
THE FIRSTENBERG BRIEF ON ELECTROSMOG

Addressing the Overlooked Crisis of
Electromagnetic Fields:
A Call to Action for World Leaders

The Firstenberg Brief on Electrosmog

Dr Arthur Firstenberg (1950-2025), a pioneering researcher in the field of electromagnetic fields (EMF) and their impact on health, dedicated decades of his life to uncovering the profound effects of EMF radiation on living organisms. His groundbreaking work, often considered ahead of its time, meticulously synthesized scientific evidence to challenge conventional perspectives on technology and health. While his recommendations may appear radical to some, they are rooted in the extensive research and data he compiled over years of rigorous study. Dr Firstenberg passed away on the 25th February 2025, leaving behind a legacy of critical inquiry and advocacy. The World Council for Health is honoured to present the conclusions of his work as a vital reference to inspire important and overdue discussions about the implications of EMF exposure in our modern world.

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I. Key Points of The Firstenberg Brief

- The study of electricity should be restored to biology and medicine.
- Adults and children should be educated about the danger of wireless radiation to health and the environment
- Personal wireless communication must be phased out because the radiation that carries all the messages is destroying life on earth.
- Mobile phones must be replaced with landline phones, WiFi with ethernet cables, and other wireless consumer devices with devices connected by wires and cables.
- Mobile phone antennas and masts must be phased out and removed.
- Wireless technology must be removed from vehicles.
- Smart meters must be replaced with analog meters.
- Smart highways, smart cities, and the Internet of Things must cease being developed and deployed.
- Radar stations must be limited in number, location and power.
- An international treaty on Electrosmog must be agreed.

II. Introduction

Electrosmog is the totality of the electric fields, magnetic fields, and electromagnetic radiation that bathes us 24/7 from all electrical and electronic devices, all electric wires, all power lines, and all wireless devices and antennas. With wired communication, information is transmitted via the wires, and the electromagnetic fields (EMFs) and radiation are unintentional. Proper engineering can reduce these unwanted fields and radiation to a minimum.

By contrast, with wireless communication, the radiation is the product. Radiation substitutes for wires in transmitting information. Wireless *means* radiation. The ability to use a mobile device everywhere on earth means that every square meter of the earth must be irradiated at all times. Mobile devices operate in the microwave spectrum, with the result that the entire planet is now swimming in a sea of microwave radiation that is 10,000,000,000 times stronger than the radiation from the sun and stars with which life evolved.

Life is based not only on chemistry but more fundamentally on electricity (1). The unimpeded flow of electrons is essential to the functioning of our nerves, our heart, and our metabolism (2). Interference with these electric currents causes neurological diseases, heart disease, metabolic diseases such as diabetes, and cancer (2). Organisms that have a very high metabolism, such as bees and other insects, are being wiped out by EMFs (3, 4). Thousands of studies document the devastating effects of wireless radiation on mammals, birds, insects, amphibians, and forests (5).

Because EMFs are not a foreign substance to living beings, a toxicology model does not apply and there is not a dose response: reducing the power does not reduce the effect. Even a signal that is almost immeasurably weak can interfere with normal biological functioning (6). “While the dose rate/SAR¹ concept is adequate for description of acute thermal effects, it is not applicable for chronic exposures to N[on]T[hermal] M[icro]W[aves].” (7). Even at near-zero power levels, microwave radiation has been found to change the structure of DNA (8) and alter brain waves (9). Some studies have even found an *inverse* dose response. When the power of the radiation was reduced 1000-fold, damage to the blood-brain barrier *increased* (10). A review of 113 studies found that radiation with the *lowest* power tended to cause the *greatest* ecological damage (3). In another review of 108 experimental studies, a lower exposure level tended to have a *greater* biological effect, and the difference was highly significant ($p < 0.001$) (11).

The damage done to our health and our world by wireless devices and their infrastructure is caused not only by the microwave carrier frequencies, but also by the low-frequency modulation and pulsations that carry the transmitted information. “Thus modulation can be considered as information content embedded in the higher frequency carrier wave that may have health consequences beyond any effect from the carrier wave directly” (12). No matter what the carrier wave, the modulation is the same because it has to carry the same information. Therefore using light as the carrier wave, as is being done over short distances with LiFi, or using sound as the carrier wave, as is being done in the oceans, does not reduce the harm.

The finding that only a single two-hour exposure to a mobile phone during their lifetime, even when the power of the phone was reduced 100-fold, caused permanent brain damage in young rats (13) makes it likely that we are raising, and perhaps have already raised, a generation of children with brain damage. There is no question but that this must cease,

¹ Specific Absorption Rate

and that cell phones are not safe at any power level, at any distance from the head, and for any duration.

III. Purpose of this Document

This brief provides an overview of an immediate threat to life on earth—even more immediate than climate change—that has been allowed to get completely out of control because it has been completely ignored. The source of the threat is a technology to which everyone has become addicted, and which, during the past two and a half decades, has become firmly entrenched in every aspect of life. Although more scientific studies have been published on the health and environmental effects of EMFs than on almost any other pollutant except for mercury and tobacco smoke, the impact of all this research upon public policy to date has been zero. Average citizens still do not even know that a mobile device emits radiation. Much less do they suspect that it is causing them brain damage or threatening their life and their future on this planet. The purpose of this brief is to outline actions that are required to be taken by political leaders, religious leaders, environmental organizations, public schools, medical schools and doctors to educate the public and to begin to dismantle this existential threat to the earth.

4. Essential Actions Required by National and International Leaders and Organizations

1. An international treaty on Electrosmog must be adopted by nation states.

The number of antennas and their distance from people and wildlife must be strictly regulated. The elements of an international treaty should include the following:

- **Phasing out and eventual prohibition of personal wireless devices, including mobile devices and WiFi.**

At present there are about 15 billion mobile devices and 6 million mobile phone masts; the earth cannot survive this. Private individuals should not have the right to irradiate their neighbours. Businesses should not have the right to irradiate their patrons.

- **Limiting antennas and devices that emit radiation to radio and television stations, emergency services such as police and fire departments, and radar for civil defense, aviation and shipping.**

- **Limiting the location, number, and power of civil defense radars.**

The present situation of unlimited power has allowed 3-billion-watt radars such as PAVE PAWS, which has irradiated millions of people on both coasts of the United States for more than four decades (14).

A five-year investigation into the health and environmental effects of a civil defense radar in Latvia after the end of the Cold War resulted in the decommissioning and removal of that radar. School children in the area—even children who lived 20 kilometers away—had impaired motor function, memory and attention, reduced lung capacity, and elevated white blood cell counts. The entire local population suffered from headaches, sleep disturbances and elevated white blood cells. Human reproduction was affected: 25 percent fewer boys than girls were born during the years the radar operated. Chromosome damage was found in local cows. Nest-boxes near the radar were occupied by extremely low numbers of birds. The average growth rings of trees during the years of the radar's operation were only half as wide as before the radars were constructed, and study of pine cones revealed the trees were aging prematurely. Seedlings in the area grew into deformed plants with reduced reproductive capacity (15, 16, 17, 18, 19, 20, 21, 22).

- **Phasing out weather radars, as they do more harm than good.**

There are an estimated 1,500 of these extremely powerful installations scattered throughout the world. Each of the 160 NEXRAD radars in the United States has an EIRP (Effective Isotropic Radiated Power) of 32 gigawatts (32 billion watts) (23). These radars are heavily irradiating people and wildlife, and are neither reliable nor essential to weather forecasting (24).

- **Prohibition of antennas inside national parks, wildlife preserves and protected nature areas.**

A 2015 report to UNESCO detailed the devastating impact of communication antennas inside a World Heritage Site in Australia. When a telecommunication tower atop Mount Nardi began to convert its antennas from analog (2G) to digital (3G) in 2002, a steady increase in species diversity suddenly reversed and became a steady *decrease* in species diversity. In 2002 insect populations and diversity began to decline. In 2009, enhanced 3G was installed, along with an additional 150 pay television channels. 27 bird species promptly left the mountain, and insect volumes

and species dropped dramatically. In late 2012 and early 2013 4G was installed, and 49 more bird species promptly left the mountain.

“From this time, all locally known bat species became scarce, 4 common species of cicada almost disappeared, as well as the once enormous, varied population of moths & butterfly species. Frogs and tadpole populations were drastically reduced; the massive volumes and diverse species of ant populations became uncommon to rare... [F]rom 70 to 90 % of the wildlife has become rare or has disappeared from the Nightcap National Park within a 2-3 km radius of the Mt. Nardi tower complex” (25).

- **Prohibition of the manufacture of vehicles with wireless technology and radar.**

Again, private individuals should not have the right to irradiate their neighbours, whether in their homes or in their vehicles.

- **Prohibition of smart meters, smart highways, smart cities, and the Internet of Things.**

Smart meters are being placed on every home and business in the world, and are turning all the wiring inside the walls of every home and business into a radiating antenna.

Microchips and antennas are being placed in every machine, every appliance, and almost every consumer product in the world as part of the Internet of Things, and there are predictions of as many as one trillion antennas communicating wirelessly with one another in the near future. These all irradiate the entire population at close range, including inside their homes and businesses, without any choice and without possibility of escape.

2. Churches and other religious buildings should take the lead in removing antennas and WiFi networks from their premises.

Churches have become a prime target by telecommunications companies for the installation of antennas, often hidden inside false chimneys or fake bell towers. These antennas earn a lot of money for churches but turn them into hazardous environments for their worshippers and visitors.

3. Schools must remove mobile phone masts and WiFi routers and prohibit mobile phones.

Schools are among the most intensely irradiated environments in our society today, consequently the worst and unhealthiest places for our children to spend their growing years. Every classroom has one or more WiFi routers in it, together with dozens of children sitting in close proximity to one another every day all day, all of them with cell phones and wireless computers, irradiating one another at all times. In addition, schools as well as churches are earning money renting their properties to telecommunications companies for the installation of mobile phone masts.

All masts and all WiFi antennas must be removed from all school properties, and children must be prohibited from bringing cell phones to school.

4. Religious, political and community leaders should instruct their congregations and constituencies to get rid of their cell phones and other wireless devices.

Nothing is more important today in the stewardship of our planet.

5. Medical schools should incorporate education on the effects of EMFs into their curriculums in every specialty, and classes in electromagnetic health should be required for continuing education.

The books and studies are there by the tens of thousands. They sit on the shelves of medical school libraries gathering dust and being ignored. All that is required is to organize them into the curriculum and the base of knowledge required of every physician in order to earn a medical degree.

6. Environmental organizations must form chapters on electrosmog, and must cease using wireless technology as a tool.

The rapid declines in biodiversity and species populations cannot be successfully addressed without reducing electromagnetic pollution which is causing half or more of the observed declines. As long as electrosmog is not addressed head-on, all of these problems will continue to be blamed on other things: climate change, land use, deforestation, pesticides, etc. Some of the means now being used to combat climate change, for example solar and wind energy, are worsening electrosmog and further decimating species. Some of the means to study these problems, for example GPS and radio tracking of wildlife, are diminishing wildlife instead.

All antennas must be removed from protected nature areas and wildlife preserves. Radio tracking devices are deadly. They must be removed from all wildlife and not put on any more animals, birds, insects, or fish.

7. Non-ionizing radiation must be regulated by national environmental agencies with no conflicts of interest.

In the United States, radio frequency (RF) radiation from telecommunications facilities and devices is regulated by the same agency that is charged with promoting those facilities and devices: the Federal Communications Commission (FCC). That is an obvious conflict of interest. Such regulation must be restored to the agency charged with protecting the environment: the Environmental Protection Agency (EPA).

In 1995, the EPA announced that Phase I of its RF radiation exposure guidelines was substantially complete and would be released in early 1996. It stated in the announcement that Phase I protected only against acute thermal effects and “**Does not** include modulation, chronic exposure, nonthermal effects” (emphasis in original). It further announced that Phase II of its guidelines *would* address those kinds of effects and would be developed during the next two years (26). If such guidelines had been allowed to take effect, cell phones and cell phone towers could well have been illegal in the US. Instead, the US Congress removed all funding for the EPA’s regulatory program and awarded sole authority to regulate RF radiation to the FCC. The FCC pretends that nonthermal, chronic, and modulation effects do not exist.

Authority to regulate RF radiation should be removed from the FCC and restored to the EPA.

In most of the rest of the world the story is similar or worse. The International Commission on Non-Ionizing Radiation Protection (ICNIRP) is connected to no government and is not an environmental agency. It is self-appointed private organization and has 14 members answerable to no one. But the guidelines it establishes are recommended by the European Union and the World Health Organization and are in force in many countries. Like the FCC’s guidelines, its exposure guidelines are based on heating only, as though there were no other effects.

Thus, RF radiation should be addressed not by the World Health Organization, which relies on ICNIRP for its guidance, but by the United Nations Environment Programme, which presently does not address it at all. In addition, it should be regulated transparently within each nation by their own environmental agencies based on the totality of science, and it should be subject to an international treaty on Electrosmog.

IV. Conclusions

The policy considerations presented in this brief have their basis in science, and in the protection of human rights and the environment. They were developed in response to an emergency situation in which the irradiation of the earth is accelerating at such a rapid rate that it has become the single most urgent threat to life on earth today. The recommended actions by political leaders, religious leaders, organizations, schools, and government agencies provide a path to health and survival.

V. References

1. Robert O. Becker. *The Body Electric* (NY: Morrow 1985).
2. Arthur Firstenberg (2020). *The Invisible Rainbow: A History of Electricity and Life* (White River Junction, VT: Chelsea Green 2020).
3. S. Cucurachi et al. A review of the ecological effects of radiofrequency electromagnetic fields (RF-EMF). *Environment International* 51: 116-140 (2013).
<https://www.sciencedirect.com/science/article/pii/S0160412012002334/pdfft?isDTMRedir=true&download=true>
4. Alain Thill. Biologische Wirkungen elektromagnetischer Felder auf Insekten. *Umwelt Medizin Gesellschaft* 33(3) Suppl: 1-27 (2020). https://kompetenzinitiative.com/wp-content/uploads/2020/09/Thill_2020_Review_Insekten.pdf
5. B. Blake Levitt, Henry C. Lai and Albert M. Manville II. Effects of non-ionizing electromagnetic fields on flora and fauna, Part 2 impacts: how species interact with natural and man-made EMF. *Reviews on Environmental Health* 37(3): 327-406 and Supplements 1-4 (2021). <https://doi.org/10.1515/reveh-2021-0050>
6. Allan H. Frey. Is a toxicology model appropriate as a guide for biological research with electromagnetic fields? *Journal of Bioelectricity* 9(2): 233-234 (1990).
<https://www.tandfonline.com/doi/pdf/10.3109/15368379009119811>
7. Igor Belyaev. Duration of Exposure and Dose in Assessing Nonthermal Biological Effects of Microwaves. In *Dosimetry in Bioelectromagnetics* (CRC Press 2017), pp. 171-184.
8. I. Y. Belyaev et al. Resonance effect of millimeter waves in the power range from 10^{-19} to 3×10^{-3} W/cm² on *Escherichia coli* cells at different concentrations. *Bioelectromagnetics* 17: 312-321 (1996).

[https://onlinelibrary.wiley.com/doi/abs/10.1002/\(SICI\)1521-186X\(1996\)17:4%3C312::AID-BEM7%3E3.0.CO;2-6](https://onlinelibrary.wiley.com/doi/abs/10.1002/(SICI)1521-186X(1996)17:4%3C312::AID-BEM7%3E3.0.CO;2-6)

9. William Bise. Low power radio-frequency and microwave effects on human electroencephalogram and behavior. *Physiological Chemistry and Physics* 10(5): 387-398. <https://pubmed.ncbi.nlm.nih.gov/751078/>
10. Bertil R. R. Persson et al. Blood-brain barrier permeability in rats exposed to electromagnetic fields used in wireless communication. *Wireless Networks* 3: 455-461 (1997). <https://link.springer.com/content/pdf/10.1023/a:1019150510840.pdf>
11. Andrew Wood, Rohan Mate and Ken Karipidis. Meta-analysis of in vitro and in vivo studies of the biological effects of low-level millimetre waves. *Journal of Exposure Science & Environmental Epidemiology* 31: 606–613 (2021). <https://www.nature.com/articles/s41370-021-00307-7.pdf>
12. Carl F. Blackman. Evidence for disruption by the modulating signal. *BioInitiative Report*, Section 15, July 2007. https://bioinitiative.org/wp-content/uploads/pdfs/sec15_2007_Modulation_Blackman.pdf
13. Leif G. Salford et al. Nerve cell damage in mammalian brain after exposure to microwaves from GSM mobile phones. *Environmental Health Perspectives* 111(7): 881-83 (2003). <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1241519/pdf/eh>
14. Paul Brodeur. *The Zapping of America*. (NY: W.W. Norton 1977).
15. Guntis Brūmelis, Valdis Balodis, and Zanda Balode. Radio-frequency electromagnetic fields: The Skrunda Radio Location Station case. *Science of the Total Environment* 180: 49-50 (1996). <https://www.sciencedirect.com/science/article/abs/pii/0048969795049134>
16. Anton Kolodynski and Valda Kolodynska. Motor and psychological functions of school children living in the area of the Skrunda Radio Location Station in Latvia. *Science of the Total Environment* 180: 87-93 (1996). <https://wifiinschools.com/uploads/3/0/4/2/3042232/kolodynski.pdf>
17. Zanda Balode. Assessment of radio-frequency radiation by the micronucleus test in bovine peripheral erythrocytes. *Science of the Total Environment* 180: 81-85 (1996). <https://www.sciencedirect.com/science/article/abs/pii/0048969795049231>
18. V. Liepa and Valdis Balodis. Monitoring of bird breeding near a powerful radar station. *The Ring* 16(1-2): 100. Abstract (1994).

19. Balodis, Valdis et al. Does the Skrunda Radio Location Station diminish the radial growth of pine trees? *Science of the Total Environment* 180: 57-64 (1996).
<https://www.sciencedirect.com/science/article/abs/pii/0048969795049207>
20. Tūrs Selga and Maija Selga. Response of *Pinus sylvestris* L. needles to electromagnetic fields: cytological and ultrastructural aspects. *Science of the Total Environment* 180: 65-73 (1996).
<https://www.sciencedirect.com/science/article/pii/0048969795049215>
21. I. Magone. The effect of electromagnetic radiation from the Skrunda Radio Location Station on *Spirodela polyrhiza* (L.) cultures. *Science of the Total Environment* 180: 75-80 (1996). <https://www.sciencedirect.com/science/article/pii/0048969795049223>
22. *Microwave News*. Latvia's Russian radar may yield clues to RF health risks. September/October, pp. 12-13 (1994).
<https://www.microwavenews.com/sites/default/files/sites/default/files/backissues/s-o94issue.pdf>
23. National Telecommunications and Information Administration. NTIA Spectrum Compendium, 2700-2900 MHz, Sept. 1, 2014.
https://www.ntia.doc.gov/files/ntia/publications/compendium/2700.00-2900.00_01SEP14.pdf
24. Advantages and disadvantages of weather radar.
<https://lidarradar.com/info/advantages-and-disadvantages-of-weather-radar>
25. Mark Broomhall. *Report for the United Nations Educational Scientific and Cultural Organization (UNESCO) and International Union for Conservation of Nature (IUCN)* (2017). <https://ehtrust.org/wp-content/uploads/Mt-Nardi-Wildlife-Report-to-UNESCO-FINAL.pdf>
26. United States Environmental Protection Agency, Office of Radiation and Indoor Air. Development of RF Radiation Exposure Guidelines: Briefing for the Federal Communications Commission. March 21, 1995. <https://cellphonetaskforce.org/wp-content/uploads/2022/11/EPAs-1995-summary-of-its-regulatory-plans.pdf>

Acknowledgments

President of the Cell Phone Task Force, Dr Arthur Firstenberg (1950-2025) prepared this brief on Electrosmog for the World Council for Health in December 2022. It is included in the WCH Policy Brief on *The Effects of Unregulated Digitalization on Health and Democracy*, which was first published in August 2023. Firstenberg established the Cell Phone Task

Force in 1996 to raise awareness of the dangers of wireless technology, and campaigned throughout his life on behalf of mankind and nature for the safe use of technology. His books include *The Invisible Rainbow: A History of Electricity and Life* (Chelsea Green, 2020); *Microwaving Our Planet: The Environmental Impact of the Wireless Revolution* (1997); and, *The Earth and I* (Skyhorse, 2025).



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