Respones to school measurements being deemed 'safe'.

The school has been measured for the levels of RF. It has been deemed to be 'very low' What does very low mean?

It means the measured levels of exposure are very low compared to the 'reference level' given in the RF standard set by ARPANSA. (20 W/m^2 or 61.4 V/m)

Health effects defined by science

The current RF reference levels for the public are based on what ARPANSA calls 'established health effects'. This term is political. It is not scientific or medical.

According to ARPANSA, 'health effects' only occur when a 10 gram cube of the body tissue is heated by more than one degree when exposed to an RF signal for 6 minutes, then all exposures over that area and in that time are averaged.

As an analogy, this is like saying school children will only be affected by cigarette smoke if the smoke from a cigarette heats their bodies by 1 degree in 6 minutes. It is clear that harm from smoking is not due to heating, and to apply a 'cooking standard' would ignore the real health effects. A similar situation exists with RF exposures.

This definition has been created (mostly by physicists with ties to international telcos) to ensure that no industry communications signals will be prevented due to their violating of the standard. The vast amount of energy required to create such 'cooking effects', will never be realised by industry RF signalling, even from multiple towers and satellites surrounding the earth. So, industry remains safe to proceed as it pleases.

Health effects defined by science

Scientists and doctors around the world are gravely concerned. This is because those who are trained in medicine and biophysics are aware that there are many ways in which 'health effects' can occur from RF exposures. None of these are due to heating.

Indoor areas: There are safety guidelines for long term exposures indoors that are based on the science of actual harmful effects and the Precautionary Principal (discussed below). They are set by the European Institute of Building Biologists, who are experts in measuring the health safety of living environments, with no ties to industry. Baubiologie specifies that peak values of < 0.1 µW/m^2 have no concerns, 0.1-10 µW/m^2 creates slight concern, 10-1000 µW/m^2 creates severe concern and >1000 µW/m^2 creates extreme concern.
(see https://www.baubiologie.de/downloads/english/richtwerte_2008_englisch.pdf)
These values are many thousands of times lower than the ARPANSA standard, which is set at 20 x 1,000,000 µW/m^2

Outdoor areas: A safety standard for outdoor exposures was set by the independent scientists[1] who created the Bioinitiative report after reviewing thousands of scientific papers effects. Their 2012 updated safety limit for long term outdoor exposures, taking into consideration the greater vulnerability of children and the greater effects of pulsed radiation, is *0.3 nanowatts to 0.6 nanowatts per square centimeter as a reasonable, precautionary action level for chronic exposure to*

[1] The BioInitiative 2012 Report was prepared by 29 authors from ten countries, ten holding medical degrees (MDs), 21 PhDs, and three MsC, MA or MPHs. Among the authors are three former presidents of the Bioelectromagnetics Society, and five full members of BEMS.

pulsed RFR. That is, 3 to 6 μW/m^2, which is about 300,000 to 600,000 times lower than the ARPANSA limit. (see https://bioinitiative.org/conclusions/)

How does that compare with the levels measured at the school?

Many biological effects occur that are not due to heating of tissue. Instead, they are thought to be due to disturbances in the finely tuned electrochemical and quantum systems of the body. The biological effects that are known to occur are: DNA damage, protein unfolding, oxidative stress, changes to calcium signalling, changes in neurotransmitters, and opening of the blood-brain barrier. These effects occur at exposure levels thousands of times lower than the ARPANSA reference levels.

Alterations to these fundamental systems have flow on effects for health, such as autoimmune diseases (e.g. diabetes), heart disease, depression, Alzheimer's disease, sleep disturbances, disruption to thinking and memory, severe headaches, leukaemia and other cancers.

The above concerns are amplified in children, whose skulls are thinner, whose brains are more permeable to signals, who have no awareness of the potential harm, and who will have a lifetime of exposures. People who begin using their phones before they are 20 are at greatest risk of developing a brain tumour (Hardell and Carlberg, 2015). This would be relevant to most teenagers living today.

There are many references to justify these concerns. ORSAA has a freely available database of over 3000 papers; (peer reviewed published papers since the 1970, see www.orsaa.org). Of these 2/3 of the papers report biological or health effects (see figure 1 below and Pris paper to AARPS journal).

There is a remarkable imbalance between the evidence available, and the lack of action by governments. Even if industry friendly scientists insist on keeping the debate at 'we don't yet know' then the position taken MUST be the Precautionary Principle (reduce exposures to the minimum possible). This is the principle on which ARPANSA operates for regulating industry exposures for UV radiation and ionising (nuclear) radiation.

Principals adhering to the Precautionary principal would do the following

- Wire the school
- Do not let children under 12 interact with phones / wifi emitting devices or have them on near their bodies (to protect brain, blood and cells)
- Do not let children use laptops / tablets on their lap (to protect sperm and ovaries)
- Limit any wifi exposure in classrooms by disabling devices and turning off modems / wifi via a switch in the classroom when not in use,
- Use books instead of screens wherever possible
- Insist that Telco tower signals incoming in to the school adhere to the Bioinitiative standard. Telcos can move the main tower far away from the school, and install a small local repeater near the school in order to service just the school and not the entire local area.

A matter of conscience

It has come to this. Scientists have to talk philosophy. The science is clear that there is a real risk of harm for millions of people, in particular, school children. The willingness to address this risk is ultimately not a matter of science, or of policy, but of conscience.

School principals must therefore make a conscious choice to answer the following questions for themselves:

- Do they accept the official definition of health effects (i.e., cooking the body in 6 minutes) or do they acknowledge that other biological and health risks exist?
- Do they trust the authorities blindly, or do they sincerely look into this matter?

- Do they work to protect their children, or their own reputation?
- Can they believe that big business is allowed to dictate their own terms, even willing to harm children in order to make a buck, or do they believe that the government legislation to protect our children (i) exists and (ii) is enforced.
  If so, what is that legislation? Children are now deemed to be biologically the same as adults when it comes to RF effects, according to the latest ARPANSA guidelines.

INTERPHONE Study Group. (2010). Brain tumour risk in relation to mobile telephone use: results of the INTERPHONE international case–control study. *International journal of epidemiology*, *39*(3), 675-694.

Hardel, L., and Carlberg, M. (2015). Mobile phone and cord-less phone use and the risk for glioma analysis of pooled case-control studies in Sweden, 1997-2003 and 2007-2009.Pathophysiology. 22:1–13