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**Level I CDP 18-25**

**Submittal from David Ross.**



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## BIRDS FALLING FROM THE SKY: KNOWING HOW 5G COULD AFFECT US

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by [Arthur Firstenberg](https://wildculture.com/user/2633) [<https://wildculture.com/user/2633>]

Published: December 17, 2018

"At age 81," said Pete Seeger in 2000, "it's normal for me to start losing my memory. But everybody I tell this to, says, 'Well, I seem to be losing my memory, too.' And I tell them about the work of Arthur Firstenberg." Firstenberg is the head of a campaign to address the telecommunications industry's worldwide plans to

establish 5G — the 5th generation of wireless technology — "will result in a massive increase in inescapable, involuntary exposure to wireless radiation." Firstenberg's campaign, 'Stop 5G on Earth and in Space', has collected vast amounts of peer-reviewed research on 5G's potential health effects to humans, animals and plant life, some of which is cited below. For all their wonderful contributions, we know that technology entrepreneurs who have a chance to go big will mostly turn a blind eye to the ethical and long-term effects of their innovations. Now, certainly the task of stopping the wireless communications industry from doing what it needs to do (get bigger) is daunting if not impossible, but that doesn't mean we should do nothing. This article you will inform yourself about what scientists say wireless electromagnetic radiation is doing to us. The PETITION LINK is there . . .



NIMFY — Not In My Front Yard. "How can we tell how we feel when we're close to wireless transmitters?" [[https://myemail.constantcontact.com/Will-Your-Front-Yard-be-a-5G-Cell-Tower-Site-.html?soid=1116515520935&aid=VRc\\_rc43qIq](https://myemail.constantcontact.com/Will-Your-Front-Yard-be-a-5G-Cell-Tower-Site-.html?soid=1116515520935&aid=VRc_rc43qIq)].]

In 1995, when cell phones were still luxury items, Sarah Benson from Australia contacted me to say that we had to organize internationally to prevent an electromagnetic assault on the Earth from the ground and from space. The following year, cell towers began to sprout like mushrooms over all natural landscapes. Wherever they sprouted, we received reports that bees disappeared, birds fell dead out of the sky, and frogs turned up with deformed legs, missing eyes, and other genetic mistakes in lakes, streams and forests.

- A few years later, 3,000 German doctors warned that the radiation from cell phones and cell towers was causing headaches, anxiety, insomnia, attention deficit disorder, extreme fluctuations in blood pressure, heart rhythm disorders, Alzheimer's disease, epilepsy, cancer, and heart attacks and strokes among an increasingly younger population.

- In Sweden, neurosurgeon Leif Salford showed (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1241519/pdf/ehp0111-000881.pdf>) that a cell phone disrupts the blood-brain barrier within two minutes, and causes brain damage within two hours.
- In India, zoologist Neelima Kumar proved (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3052591/>) that \*a ten-minute exposure to a cell phone rendered honey bees completely unable to metabolize their food.
- In Spain, biologist Alfonso Balmori wrote (<https://pdfs.semanticscholar.org/7bc5/0401da3ae9a5589893a08d49792c605002d3.pdf>) about how he raised tadpoles on an apartment terrace near a cell tower. When shielded from the radiation, they all thrived; when exposed to the cell tower, the tadpoles all died.
- In England, the common house sparrow declined (<https://www.deccanherald.com/content/77210/house-sparrow-listed-endangered-species.html>), so precipitously that it was added to the endangered species list.
- The latest alarming study (<https://www.pnas.org/content/pnas/115/44/E10397.full.pdf>), released on October 15, 2018, shows a much more precipitous decline in insect populations than anyone had suspected a 30- to 60-fold decrease in insects in Puerto Rican rainforests over the past few decades. Their study shows that insect populations did not decline during the 1990s until 1997, when they suddenly and precipitously dropped. That is the year cell towers were built everywhere in Puerto Rico. [Another article (<https://www.nytimes.com/2018/11/27/magazine/insect-apocalypse.html?login=email&auth=login-email>), 'The Insect Apocalypse is Here' in *The New York Times*, is an useful ancillary piece.]



Out of sight, out of mind. [o (<https://ranous.wordpress.com/2014/03/13/wifi-cacti-antenni/>)]

We originally envisioned this as an emergency appeal by scientists and doctors, which we planned to present to the world's governments by November 1, 2018. But the outpouring of support and signatures from around the world from people who have been injured by their cell phones or by cell towers, and from the general public, has surprised and overwhelmed us.

More than 350 environmental and health organizations and 13,000 individuals from all walks of life, from at least 96 countries, have signed so far (<http://www.5gSpaceAppeal.org/signatories>).

The signatories to this Appeal are scientists, doctors and environmental organizations from every continent who have been working tirelessly for many years to call the world's attention to an invisible assault on our biosphere. That assault can be ignored no longer.

5G — the 5th generation of wireless technology—must not be built on Earth or in space. The notion that radio frequency radiation, commonly known as radio waves, is somehow not real radiation and is harmless, was disproven by the 1970s in laboratories all over the world, and the harm to humans, animals and plants has since been confirmed in over 10,000 peer-reviewed studies. If 5G is built, radiation levels will increase 10- to 100-fold, virtually overnight, everywhere. There will literally be no place on Earth to hide from it.



The effects of levels of radio frequency radiation already existing now on the health of the population and the environment, as reflected in quality of life; high rates of cancer, neurological disease, heart disease and diabetes, even in children; plummeting populations of birds, bees and butterflies; and unhealthy forests, can be seen and felt everywhere.

We urge governments and the public to read the Appeal carefully, and to act accordingly.

Arthur Firstenberg (<https://www.cellphonetaskforce.org/buy-the-invisible-rainbow/>),  
Appeal Administrator

Santa Fe, New Mexico

**\* SIGN PETITION NOW \* (<http://www.5gspaceappeal.org/>)**



# To the UN, WHO, EU, Council of Europe and governments of all nations

We the undersigned scientists, doctors, environmental organizations and citizens from ( \_ ) countries, urgently call for a halt to the deployment of the 5G (fifth generation) wireless network, including 5G from space satellites. 5G will massively increase exposure to radio frequency (RF) radiation on top of the 2G, 3G and 4G networks for telecommunications already in place. RF radiation has been proven harmful for humans and the environment. The deployment of 5G constitutes an experiment on humanity and the environment that is defined as a crime under international law.

## Executive summary

Telecommunications companies worldwide, with the support of governments, are poised within the next two years to roll out the fifth-generation wireless network (5G). This is set to deliver what is acknowledged to be unprecedented societal change on a global scale. We will have “smart” homes, “smart” businesses, “smart” highways, “smart” cities and self-driving cars. Virtually everything we own and buy, from refrigerators and washing machines to milk cartons, hairbrushes and infants’ diapers, will contain antennas and microchips and will be connected wirelessly to the Internet. Every person on Earth will have instant access to super-high-speed, low-latency wireless communications from any point on the planet, even in rainforests, mid-ocean and the Antarctic.

What is not widely acknowledged is that this will also result in unprecedented environmental change on a global scale. The planned density of radio frequency transmitters is impossible to envisage. In addition to millions of new 5G base stations on Earth and 20,000 new satellites in space, 200 billion transmitting objects, according to estimates, will be part of the Internet of Things by 2020, and one trillion objects a few years later. Commercial 5G at lower frequencies and slower speeds was deployed in Qatar, Finland and Estonia in mid-2018. The rollout of 5G at extremely high (millimetre wave) frequencies is planned to begin at the end of 2018.

Despite widespread denial, the evidence that radio frequency (RF) radiation is harmful to life is already overwhelming. The accumulated clinical evidence of sick and injured human beings, experimental evidence of damage to DNA, cells and organ systems in a wide variety of plants and animals, and epidemiological evidence that the major diseases of modern civilization—cancer, heart disease and diabetes—are in large part caused by electromagnetic pollution, forms a literature base of well over 10,000 peer-reviewed studies.

If the telecommunications industry’s plans for 5G come to fruition, no person, no animal, no bird, no insect and no plant on Earth will be able to avoid exposure, 24 hours a day, 365 days a year, to levels of RF radiation that are tens to hundreds of times greater than what exists today, without any possibility of escape anywhere on the planet. These 5G plans threaten to provoke serious, irreversible effects on humans and permanent damage to all of the Earth’s ecosystems.

Immediate measures must be taken to protect humanity and the environment, in accordance with ethical imperatives and international agreements.



Petition: West Ada Board of Trustees . . . "Remove cell towers from our schools and no cell towers on school property." [<https://www.change.org/p/west-ada-board-of-trustees-remove-the-cell-towers-from-all-west-ada-schools-and-no-cell-towers-on-school-property>].]

## Ground-based 5G

In order to transmit the enormous amounts of data required for the Internet of Things (IoT), 5G technology, when fully deployed, will use millimetre waves, which are poorly transmitted through solid material. This will require every carrier to install base stations every 100 metres in every urban area in the world. Unlike previous generations of wireless technology, in which a single antenna broadcasts over a wide area, 5G base stations and 5G devices will have multiple antennas arranged in "phased arrays" [2],[3] that work together to emit focused, steerable, laser-like beams that track each other.

Each 5G phone will contain dozens of tiny antennas, all working together to track and aim a narrowly focused beam at the nearest cell tower. The US Federal Communications Commission (FCC) has adopted rules permitting the effective power of those beams to be as much as 20 watts, ten times more powerful than the levels permitted for current phones.

Each 5G base station will contain hundreds or thousands of antennas aiming multiple laser-like beams simultaneously at all cell phones and user devices in its service area. This technology is called "multiple input multiple output" or MIMO. FCC rules permit the effective radiated power of a 5G base station's beams to be as much as 30,000 watts per 100 MHz of spectrum, or equivalently 300,000 watts per GHz of spectrum, tens to hundreds of times more powerful than the levels permitted for current base stations.

## Space-based 5G



At least five companies are proposing to provide 5G from space from a combined 20,000 satellites in low- and medium-Earth orbit that will blanket the Earth with powerful, focused, steerable beams. Each satellite will emit millimetre waves with an effective radiated power of up to 5 million watts [6] from thousands of antennas arranged in a phased array. Although the energy reaching the ground from satellites will be less than that from ground-based antennas, it will irradiate areas of the Earth not reached by other transmitters and will be additional to ground-based 5G transmissions from billions of IoT objects. Even more importantly, the satellites will be located in the Earth's magnetosphere, which exerts a significant influence over the electrical properties of the atmosphere. The alteration of the Earth's electromagnetic environment may be an even greater threat to life than the radiation from ground-based antennas (see below).

## Hamful effects of radio frequency radiation are already proven

Even before 5G was proposed, dozens of petitions and appeals [7] by international scientists, including the Freiburger Appeal signed by over 3,000 physicians, called for a halt to the expansion of wireless technology and a moratorium on new base stations.

In 2015, 215 scientists from 41 countries communicated their alarm to the United Nations (UN) and World Health Organization (WHO). They stated that "numerous recent scientific publications have shown that EMF [electromagnetic fields] affects living organisms at levels well below most international and national guidelines". More than 10,000 peer-reviewed scientific studies demonstrate harm to human health from RF radiation. Effects include: Alteration of heart rhythm, altered gene expression, altered metabolism, altered stem cell development, cancers, cardiovascular disease, cognitive impairment, DNA damage, impacts on general well-being, increased free radicals, learning and memory deficits, impaired sperm function and quality, miscarriage, neurological damage, obesity and diabetes, oxidative stress, effects in children include autism, attention deficit hyperactivity disorder (ADHD), and asthma.

Damage goes well beyond the human race, as there is abundant evidence of harm to diverse plants, wildlife and laboratory animals.

The WHO's International Agency for Research on Cancer (IARC) concluded in 2011 that RF radiation of frequencies 30 kHz-300 GHz are possibly carcinogenic to humans (Group 2B). However, recent evidence, including the latest studies on cell phone use and brain cancer risks, indicate that RF radiation is proven carcinogenic to humans and should now be classified as a "Group 1 carcinogen" along with tobacco smoke and asbestos.

Most contemporary wireless signals are pulse-modulated. Harm is caused by both the high-frequency carrier wave and the low-frequency pulsations.

## The deployment of 5G satellites

The Earth, the ionosphere and the lower atmosphere form the global electric circuit [52] in which we live. It is well established that biological rhythms—of humans, [53] [54] birds, [55] hamsters, and spiders—are controlled by the Earth's natural electromagnetic environment and that the well-being of all organisms depends on the stability of this

environment, including the electrical properties of the atmosphere. [59][60][61][62] Cherry, in a groundbreaking paper, [63] explained the importance of the Schumann resonances [64] and why ionospheric disturbances can alter blood pressure and melatonin and cause "cancer, reproductive, cardiac and neurological disease and death".

These elements of our electromagnetic environment have already been altered by radiation from power lines. Power line harmonic radiation reaches the Earth's ionosphere and magnetosphere, where it is amplified by wave-particle interactions. In 1985, Dr. Robert O. Becker warned that power line harmonic radiation had already changed the structure of the magnetosphere, and that the continued expansion of this effect "threatens the viability of all life on Earth". The placement of tens of thousands of satellites directly in both the ionosphere and magnetosphere, emitting modulated signals at millions of watts and millions of frequencies, is likely to alter our electromagnetic environment beyond our ability to adapt.

Informal monitoring has already provided evidence indicating serious effects on humans and animals from the approximately 100 satellites that have provided 2G and 3G phone service from low orbit since 1998. Such effects cannot be understood only from consideration of the low levels of radiation on the ground. Knowledge from other relevant scientific disciplines must be taken into account, including the fields of atmospheric physics and acupuncture. Adding 20,000 5G satellites will further pollute the global electric circuit and could alter the Schumann resonances, with which all life on Earth has evolved. The effects will be universal and may be profoundly damaging.

## 5G is qualitatively and quantitatively different from 4G

The idea that we will tolerate tens to hundreds of times more radiation at millimetre wavelengths is based on faulty modelling of the human body as a shell filled with a homogeneous liquid. The assumption that millimetre waves do not penetrate beyond the skin completely ignores nerves, blood vessels and other electrically conducting structures that can carry radiation-induced currents deep into the body. Another, potentially more serious error is that phased arrays are not ordinary antennas. When an ordinary electromagnetic field enters the body, it causes charges to move and currents to flow. But when extremely short electromagnetic pulses enter the body, something else happens: the moving charges themselves become little antennas that reradiate the electromagnetic field and send it deeper into the body. These reradiated waves are called Brillouin precursors. They become significant when either the power or the phase of the waves changes rapidly enough. 5G will probably satisfy both criteria.

In addition, shallow penetration in itself poses a unique danger to eyes and to the largest organ of the body, the skin, as well as to very small creatures. Peer-reviewed studies have recently been published, predicting thermal skin burns in humans from 5G radiation and resonant absorption by insects, which absorb up to 100 times as much radiation at millimetre wavelengths as they do at wavelengths presently in use. Since populations of flying insects have declined by 75-80 per cent since 1989 even in protected nature areas, 5G radiation could have catastrophic effects on insect populations worldwide. A 1986 study by Om Gandhi warned that millimetre waves are strongly absorbed by the cornea of the eye, and that ordinary clothing, being of millimetre-size thickness, increases the absorption of energy by the skin by a resonance-type effect. Russell [2018] reviews the known effects of millimetre waves on skin, eyes (including cataracts), heart rate, immune system and DNA.

## **Regulators have deliberately excluded the scientific evidence of harm**

Stakeholders thus far in the development of 5G have been industry and governments, while renowned international EMF scientists who have documented biological effects on humans, animals, insects and plants, and alarming effects on health and the environment in thousands of peer-reviewed studies have been excluded. The reason for the current inadequate safety guidelines is that conflicts of interest of standard-setting bodies “due to their relationships with telecommunications or electric companies undermine the impartiality that should govern the regulation of Public Exposure Standards for non-ionizing radiation”. Professor Emeritus Martin L. Pall lays out the conflicts of interest in detail, and the lists of important studies that have been excluded, in his literature review.

## **The thermal hypothesis is obsolete—new safety standards are needed**

Current safety guidelines are based on the obsolete hypothesis that heating is the only harmful effect of EMFs. As Markov and Grigoriev have stated, “Today standards do not consider the real pollution of the environment with nonionizing radiation”. Hundreds of scientists, including many signatories to this appeal, have proven that many different kinds of acute and chronic illnesses and injuries are caused without heating (“non-thermal effect”) from radiation levels far below international guidelines. Biological effects occur even at near-zero power levels. Effects that have been found at 0.02 picowatts (trillionths of a watt) per square centimetre or less include altered genetic structure in *E. coli* and in rats,[96] altered EEG in humans, growth stimulation in bean plants,[98] and stimulation of ovulation in chickens.

To protect against non-thermal effects, duration of exposure must be considered. 5G will expose everyone to many more transmissions simultaneously and continuously, day and night without cessation. New safety standards are needed and should be based on cumulative exposure and not only on power levels but also on frequency, bandwidth, modulation, waveform, pulse width and other properties that are biologically important. Antennas must be confined to specific, publicly identified locations. To protect humans, antennas must be located far from where people live and work, and excluded from the public rights-of-way where people walk. To protect wildlife, they must be excluded from wilderness sanctuaries and strictly minimized in remote areas of the Earth. To protect all life, commercial communications satellites must be limited in number and prohibited in low- and medium-Earth orbits. Phased arrays must be prohibited on Earth and in space.

## **RF radiation has both acute and chronic effects**

RF radiation has both immediate and long-term effects. Cancer and heart disease are examples of long-term effects. Alteration of heart rhythm and changes in brain function (EEG) are examples of immediate effects. A syndrome that was called radiowave sickness in the former Soviet Union and is called electromagnetic hypersensitivity (EHS) around the world today can be either acute or chronic. Professor Dr. Karl Hecht has published a detailed history of these syndromes, compiled from a review of more than 1,500 Russian scientific papers and the clinical histories of more

than 1,000 of his own patients in Germany. Objective findings include sleep disorders, abnormal blood pressure and heart rate, digestive disorders, hair loss, tinnitus and skin rash. Subjective symptoms include dizziness, nausea, headache, memory loss, inability to concentrate, fatigue, flu-like symptoms and cardiac pain.

The EUROPEAN EMF Guideline 2016 states that EHS develops when people are "continuously exposed in their daily life" to increasing levels of EMFs, and that "reduction and prevention of EMF exposure" is necessary to restore these patients to health. EHS should no longer be considered a disease, but an injury by a toxic environment that affects an increasingly large portion of the population, estimated already at 100 million people worldwide, and that may soon affect everyone if the worldwide rollout of 5G is permitted.

The International Scientific Declaration on EHS and multiple chemical sensitivity (MCS), Brussels, declared in 2015 that "[i]naction is a cost to society and is not an option any more... [W]e unanimously acknowledge this serious hazard to public health... [urgently requiring] that major primary prevention measures are adopted and prioritized, to face this worldwide pan-epidemic in perspective" (emphasis added).

## **World governments' duty of care to the populations they govern**

In their haste to implement 5G and to encourage the unconstrained use of outer space, the European Union, United States and national governments worldwide are taking steps to ensure a "barrier-free" regulatory environment. They are prohibiting local authorities from enforcing environmental laws, and "in the interest of speedy and cost-effective deployment", removing "unnecessary burdens... such as local planning procedures [and] the variety of specific limits on electromagnetic field (EMF) emissions and of the methods required to aggregate them".

Governments are also enacting laws to make wireless facilities a permitted use in all public rights-of-way. To date, most wireless facilities have been located on private property at some distance from homes and businesses. In order for them to be spaced less than 100 metres apart as required by 5G, however, they will now be located on the sidewalk directly in front of homes and businesses and close above the heads of pedestrians, including mothers with babies.

Public notice requirements and public hearings are being eliminated. Even if there were a hearing and 100 scientific experts were to testify against 5G, laws have been passed making it illegal for local authorities to take their testimony into consideration. US law, for example, prohibits local governments from regulating wireless technology "on the basis of the environmental effects of radio frequency radiation", and courts have reversed regulatory decisions about cell tower placement simply because most of the public testimony was about health. Insurers will not provide coverage against EMF risks, and there is zero clarity as to what entity will bear legal responsibility for damage to life, limb and property arising from exposure to 5G, whether ground- or space-based.

In the absence of an agreed comprehensive legal regime governing activities in outer space, legal liability for those activities is non-existent, despite the prospect of whole continents, the atmosphere and the oceans being put at risk by them.

International agreements are being violated.

## Children and duty of care

The United Nations Convention on the Rights of the Child: States shall “undertake to ensure the child such protection and care as is necessary for his or her well-being” (art. 3), “ensure... the survival and development of the child” (art. 6) and “take appropriate measures to combat disease... taking into consideration the dangers and risks of environmental pollution” (art. 24(c)).

The Nuremberg Code (1949) applies to all experiments on humans, thus including the deployment of 5G with new, higher RF radiation exposure that has not been pre-market tested for safety. “The voluntary consent of the human subject is absolutely essential” (art. 1). Exposure to 5G will be involuntary. “No experiment should be conducted, where there is an a priori reason to believe that death or disabling injury will occur” (art. 5). The findings of over 10,000 scientific studies and the voices of hundreds of international organizations representing hundreds of thousands of members who have suffered disabling injury and been displaced from their homes by already-existing wireless telecommunications facilities, are “a priori reasons to believe that death or disabling injury will occur”.

## Duty to inform, and EMFs

The World Telecommunication Standardization Assembly (2012) of the International Telecommunication Union (ITU) stated that “[t]here is a need to inform the public of the potential effects of exposure to electromagnetic fields (EMFs)” and invited Member States “to adopt suitable measures in order to ensure compliance with relevant international recommendations to protect health against the adverse effect of EMF”.

The Mid-term review of the European Environment and Health Action Plan 2004-2010 (2008): “The European Parliament... [n]otes that the limits on exposure to electromagnetic fields which have been set for the general public are obsolete, ... obviously take no account of developments in information and communication technologies, of the recommendations issued by the European Environment Agency or of the stricter emission standards adopted, for example, by Belgium, Italy and Austria, and do not address the issue of vulnerable groups, such as pregnant women, newborn babies and children.”

Resolution 1815 (Council of Europe, 2011): “Take all reasonable measures to reduce exposure to electromagnetic fields, especially to radio frequencies from mobile phones, and particularly the exposure to children and young people.”

## Environment

The Declaration of the United Nations Conference on the Human Environment (1972): “The discharge of toxic substances... in such quantities or concentrations as to exceed the capacity of the environment to render them harmless, must be halted in order to ensure that serious or irreversible damage is not inflicted upon ecosystems” (principle 6).

The World Charter for Nature (1982): “Activities which are likely to cause irreversible damage to nature shall be avoided... [W]here potential adverse effects are not fully understood, the activities should not proceed” (art. 11).



The Rio Declaration on Environment and Development (1992): “States have... the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction” (principle 2).

The United Nations World Summit on Sustainable Development (2002): “There is an urgent need to... create more effective national and regional policy responses to environmental threats to human health” (para. 54(k)).

The African Convention on the Conservation of Nature and Natural Resources (2017): “The Parties shall... take all appropriate measures to prevent, mitigate and eliminate to the maximum extent possible, detrimental effects on the environment, in particular from radioactive, toxic, and other hazardous substances and wastes” (art. 13).

## Health and human rights

The Universal Declaration of Human Rights: “Everyone has the right to life, liberty and security of person” (art. 3).

The United Nations Global Strategy for Women’s, Children’s and Adolescents’ Health (2016-2030) has as objectives and targets to “transform”, by expanding enabling environments; to “survive”, by reducing maternal and newborn mortality; and to “thrive” by ensuring health and well-being and reducing pollution-related deaths and illnesses.

## Space

The Outer Space Treaty (1967) requires that the use of outer space be conducted “so as to avoid [its] harmful contamination and also adverse changes in the environment of the Earth” (art. IX).

The United Nations Guidelines for The Long-Term Sustainability of Outer Space Activities (2018): “States and international intergovernmental organizations should address... risks to people, property, public health and the environment associated with the launch, in-orbit operation and re-entry of space objects” (guideline 2.2(c)).

## World governments playing dice

Albert Einstein famously asserted that “God does not play dice”. Yet by pursuing the broadcast on Earth and from space of 5G, an unprecedented technology of millimetre waves previously used as an energy weapon in military operations and crowd control, world governments are recklessly playing dice with the future of life on Earth.

To refuse to accept and apply relevant and valid scientific knowledge is ethically unacceptable. Existing research shows that 5G—and especially space-based 5G—contravenes principles enshrined in a host of international agreements.

We call upon the UN, WHO, EU, Council of Europe and governments of all nations

(a) To take immediate measures to halt the deployment of 5G on Earth and in space in order to protect all humankind, especially the unborn, infants, children, adolescents and pregnant women, as well as the environment;

- (b) To follow the United Nations Convention on the Rights of the Child and Council of Europe Resolution 1815 by informing citizens, including teachers and physicians, about the health risks (to adults and children) from RF radiation, and why they should and how they can avoid wireless communication and base stations, particularly in or near day-care centres, schools, hospitals, homes and workplaces;
- (c) To favour and implement wired telecommunications instead of wireless;
- (d) To prohibit the wireless/telecommunications industry through its lobbying organizations from persuading officials to make decisions permitting further expansion of RF radiation, including ground- and space-based 5G;
- (e) To appoint immediately—without industry influence—international groups of independent, truly impartial EMF and health scientists with no conflicts of interest, for the purpose of establishing new international safety standards for RF radiation that are not based only on power levels, that consider cumulative exposure, and that protect against all health and environmental effects, not just thermal effects and not just effects on humans;
- (f) To appoint immediately—without industry influence—international groups of scientists with expertise in EMFs, health, biology and atmospheric physics, for the purpose of developing a comprehensive regulatory framework that will ensure that the uses of outer space are safe for humans and the environment, taking into account RF radiation, rocket exhaust gases, black soot, and space debris and their impacts on ozone, global warming, the atmosphere and the preservation of life on Earth. Not only ground-based but also space-based technology must be sustainable for adults and children, animals and plants.

<https://www.5gspaceappeal.org/the-appeal/> citations and references of this appeal.

## Initial Signatories of the Appeal

### AFRICA

Lauraine Margaret Helen Vivian, PhD, Anthropology and Psychiatry; Honorary Research Associate, Faculty of Health and Medical Sciences, University of Copenhagen, Denmark. Signatory for South Africa

### ASIA

Girish Kumar, PhD, Professor, Electrical Engineering Department, Indian Institute of Technology Bombay, Powai, Mumbai, India

### AUSTRALIA

Don Maisch, PhD, Independent researcher, author of "The Procrustean Approach", Lindisfarne, Tasmania, Australia

### EUROPE

Alfonso Balmori, BSc, Master in Environmental Education, Biologist. Valladolid, Spain

# What You Need To Know About 5G Wireless and “Small” Cells

*“We recommend a moratorium on the roll-out of the fifth generation, 5G, for telecommunication until potential hazards for human health and the environment have been fully investigated by scientists independent from industry...RF-EMF has been proven to be harmful for humans and the environment.”*

— 2017 5G Scientific Appeal (signed by more than 200 scientists and doctors from 35 countries)

Nationwide, communities are being told by wireless companies that it is necessary to build “small cell” wireless facilities in neighborhoods on streetlight and utility poles in order to offer 5G, a new technology that will connect the Internet of Things (IoT). At the local, state, and federal level, new legislation and new zoning aim to streamline the installation of these 5G “small cell” antennas in public rights-of-way.

**The radiation from small cells is not small:** Wireless antennas emit microwaves — non-ionizing radiofrequency radiation — and essentially function as cell towers. Each installation can have over a thousand antennas that are transmitting simultaneously.

**Millions of small cells to be built in front yards:** The Federal Communications Commission estimates that millions of these wireless transmitters will be built in our rights-of-way, directly in front of our homes.

**5G will add to — not replace — our current wireless technology:** 5G will not only utilize current 3G and 4G wireless frequencies already in use but also add higher frequency — submillimeter and millimeter waves — in order to transmit data at superfast speeds.

**Community authority is overruled:** Communities are being stripped of their right to make decisions about this new technology. “Streamlining” means almost automatic approval. Public notice and public hearings are being eliminated. Even if every homeowner on the block opposes the antennas on their street, the opposition will be disregarded.

**Scientists worldwide are calling for a halt to the 5G Roll-out:** Over 200 scientists and doctors issued a declaration calling for a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife.

[Read the 2017 Scientific Appeal on 5G To the European Commission](#)

[Read the 2015 EMF Scientist Appeal to the United Nations](#)

[Read Letters From Dozens of Scientists on Health Risks of 5G](#)

**Cumulative daily radiation exposure poses serious public health risks:** Peer reviewed, published science indicates that exposures to wireless radiation can increase cancer risk, alter brain development and damage sperm. Most people are unaware that wireless technology was never tested for long-term safety, that children are more vulnerable and that the accumulated scientific evidence shows harm.

**Decreased property values:** Studies show property values drop up to 20% on homes near cell towers. Would you buy a home with a mini cell tower in the yard? [Read research showing decreased property value from cell towers near homes.](#)

**Microwave antennas in front yards present several worker and public safety issues:** Unions have already filed comments that workers were injured, unaware they were working near transmitting antennas. How will HVAC workers, window washers, and tree cutters be protected? The heavy large equipment cabinets mounted on poles along our sidewalks also present new hazards. Cars run into utility poles, often, what then? [US Dept of Labor letters on cell tower safety](#)

**Fiber is the safe alternative:** Worldwide, many regions are investing in wired fiberoptic connections which are safer, faster, more reliable, provide greater capacity, and are more cyber-secure. Read “[Re-Inventing Wires: The Future of Landlines and Networks](#),” by the National Institute for Science, Law & Public Policy

**[www.ehtrust.org](http://www.ehtrust.org)**

All text in this document in blue is hyperlinked to resources for more information.

Please also see <https://ehtrust.org/factsheet-need-know-5g-small-cells-science-policy-public-health/> for additional resources.

## KEY RESEARCH AND REPORTS

### 5G Frequencies Are Absorbed Into the Skin

Physicists found that the higher millimeter frequencies intended for 5G use are preferentially absorbed into the sweat duct at much higher rates than other organ tissues. Read two published studies "The Modeling of the Absorbance of the Sub-THz Radiation by Human Skin." The human skin as a sub-THz receiver – Does 5G pose a danger to it or not? Paul Ben-Ishai, PhD Lecture.

### 5G Frequencies Are Used As Weapons

Millimeter frequencies have the capacity to cause a severe burning sensation in the skin and are used by the U.S. Department of Defense in crowd control guns called Active Denial Systems.

### Landmark US National Toxicology Program (NTP) Study Finds "Clear Evidence of Cancer" and DNA Damage

The NTP studies found male rats exposed for two years to cell phone radiation developed significantly increased gliomas (brain cancer) and schwann cell tumors, the very same types of tumors increased in long-term human cell phone users. NIH/NTP presentation on DNA results states "exposure to RFR has the potential to induce measurable DNA damage under certain exposure conditions." Press Coverage, Peer Review Report

### Cell Tower Radiation is Linked To Damage in Human Blood

A published study compared people living close and far from cell antennas and found people living closer to cellular antennas had changes in blood that predicts cancer development. Read Zothansima et al, 2017. Read a Compilation of Research on Cell Tower Radiation

### Published Scientific Review on 5G Finds Adverse Effects

Scientific literature documents evidence of nonthermal cellular damage from wireless radiation used in telecommunications to DNA integrity, cellular membranes, gene expression, protein synthesis, neuronal function, the blood brain barrier, melatonin production, sperm damage and immune dysfunction. Russell 2018

### Cellular Radiation Negatively Impacts Birds and Bees

Published research finds the frequencies alter bird navigation and disturb honeybee colonies. Research on EMF and Bees. Research on Wildlife

## RESOURCES

Research on 5G and Cell Tower Radiation

A 5G Wireless Future: Will it give us a smart nation or contribute to an unhealthy one?" Santa Clara Medical Association Bulletin, Cindy Russell MD, 2017

Letters by Scientists in Opposition To 5G Research on Cell Tower Radiation, 2017

Biological Effects from Exposure to Electromagnetic Radiation Emitted by Cell Tower Base Stations and Other Antenna Arrays, Levitt and Lai, 2010

Radiofrequency radiation injures trees around mobile phone base stations, Waldmann-Selsam et al., 2016

Department of Interior Letter on the Impact of Cell Towers on Migratory Birds, Willie R. Taylor Director, Office of Environmental Policy and Compliance, 2014

Anthropogenic radiofrequency electromagnetic fields as an emerging threat to wildlife orientation, Balmori, 2015

Briefing Memorandum On The Impacts from Thermal and Non-thermal Non-ionizing Radiation to Birds and Other Wildlife, Manville, 2016

Database of Worldwide International Policy To Reduce EMF

Youtube Scientific Videos on 5G

## TAKE ACTION

**Contact** local, state and federal elected officials in person.

**Share** this information with your friends, family and community.

**Ask** for government policy that reduces RFR exposure to the public.

**Citizens In all states must organize and take action to halt legislation that increases cell antennas in neighborhoods.**

## LEARN MORE

Federal Legislation To Know

US States With Streamlining Bills

### 5G Small Cell Antennas To Be Placed On:

- Street lights
- Trashcans
- Utility poles
- Bus stops
- Sides of buildings

### 5 Reasons Why Small Cells Are Not Small

- Increased radiation near homes
- Refrigerator-sized equipment cabinet
- Drop in property values
- Taller poles
- Fixtures weigh hundreds of pounds

### Crown Castle's 2016 10-K Annual Report says:

"If radio frequency emissions from wireless handsets or equipment on our wireless infrastructure are demonstrated to cause negative health effects, potential future claims could adversely affect our operations, costs or revenues... We currently do not maintain any significant insurance with respect to these matters."

Read warnings from Crown Castle, Verizon and other wireless companies.

### The American Academy of Pediatrics says:

"An Egyptian study confirmed concerns that living nearby mobile phone base stations increased the risk for developing:

- Headaches
- Memory problems
- Dizziness
- Depression
- Sleep problems"

AAP on Cell Towers

### Letter from oncologist Lennart Hardell MD & Colleagues:

"There is a substantial body of evidence that this technology is harmful to humans and the environment. The 5G millimeter wave is known to heat the eyes, skin and testes... Of particular concern are the most vulnerable among us — the unborn, children, the infirm, the elderly and the disabled. It is also expected that populations of bees and birds will drastically decline."

2017 Scientific Letter

### Peer Reviewed Research Studies on Radiofrequency Radiation Have Found:

- Headaches
- Sperm damage
- Altered brain development
- Depression
- Neurological symptoms
- Hormone changes
- Memory problems
- Sleep problems
- Cancer

### Science:

BioInitiative 2012 Report by Independent Scientists  
Dr. Moskowitz, University of California at Berkeley  
Dr. Lennart Hardell Örebro University Sweden  
The Baby Safe Project  
Whatis5g.info  
Physicians for Safe Technology  
Environmental Health Trust 5G Resources

www.ehtrust.org

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