

Minister of Health



Ministre de la Santé

Ottawa, Canada K1A 0K9

AUG 16 2017

Mr. Frank Clegg  
Canadians for Safe Technology  
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Maple Grove Village Postal Outlet  
Oakville, Ontario L6J 7P5

Dear Mr. Clegg:

This is in response to your environmental petition no. 398 of April 3, 2017, addressed to Ms. Julie Gelfand, Commissioner of the Environment and Sustainable Development (CESD).

In your petition, you raised concerns regarding appropriate warnings on common personal and household wireless devices. I am pleased to provide you with the enclosed responses to questions 1, 2, 3, 6, 7, 8, 9 and 10 of your petition. I understand that the Minister of Innovation, Science and Economic Development will be responding separately to questions that come under the purview of his department.

I appreciate your interest in this important matter.

Yours sincerely,

The Honourable Jane Philpott, P.C., M.P.

Enclosure

c.c. Ms. Julie Gelfand, CESD  
The Honourable Navdeep Bains, P.C., M.P.

Canada

## **Minister of Health's response to Petition #398**

**Question 1: Given the proof that the way Canadians are using their cell phones (against their bodies) is exceeding the Safety Code 6 guidelines, is Health Canada considering increasing the 50 times uncertainty margin and reducing the level of radiation that is permitted?**

### **Response 1:**

When establishing Safety Code 6, Health Canada incorporated several tiers of precaution into the human exposure limits. These included conservative thresholds for the occurrence of adverse effects, extreme worst-case situations for body size and orientation in relation to the radiofrequency (RF) fields, and additional safety margins. Since these conservative approaches are cumulative, i.e., stacked upon each other, Safety Code 6 provides very large margins of safety against the occurrence of all established adverse health effects associated with RF field exposure. Therefore, Health Canada will not be changing the uncertainty margin at this time.

**Question 2: What science based evidence does the Government of Canada have to make the above statement "cell phones are still safe when carried directly against the body"?**

**Question 3: What is the precise level (with confidence intervals) in W/kg per 1 gram of tissue at which harm from radiofrequency/microwave radiation has been established? Where can the calculations for this be found? On which scientific publications was this level based?**

### **Response 2 and 3:**

The peak spatially-averaged specific absorption rate (pk-SAR) limit in Safety Code 6 (SC6) applies to the head, neck and trunk. This limit is 1.6 W/kg, as averaged over any 1 g and for any 6 minute exposure period (reference period). This limit is based upon avoiding cataract formation in the eye, which has been conservatively estimated to occur at sustained pk-SAR levels of 100-150 W/kg to the eye (as reviewed in Elder, 2003 and IEEE C95.1 (2005)).

The recommended pk-SAR limit of 1.6 W/kg is not the threshold for the occurrence of adverse health effects. In fact, as a precautionary measure, the pk-SAR limit was set more than 50x below the level where excessive tissue heating could occur in the eye. This means that the pk-SAR limits in Safety Code 6 would need to be exceeded by more than 50x in the eye before the occurrence of any thermally-related adverse health effects would be expected. Exposures to the body (skin and underlying tissue) at the SC6 pk-SAR limit of 1.6 W/kg would result in a localized temperature increase of less than 1 degree Celsius (Anderson et al., 2010; Moore et al., 2017).

In the event of exposures that marginally exceed the pk-SAR limits in SC6 (in the head, neck or trunk), the only scientifically established health impact would be a warming of the skin and underlying tissue. This degree of heating is no different from the type of skin warming that



occurs every day from sources like a hot water bottle, warm bath, or warm clothes. The human body can efficiently dissipate small increases in local body temperature, resulting in no adverse impacts on health.

For these reasons, exposures that marginally exceed the pk-SAR limits in SC6 is not considered to represent a risk to health due to the precautionary safety margins already incorporated within SC6. Despite this, Health Canada recommends that the pk-SAR limits in SC6 for the head, neck and trunk should be respected.

**References:**

Elder JA. Ocular effects of radiofrequency energy. *Bioelectromagnetics Suppl.* 6:S148-161 (2003).

Institute of Electrical and Electronics Engineers. *Safety Levels with Respect to Human Exposure to Radiofrequency Electromagnetic Fields C95.1, 3 kHz to 300 GHz.* New York, USA (2005).

Anderson V, Croft R, McIntosh RL. SAR versus S(inc): What is the appropriate RF exposure metric in the range 1-10 GHz? Part I: Using planar body models. *Bioelectromagnetics.* 2010 Sep;31(6):454-66.

Moore SM, McIntosh RL, Iskra S, Lajevardipour A, Wood AW. Effect of adverse environmental conditions and protective clothing on temperature rise in a human body exposed to radiofrequency electromagnetic fields. *Bioelectromagnetics.* 2017 Mar 24.  
<http://onlinelibrary.wiley.com/doi/10.1002/bem.22048/epdf> [E-pub ahead of print]

For further information on the scientific rationale for the basic restrictions and reference levels within the Safety Code 6, please consult the Safety Code 6 Rationale document (attached).

**Questions 4 and 5 will be responded to by the Minister of Innovation, Science and Economic Development and will be sent under separate cover.**

**Question 6: Will the Government of Canada provide advisories or other appropriate notifications to inform Canadians that allowing wireless transmitting devices to come in direct contact with their bodies can exceed Safety Code 6 (2015) limits? Which Ministry and Department would be responsible to provide such warnings?**

**Question 7: Will the Government of Canada run an education and awareness campaign to inform all Canadians how to use wireless devices more safely?**

**Question 8: Precedents exist where information on "situations where the use of—or exposure to—a product could pose a risk" has been published by Health Canada for other public health concerns. Will Health Canada provide precautionary messaging e.g. advisories or campaigns such as the BabySafe project, to inform pregnant women (and their physicians) to avoid having wireless transmitting devices touch their bodies to minimize risk to the fetus?**



**Question 9: Will Health Canada provide precautionary messaging e.g. advisories or campaigns, to inform pediatricians, parents, teachers and other school authorities to avoid having wireless transmitting devices touch their children's bodies to minimize the risk to them?**

**Response 6, 7, 8, and 9:**

Health Canada already undertakes many of these activities. Health Canada maintains messaging on its website that reminds cell phone users that they can take practical measures to reduce their radiofrequency (RF) exposure by limiting the length of cell phone calls, using "hands-free" devices and replacing cell phone calls with text messages. This messaging also encourages parents to take these measures to reduce their children's RF exposure from cell phones in acknowledgement that children are typically more sensitive to a variety of environmental agents. More information is available at:

<https://www.canada.ca/en/health-canada/services/consumer-radiation/safety-cell-phones-cell-phone-towers.html>

Health Canada and other leading health agencies, including the World Health Organization, have concluded that, to date, there is no convincing scientific evidence linking adverse health effects to levels below existing RF exposure limits. Health Canada does not have any immediate plans to expand existing messaging.

With respect to the federal role, Health Canada administers the *Radiation Emitting Devices Act* (REDA) and the *Canada Consumer Product Safety Act* (CCPSA). Under the REDA, Health Canada has the authority to take regulatory and compliance and enforcement actions in the event that a radiation emitting device creates, under particular circumstances, a risk to any person of genetic or personal injury, impairment of health or death. Under the CCPSA, it is prohibited to advertise a consumer product, including consumer products that are radiation emitting devices, if the advertisement in question may reasonably be expected to create an erroneous impression regarding the fact that the consumer product is not a danger to human health or safety, or if the product itself is a danger to human health or safety.

Under the *Radiocommunication Act*, the Minister of Innovation, Science and Economic Development Canada (ISED), has the power to manage the use of radio spectrum and regulate radio apparatus through technical standards and conditions of authorization. ISED requires compliance with Safety Code 6 as part of its technical standards for radio apparatus. ISED requires that all portable and hand-held radiocommunication devices sold in Canada, including cell phones, comply with the regulatory specific absorption rate (SAR) limits.

**Question 10: In North America, devices such as baby monitors and portable home phones send out a constant signal (emitting radiofrequency/microwave radiation) at all times. In Europe, these devices have been modified for safety so that they only emit radiation when the baby makes a noise or someone speaks into the handset (on demand). Why are these devices not available in Canada? What will the Government of Canada do to facilitate the access of Canadians to these reduced risk products?**

**Response 10:**

Health Canada cannot comment on the business decisions of companies to market products in certain regions, but not in others. For products currently marketed in Canada, they must comply with the applicable laws and regulations. The exposure limits of Safety Code 6, however, have always been established at levels far below the threshold of potential adverse effects.