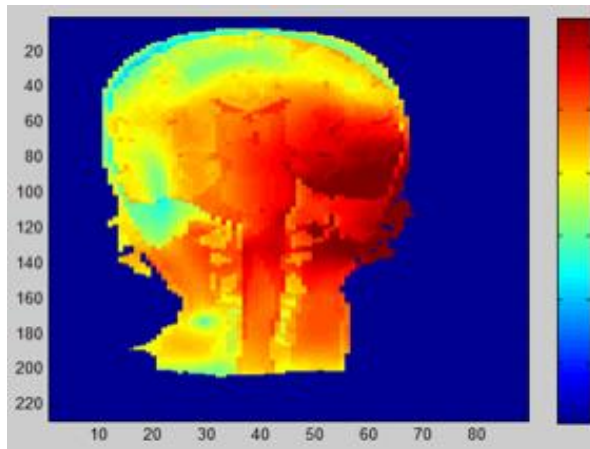


# FCC RF Exposure Limits Outdated and Non-protective

- FCC Human Exposure to Radiofrequency Limits Set 1996
- 20 years outdated.
- Based on thirty year old science (IEEE C95.1 1991 ANSI C95.1 1982 and NCRP 1986.)
- Initially researched for military use of radar.
- Inadequate to address children and pregnant women.
- Only consider thermal effects and not biological effects.
- No systematic research review by US government.
- EPA research defunded in mid 90's.

# Children are not “Little Adults”

State-of-the art computer modeling simulates peak SAR into anatomically correct models.

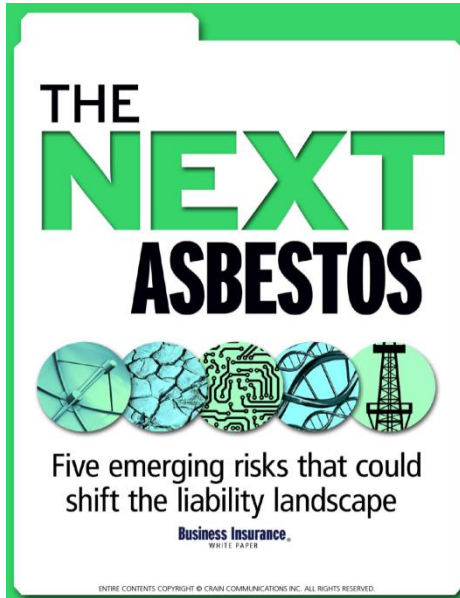


“The average RF energy deposition is 2 times higher in the brain and 10 times higher in the bone marrow of the skull, compared with mobile phone use by adults. (American Academy Pediatrics Letter to the FCC (2012))

Younger models absorb proportionally more radiation in the eyes and brain

- Eyes 2 to 5 fold higher; up to a 30 fold greater hippocampus in younger model

# Insurance Company's reduced their risk re EMR and EMF'S



- No insurance coverage for cell phone companies since 1997.
- Multiple white papers by the insurance industry classify the risk as high.
- Insurance companies exclude EMFs as an industry standard

“The danger with EMF is that, like asbestos, the exposure insurers face is underestimated and could grow exponentially and be with us for many years.”

*-Lloyds of London 2010 Report*

*Swiss Re Report 2013, 2014*

Ranks Electromagnetic fields potential impact as “High”

2011 *Business Insurance White Paper*  
[Insurance Company Reports](#)

# Challenging the business case of wireless deployment

REINVENTING WIRES: THE FUTURE OF LANDLINES AND NETWORKS

**Timothy Schoechle, Ph.D.**

Senior Research Fellow, National Institute for Science, Law and Public Policy

Wireless networked solutions:

- Continue to be about 100 times slower than wired systems
- Are unreliable, more vulnerable to security and privacy problems and prone to both latency and delay issues
- Consume significant amounts of energy and are not sustainable
- Leave people vulnerable in the event of power grid failure
- Increase the points of vulnerability hundreds of thousands of times
- Significantly increase the amount of personal and business data at risk

# My Industry's behaviour must improve

- The laissez faire approach to the deployment of technology has provided significant benefits: At What Cost?
- Burying warnings several layers inside a cell phone or baby monitor is not enough.
- Recent breakage of trust as in the Facebook situation that impacted 80+ million consumers earlier this year prove a more proactive approach is necessary.
- Similar to Yahoo's 2014 security breach impacting 500 million customers that wasn't reported until 2016, this breach in trust was not reported right away.
- Is the \$35million fine enough to change company behaviour?
- Our current process of introducing new technology and then monitoring for damage is not sustainable.
- My industry needs to take a more responsible approach to researching the potential harmful effects of new technology BEFORE releasing to the market.



# Appendix

# Concerns regarding the next wave: 5G

- The FCC has included this new set of technology automatically under the current guidelines since it lies with the current spectrum range
- 5G radiation is chiefly absorbed by the skin, the largest organ of the body.
- The U.S., Russian and Chinese defense agencies are developing weapons within this electromagnetic frequency range as a form of crowd control.
- Short term exposure trials have shown that these frequencies have biological effects: the only difference between a medicine and a poison is the dosage.
- Full-scale implementation could result in powerful antennae every 3 to 10 houses in residential areas.

# Industry behaviour is not exemplary

- **Manufacturer's warnings are not known**
  - iPad - "... to be sure that human exposure to RF energy does not exceed the FCC, IC, and European Union guidelines, always follow these instructions and precautions: Orient the device in portrait mode with the Home button at the bottom of the display, or in landscape mode with the cellular antenna..."
  - i-Phones: "carry i-Phone at least 10 mm away from your body to ensure exposure levels remain at, or below, the as-tested levels." **Go to Settings – General – About – Legal – RF Exposure**
  - Blackberry - "Use hands-free operation if it is available and **keep the device at least 0.98 in. (25 mm) from your body** (including the abdomen of pregnant women and the lower abdomen of teenagers) when the BlackBerry device is turned on and connected to the wireless network. (**Torch 9800**) > **User Manual > Page 21**
  - Samsung - "For body-worn operation, this phone has been tested and meets FCC RF exposure guidelines when used with an accessory that contains no metal and that **positions the mobile device a minimum of 1.5cm from the body.**" (**Galaxy II**) > **User Manual > Page 164**
- **Advertising shows children with phones against their heads**

# Comparison of County Limits for 900 MHz V/m

V/m 900 MHz RFR V/m electric field Electric field (V/m) 900 MHz

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