

Bill as Introduced

HB 522 - AS INTRODUCED

2019 SESSION

19-0261
05/01

HOUSE BILL

522

AN ACT

establishing a commission to study the environmental and health effects of evolving 5G technology.

SPONSORS:

Rep. Abrami, Rock. 19; Sen. Sherman, Dist 24

COMMITTEE:

Science, Technology and Energy

ANALYSIS

This bill establishes a commission to study the environmental and health effects of evolving 5G technology.

Explanation:

Matter added to current law appears in *bold italics*.

Matter removed from current law appears [~~in brackets and struck through~~].

Matter which is either (a) all new or (b) repealed and reenacted appears in regular type.

STATE OF NEW HAMPSHIRE

In the Year of Our Lord Two Thousand Nineteen

AN ACT establishing a commission to study the environmental and health effects of evolving 5G technology.

Be it Enacted by the Senate and House of Representatives in General Court convened:

1 1 New Subdivision; Commission to Study the Environmental and Health Effects of Evolving 5G
2 Technology. Amend RSA 12-K by inserting after section 11 the following new subdivision:

3 Commission to Study the Environmental and Health Effects of Evolving 5G Technology

4 12-K:12 Commission Established. There is established a commission to study the
5 environmental and health effects of evolving 5G technology, which includes the use of earlier
6 generation technologies. Fifth generation, or 5G, wireless technology is intended to greatly increase
7 device capability and connectivity but also may pose significant risks to humans, animals, and the
8 environment due to increased radiofrequency radiation exposure. The purpose of the study is to
9 examine the advantages and risks associated with 5G technology, with a focus on its environmental
10 impact and potential health effects, particularly on children, fetuses, the elderly, and those with
11 existing health compromises.

12 12-K:13 Membership.

13 I. The members of the commission shall be as follows:

14 (a) Three members of the house of representatives, including one member from the
15 house science, technology, and energy committee, and one member from the health, human services
16 and elderly affairs committee, appointed by the speaker of the house of representatives.

17 (b) Two members of the senate, appointed by the president of the senate.

18 (c) A member of the public, appointed by the governor.

19 (d) The attorney general, or designee.

20 (e) Two members of the New Hampshire High Technology Council, appointed by the
21 council.

22 (f) One member representing the Business and Industry Association, appointed by the
23 association.

24 (g) One member of the New Hampshire Medical Society who specializes in
25 environmental medicine and is familiar with electromagnetic radiation, appointed by the society.

26 (h) One member representing the university system of New Hampshire knowledgeable
27 in radiofrequency radiation, appointed by the chancellor.

28 (i) One member of the cell phone/wireless technology industry, appointed by the
29 president of the senate.

30 (j) The commissioner of the department of health and human services, or designee.

1 (k) One public member with expertise in the biological effects of radiofrequency
2 radiation, appointed by the speaker of the house of representatives.

3 II. Legislative members of the commission shall receive mileage at the legislative rate when
4 attending to the duties of the commission.

5 III. The members of the commission shall elect a chairperson from among the members.
6 The first meeting of the commission shall be called by the first-named house member. The first
7 meeting of the commission shall be held within 45 days of the effective date of this section. Seven
8 members of the commission shall constitute a quorum.

9 12-K:14 Duties and Reporting Requirement.

10 I. The commission shall:

11 (a) Examine the health and environmental impacts from radiofrequency (RF) radiation
12 emitted from the waves in the 30-300 gigahertz(GHZ) range of the electromagnetic spectrum, which
13 falls somewhere between microwaves and infrared waves, and which are required with the rollout
14 of 5G technology.

15 (b) Assess the health and environmental impacts of 5G technology, which requires
16 small cell towers to be placed at a distance of 250 meters from each other at telephone pole height
17 from the ground and will operate in conjunction with the 3G and 4G technology infrastructure.

18 (c) Receive testimony from the scientific community including but not limited to
19 physicists and electrical engineers, the medical community including but not limited to cellular
20 experts and oncologists, the wireless technology industry including but not limited to cell phone
21 businesses and businesses working on the development autonomous vehicles which will rely on 5G
22 technology, as well as other organizations and members of the public with an interest in 5G
23 technology.

24 (d) Consider the following questions and the impact on New Hampshire citizens,
25 municipalities, and state government of:

26 (1) Why the insurance industry recognizes wireless radiation as a leading risk and
27 has placed exclusions in their policies not covering damages caused by the pathological properties of
28 electromagnetic radiation?

29 (2) Why do cell phone manufacturers have in the legal section within the devise
30 saying keep the phone at least 5mm from the body?

31 (3) Why have 1,000s of peer-reviewed studies, including the recently published U.S.
32 Toxicology Program 16-year \$30 million study, that are showing a wide-range of statistically
33 significant DNA damage, brain and heart tumors, infertility, and so many other ailments, being
34 ignored by the Federal Communication Commission (FCC)?

35 (4) Why are the FCC-sanctioned guidelines for public exposure to wireless radiation
36 based only on the thermal effect on the temperature of the skin and do not account for the non-
37 thermal, non-ionizing, biological effects of wireless radiation?

38 (5) Why are the FCC radiofrequency exposure limits set for the United States 100

1 times higher than countries like Russia, China, Italy, Switzerland, and most of Eastern Europe?

2 (6) Why did the World Health Organization (WHO) signify that wireless radiation is
3 a Group B Possibly Carcinogenic to Humans category, a group that includes lead, thalidomide, and
4 others, and why are some experts who sat on the WHO committee in 2011 now calling for it to be
5 placed in the Group 1, which are known carcinogens, and why is such information being ignored by
6 the FCC?

7 (7) Why have more than 220 of the worlds leading scientists signed an appeal to the
8 WHO and the United Nations to protect public health from wireless radiation and nothing has been
9 done?

10 (8) Why have the cumulative biological damaging effects of ever-growing numbers
11 of pulse signals riding on the back of the electromagnetic sine waves not been explored, especially
12 as the world embraces the Internet of Things, meaning all devices being connected by
13 electromagnetic waves, and the exploration of the number of such pulse signals that will be created
14 by implementation of 5G technology?

15 II. The commission shall prepare and publish an interim and final report of its findings and
16 recommendations. The reports shall:

17 (a) Outline the advantages of, and risks associated with, 5G technology running in
18 conjunction with the 3G and 4G technology infrastructure.

19 (b) Develop a strategy, if deemed necessary, to limit RF radiation exposure from 5G or
20 lesser generation technology relying upon electromagnetic waves.

21 (c) Include a public policy statement on 5G wireless systems, which either declares the
22 technology safe or outlines actions required to protect the health of its citizens and environment.

23 (d) Consider alternatives to 5G technology that will accelerate information flow speeds
24 and volumes without the use of electromagnetic waves that emit high levels of radiation.

25 (e) Provide any recommendations for proposed legislation developed by the commission.

26 III. The commission shall submit the interim report required under paragraph II to the
27 speaker of the house of representatives, the president of the senate, the house clerk, the senate
28 clerk, the governor, and the state library on or before November 1, 2019, and shall submit the final
29 report on or before November 1, 2020.

30 2 Repeal. RSA 12-K:12 - 12-K:14 and the subdivision heading preceding RSA 12-K:12, relative
31 to commission to study the environmental and health effects of the evolving 5G technology, are
32 repealed.

33 3 Effective Date.

34 I. Section 2 of this act shall take effect November 1, 2020.

35 II. The remainder of this act shall take effect upon its passage.

CHAPTER 260
HB 522 - FINAL VERSION

6Jun2019... 2461-EBA

2019 SESSION

19-0261
05/01

HOUSE BILL **522**

AN ACT establishing a commission to study the environmental and health effects of evolving 5G technology.

SPONSORS: Rep. Abrami, Rock. 19; Sen. Sherman, Dist 24

COMMITTEE: Science, Technology and Energy

ANALYSIS

This bill establishes a commission to study the environmental and health effects of evolving 5G technology.

Explanation: Matter added to current law appears in ***bold italics***.
Matter removed from current law appears [~~in brackets and struck through~~].
Matter which is either (a) all new or (b) repealed and reenacted appears in regular type.

CHAPTER 260
HB 522 - FINAL VERSION

6Jun2019... 2461-EBA

19-0261
05/01

STATE OF NEW HAMPSHIRE

In the Year of Our Lord Two Thousand Nineteen

AN ACT establishing a commission to study the environmental and health effects of evolving 5G technology.

Be it Enacted by the Senate and House of Representatives in General Court convened:

1 260:1 New Subdivision; Commission to Study the Environmental and Health Effects of Evolving
2 5G Technology. Amend RSA 12-K by inserting after section 11 the following new subdivision:

3 Commission to Study the Environmental and Health Effects of Evolving 5G Technology

4 12-K:12 Commission Established. There is established a commission to study the
5 environmental and health effects of evolving 5G technology, which includes the use of earlier
6 generation technologies. Fifth generation, or 5G, wireless technology is intended to greatly increase
7 device capability and connectivity but also may pose significant risks to humans, animals, and the
8 environment due to increased radiofrequency radiation exposure. The purpose of the study is to
9 examine the advantages and risks associated with 5G technology, with a focus on its environmental
10 impact and potential health effects, particularly on children, fetuses, the elderly, and those with
11 existing health compromises.

12 12-K:13 Membership.

13 I. The members of the commission shall be as follows:

14 (a) Three members of the house of representatives, including one member from the
15 house science, technology, and energy committee, and one member from the health, human services
16 and elderly affairs committee, appointed by the speaker of the house of representatives.

17 (b) Two members of the senate, appointed by the president of the senate.

18 (c) A member of the public, appointed by the governor.

19 (d) The attorney general, or designee.

20 (e) Two members of the New Hampshire High Technology Council, appointed by the
21 council.

22 (f) One member representing the Business and Industry Association, appointed by the
23 association.

24 (g) One member of the New Hampshire Medical Society who specializes in
25 environmental medicine and is familiar with electromagnetic radiation, appointed by the society.

26 (h) One member representing the university system of New Hampshire knowledgeable
27 in radiofrequency radiation, appointed by the chancellor.

28 (i) One member of the cell phone/wireless technology industry, appointed by the
29 president of the senate.

CHAPTER 260
HB 522 - FINAL VERSION
- Page 2 -

1 (j) The commissioner of the department of health and human services, or designee.

2 (k) One public member with expertise in the biological effects of radiofrequency
3 radiation, appointed by the speaker of the house of representatives.

4 II. Legislative members of the commission shall receive mileage at the legislative rate when
5 attending to the duties of the commission.

6 III. The members of the commission shall elect a chairperson from among the members.
7 The first meeting of the commission shall be called by the first-named house member. The first
8 meeting of the commission shall be held within 45 days of the effective date of this section. Seven
9 members of the commission shall constitute a quorum.

10 12-K:14 Duties and Reporting Requirement.

11 I. The commission shall:

12 (a) Examine the health and environmental impacts from radiofrequency (RF) radiation
13 emitted from the waves in the 30-300 gigahertz (GHZ) range of the electromagnetic spectrum, which
14 falls somewhere between microwaves and infrared waves, and which are required with the rollout of
15 5G technology.

16 (b) Assess the health and environmental impacts of 5G technology, which requires small
17 cell towers to be placed at a distance of 250 meters from each other at telephone pole height from the
18 ground and will operate in conjunction with the 3G and 4G technology infrastructure.

19 (c) Receive testimony from the scientific community including but not limited to
20 physicists and electrical engineers, the medical community including but not limited to cellular
21 experts and oncologists, the wireless technology industry including but not limited to cell phone
22 businesses and businesses working on the development of autonomous vehicles which will rely on 5G
23 technology, as well as other organizations and members of the public with an interest in 5G
24 technology.

25 (d) Consider the following questions and the impact on New Hampshire citizens,
26 municipalities, and state government of:

27 (1) Why the insurance industry recognizes wireless radiation as a leading risk and
28 has placed exclusions in their policies not covering damages caused by the pathological properties of
29 electromagnetic radiation?

30 (2) Why do cell phone manufacturers have in the legal section within the devise
31 saying keep the phone at least 5mm from the body?

32 (3) Why have 1,000s of peer-reviewed studies, including the recently published U.S.
33 Toxicology Program 16-year \$30 million study, that are showing a wide-range of statistically
34 significant DNA damage, brain and heart tumors, infertility, and so many other ailments, been
35 ignored by the Federal Communication Commission (FCC)?

CHAPTER 260
HB 522 - FINAL VERSION
- Page 3 -

1 (4) Why are the FCC-sanctioned guidelines for public exposure to wireless radiation
2 based only on the thermal effect on the temperature of the skin and do not account for the non-
3 thermal, non-ionizing, biological effects of wireless radiation?

4 (5) Why are the FCC radiofrequency exposure limits set for the United States 100
5 times higher than countries like Russia, China, Italy, Switzerland, and most of Eastern Europe?

6 (6) Why did the World Health Organization (WHO) signify that wireless radiation is
7 a Group B Possibly Carcinogenic to Humans category, a group that includes lead, thalidomide, and
8 others, and why are some experts who sat on the WHO committee in 2011 now calling for it to be
9 placed in the Group 1, which are known carcinogens, and why is such information being ignored by
10 the FCC?

11 (7) Why have more than 220 of the worlds leading scientists signed an appeal to the
12 WHO and the United Nations to protect public health from wireless radiation and nothing has been
13 done?

14 (8) Why have the cumulative biological damaging effects of ever-growing numbers of
15 pulse signals riding on the back of the electromagnetic sine waves not been explored, especially as
16 the world embraces the Internet of Things, meaning all devices being connected by electromagnetic
17 waves, and the exploration of the number of such pulse signals that will be created by
18 implementation of 5G technology?

19 II. The commission shall prepare and publish an interim and final report of its findings and
20 recommendations. The reports shall:

21 (a) Outline the advantages of, and risks associated with, 5G technology running in
22 conjunction with the 3G and 4G technology infrastructure.

23 (b) Develop a strategy, if deemed necessary, to limit RF radiation exposure from 5G or
24 lesser generation technology relying upon electromagnetic waves.

25 (c) Include a public policy statement on 5G wireless systems, which either declares the
26 technology safe or outlines actions required to protect the health of its citizens and environment.

27 (d) Consider alternatives to 5G technology that will accelerate information flow speeds
28 and volumes without the use of electromagnetic waves that emit high levels of radiation.

29 (e) Provide any recommendations for proposed legislation developed by the commission.

30 III. The commission shall submit the interim report required under paragraph II to the
31 speaker of the house of representatives, the president of the senate, the house clerk, the senate
32 clerk, the governor, and the state library on or before November 1, 2019, and shall submit the final
33 report on or before November 1, 2020.

34 260:2 Repeal. RSA 12-K:12 - 12-K:14 and the subdivision heading preceeding RSA 12-K:12,
35 relative to the commission to study the environmental and health effects of the evolving 5G
36 technology, are repealed.

37 260:3 Effective Date.

CHAPTER 260
HB 522 - FINAL VERSION
- Page 4 -

- 1 I. Section 2 of this act shall take effect November 1, 2020.
- II. The remainder of this act shall take effect upon its passage.

Approved: July 19, 2019

Effective Date:

- I. Section 2 shall take effect November 1, 2020.
- II. Remainder shall take effect July 19, 2019.

Committee Minutes

SENATE CALENDAR NOTICE
Health and Human Services

Sen Tom Sherman, Chair
Sen Martha Fuller Clark, Vice Chair
Sen Shannon Chandley, Member
Sen Jeb Bradley, Member
Sen James Gray, Member

Date: April 11, 2019

HEARINGS

Tuesday	04/16/2019	
(Day)	(Date)	
Health and Human Services	LOB 101	1:00 p.m.
(Name of Committee)	(Place)	(Time)
1:00 p.m. HB 522	establishing a commission to study the environmental and health effects of evolving 5G technology.	
1:30 p.m.	Hearing on proposed Amendment #1485s, establishing a committee to study child care in New Hampshire, relative to tuition waivers for children in state foster care or guardianship, and relative to penalties for violations related to obtaining public assistance, to HB 393 , establishing a committee to study child care in New Hampshire.	

EXECUTIVE SESSION MAY FOLLOW

Sponsors:

HB 522

Rep. Abrami

Sen. Sherman

HB 393

Rep. Conley

Rep. Frost

Rep. Vann

Rep. Loughman

Rep. Prout

Rep. Horn

Sen. Watters

Doug Marino 271-8631

Tom Sherman
Chairman

Senate Health and Human Services Committee

Doug Marino 271-8631

HB 522, establishing a commission to study the environmental and health effects of evolving 5G technology.

Hearing Date: April 16, 2019

Time Opened: 1:04 p.m.

Time Closed: 2:32 p.m.

Members of the Committee Present: Senators Sherman, Chandley, Bradley and Gray

Members of the Committee Absent : Senator Fuller Clark

Bill Analysis: This bill establishes a commission to study the environmental and health effects of evolving 5G technology.

Sponsors:

Rep. Abrami

Sen. Sherman

Who supports the bill: Senator Tom Sherman (District 24), Representative Patrick Abrami (Rockingham District 19), Lori Schreier, Deb Hodgdon, Carolyn Larocque, Cecelia Doucette (Wireless Education), Galen Beach, Jennifer White, Carol Kraus, Barbara Kingsley, Rosemary Landry, Carol Miller (Department of Business and Economic Affairs), John Williams (Department of Health and Human Services)

Who opposes the bill: None

Who is neutral on the bill: None

Summary of testimony presented:

Representative Patrick Abrami, Rockingham District 19

- Representative Abrami has concerns regarding emerging 5G technology.
- 5G stands for "fifth generation."
- Municipalities are also concerned about this technology.
- It is difficult to get answers concerning the health effects of 5G technology.
- The commission will allow stakeholders to come together and have a productive conversation about this.
- 5G has not yet been rolled out in New Hampshire, but it has been introduced in some major cities around the world.
- Representative Abrami has been receiving correspondence from people around the world who are concerned about this issue.
- We are exposed to gamma rays from sunlight, however the Earth is protected from many of the damaging impacts of this radiation.

- Humans are also exposed to x-rays, but only on a limited scale and typically in medical settings.
- 5G technology could expose humans to these rays on a scale that is unsafe.
- The New Hampshire High Tech Council has been changed to the New Hampshire High Tech Alliance, so the bill will need to be amended to fix that. The Department of Business and Economic Affairs would also like a seat on the commission.
- This commission also can study 5G technology as it relates to the development of autonomous vehicles.
- There are thousands of peer-reviewed papers that raise concerns about the health effects of 5G technology. These concerns seem to have been largely ignored.
- The studies that have been conducted in the United States only tested for thermal effects of 5G technology, and these studies did not test for prolonged exposure.
- Currently, the United States has extremely loose regulations surrounding 5G technology.
- The commission will outline the advantages as well as the risks for 5G technology. The commission can also come up with strategies to address the public health ramifications of this technology. Additionally, they will be able to research potential alternatives to 5G technology.
- Unlike second hand cigarette smoke, this a public health risk that most people cannot see, smell, or recognize in any way.
- Senator Sherman asked Representative Abrami if all the prior generations of technology are still active, in addition to emerging 5G technology. Representative Abrami indicated that that is accurate.

Cecilia Doucette, Education Services Director at Wireless Education (Provided written testimony)

- Mrs. Doucette is from Ashlund, Massachusetts.
- Mrs. Doucette supports HB 522
- Mrs. Doucette helped Ashlund public schools implement safety precautions surrounding 5G technology.
- Mrs. Doucette explained to the committee how one could find the legal disclosure concerning radiation exposure. The disclosure is on every iPhone.
- The disclosure specifies that exposure to radiation can cause health complications.
- In Massachusetts, steps have been taken to study the effects of 5G technology, particularly on children in schools.
- Other states have introduced legislation to implement safe technology guidelines.
- There have been efforts at the federal level to strip municipalities of their right to regulate this technology.
- 5G companies seem to be deploying tactics used by tobacco companies to suppress evidence of potential health effects surrounding this technology.
- There are lawsuits underway around the country and world being brought by people who have already been impacted by exposure to radiation.
- Studies have linked heightened exposure to radiation to infertility, cancer, and DNA damage.
- Mrs. Doucette showed the committee a device that measures radiation levels. The device indicated that radiation levels were high in the committee room.
- The public can partially protect itself by putting their phone into airplane mode when it is not in use.
- Some countries halted the advancement of 5G technology until more studies can be conducted on its safety.

Laurie Schreier (Provided written testimony)

- Mrs. Schreier supports HB 522.
- It is important to study this technology before it is rolled out on a large scale in New Hampshire.
- Two dozen cities and counties have sued the FCC over rules that restrict municipalities from enacting regulations on 5G technology.
- Scientists from many countries have raised serious concerns about 5G technology.
- Mrs. Schreier agrees with previous testimony.

Deb Hodgdon (Provided written testimony)

- Mrs. Hodgdon supports HB 522
- Mrs. Hodgdon has experienced adverse health symptoms because of exposure to heightened radiation.
- After Mrs. Hodgdon turned off Wi-Fi in her home, one of her plants began to grow. It was not growing previously.
- New iPhones have been updated so that radiation is still emitted even if the phone is in airplane mode.
- When 5G is rolled out in New Hampshire, many homes will be directly exposed to this radiation.

Carolyn Larocque (Provided written testimony)

- Mrs. Larocque is an environmental biologist and she supports HB 522.
- 5G technology has serious consequences for the environment.
- Birds and insect populations are already being adversely affected by this technology.
- If this technology is rolled out worldwide, it could irrepealably destroy life on Earth.
- Cell towers are being updated around the state. These upgrades could allow 5G technology to be rolled out swiftly.
- The City of San Francisco passed an ordinance limiting 5G technology. T-Mobile sued the city. The case went to the Supreme Court of California and the court ruled in favor of San Francisco.

Galen Beach

- Mrs. Beach supports HB 522.
- Many large companies have a vested interest in rolling out 5G as soon as possible, regardless of the health effects.
- New Hampshire must thoroughly study this issue before it is rolled out in the state.
- Excessive exposure to this radiation can cause many health complications, including insomnia.
- Mrs. Beach agrees with previous testimony.

Jennifer White (Provided written testimony)

- Mrs. White supports HB 522
- Mrs. White is sensitive to electricity. Her son is as well.
- When Mrs. White lived in Connecticut, there was a new cell tower erected near her home. She also had Wi-Fi in her home.
- When Mrs. White's son was two years old, he started to exhibit some of the same symptoms that she experienced because of radiation exposure.
- To provide a safe environment for her son, Mrs. White moved her family to New Hampshire.
- She doesn't use Wi-Fi in the home. She uses a cell phone sparingly for work purposes.
- She has worked with her son's school to minimize his exposure to radiation.
- If a cell tower is erected near her home, all her work to protect her son will be destroyed.

Carol Kraus, League of Women Voters

- Mrs. Kraus agrees with previous testimony.

DLM

Date Hearing Report completed: April 17, 2019

Speakers

Testimony

Environmental Impacts of 5G

Prepared by Carolyn Larocque, Environmental Biologist, Gilford, NH

Despite widespread denial, the evidence that radio frequency (RF) radiation is harmful to life is already overwhelming.

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 envision. In addition to millions of new 5G base stations^[1] on Earth and 20,000 new satellites in space^[2,3], an estimated 200 billion transmitting objects, will be part of the Internet of Things by 2020, and one trillion objects a few years later.

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.

Damage goes well beyond the human race, as there is abundant evidence of harm to diverse plant life and wildlife^[32,33] and laboratory animals, including:

Ants^[34]

Bacteria^[48]

Birds^[35,36]

Forests^[37]

Frogs^[38]

Fruit flies^[39]

Honey bees^[40]

Insects^[41]

Mammals^[42]

Mice^[43,44]

Plants^[45]

Rats^[46]

Trees^[47]

Populations of flying insects have declined by 75-80 per cent since 1989 even in protected nature areas^[89], 5G radiation could have catastrophic effects on insect populations worldwide.

We have already seen birds drop dead out of the sky in The Hague, Finland after 5G was activated. Do we really need to test the structure of the entire food chain and risk all life on the planet so one country or the other can dominate the market potential and Global corporations can make Billions of dollars???

The Earth, the ionosphere and the lower atmosphere form the global electric circuit in which we live. It is well established that biological rhythms of humans and many living organisms, as well as wildlife migration and orientation are controlled by the Earth's natural electromagnetic environment. The well-being of all organisms depends on the stability of this environment, including the electrical properties of the atmosphere. You may have heard about the importance of the Schumann resonances and why ionospheric disturbances can alter blood pressure and melatonin, and cause cancer, reproductive, cardiac and neurological disease and death... if not, we have documentation for you. ^[52,...64]

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. ^[65,...69]

That literally means we are going to destroy all life on Earth!

The forced deployment of 5G digital cellular networks (in their present form) on cities and communities throughout the United States is a clear violation of human rights, civil rights, constitutional rights and natural rights.

Please support our efforts to guide the development of a 'Closed' 5G system where hardwired fiber optic cables run all the way to the end users. Do not allow 5G antennas and 'smart streets' in New Hampshire.

References: <http://themillenniumreport.com/2019/01/wireless-radiation-stop-the-5g-network-on-earth-and-in-space-devastating-impacts-on-health-and-the-environment/>

- [1] De Grasse M. AT&T outlines 5G network architecture. RCR Wireless News, Oct. 20, 2016. <https://www.rcrwireless.com/20161020/network-infrastructure/att-outlines-5g-network-architecture-tag4>. Accessed July 9, 2018.
- [2] Hong W, Jiang ZH, Yu C, et al. Multibeam antenna technologies for 5G wireless communications. IEEE Tr Ant Prop. 2017;65(12):6231-6249. doi: 10.1109/TAP.2017.2712819.
- [3] Chou H-T. Design Methodology for the Multi-Beam Phased Array of Antennas with Relatively Arbitrary Coverage Sector. Conference paper: 2017 11th European Conference on Antennas and Propagation; Paris, France. doi: 10.23919/EuCAP.2017.7928095.
- [4] 47 CFR § 30.202 — Power limits.
- [5] SpaceX, WorldVu, Boeing, Telesat Canada, and Iridium.
- [6] Federal Communications Commission. Pending Application for Satellite Space and Earth Station Authorization. Schedule S, Technical Report. Dated April 2016, filed March 1, 2017. http://licensing.fcc.gov/myibfs/download.do?attachment_key=1200245. Accessed June 17, 2018.
- [7] Governments and organizations that ban or warn against wireless technology. Cellular Phone Task Force website. <http://www.cellphonetaskforce.org/governments-and-organizations-that-ban-or-warn-against-wireless-technology/>. Accessed June 10, 2018. Continually updated.
- [8] The International Doctors' Appeal (Freiburger Appeal). <http://freiburger-appell-2012.info/en/home.php?lang=EN>. Published in 2012. Accessed June 10, 2018.
- [9] International appeal: scientists call for protection from non-ionizing electromagnetic field exposure. International EMF Scientist Appeal website. <https://emfscientist.org/index.php/emf-scientist-appeal>. Published May 11, 2015. Accessed June 10, 2018. As of March 2018, 237 EMF scientists from 41 nations had signed the Appeal.
- [10] Glaser Z. Cumulated index to the bibliography of reported biological phenomena ('effects') and clinical manifestations attributed to microwave and radio-frequency radiation: report, supplements (no. 1-9). BEMS newsletter (B-1 through B-464), 1971-1981. <http://www.cellphonetaskforce.org/wp-content/uploads/2018/06/Zory-Glasers-index.pdf>. Accessed June 26, 2018. Report and 9 supplements issued by Naval Medical Research Institute, Bethesda, MD; Research Division, Bureau of Medicine &

Surgery, Dept. of the Navy, Washington, DC; Electromagnetic Radiation Project Office, Naval Medical Research & Development Command, Bethesda, MD; Naval Surface Weapons Center, Dahlgren, VA; and National Institute for Occupational Safety and Health, Rockville, MD. Index by Julie Moore and Associates, Riverside, CA, 1984. Lt. Zorach Glaser, PhD, catalogued 5,083 studies, books and conference reports for the US Navy through 1981.

[11] Sage C, Carpenter D., eds. *BioInitiative Report: A Rationale for a Biologically-Based Public Exposure Standard for Electromagnetic Radiation*. Sage Associates; 2012. www.bioinitiative.org. Accessed June 10, 2018. The 1,470-page BioInitiative Report, authored by an international group of 29 experts, has reviewed more than 1,800 new studies and is continually updated.

[12] Grigoriev Y. Bioeffects of modulated electromagnetic fields in the acute experiments (results of Russian researches). *Annu Russ Natl Comm Non-Ionising Radiat Protect*. 2004;16-73. <http://bemri.org/publications/biological-effects-of-non-ionizing-radiation/78-grigoriev-bioeffects07/file.html>. Accessed June 17, 2018.

[13] Obajuluwa AO, Akinyemi AJ, Afolabi OB, et al. Exposure to radio-frequency electromagnetic waves alters acetylcholinesterase gene expression, exploratory and motor coordination-linked behaviour in male rats. *Toxicol Rep*. 2017;4:530-534. <https://www.sciencedirect.com/science/article/pii/S221475001730063X/pdf?md5=0af5af76124b1f89f6d23c90c5c7764f&pid=1-s2.0-S221475001730063X-main.pdf>. Accessed June 17, 2018.

[14] Volkow ND, Tomasi D, Wang G-J, et al. Effects of cell phone radiofrequency signal exposure on brain glucose metabolism. *JAMA*. 2012;305(8):808-813. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3184892>. Accessed June 17, 2018.

[15] Eghlidospour M, Ghanbari A, Mortazavi S, Azari H. Effects of radiofrequency exposure emitted from a GSM mobile phone on proliferation, differentiation, and apoptosis of neural stem cells. *Anat Cell Biol*. 2017;50(2):115-123. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5509895>. Accessed June 17, 2018.

[16] Hardell L, Carlberg C. Mobile phones, cordless phones and the risk for brain tumors. *Int J Oncol*. 2009;35(1):5-17. <https://www.spandidos-publications.com/ijo/35/1/5/download>. Accessed June 17, 2018.

[17] Bandara P, Weller S. Cardiovascular disease: Time to identify emerging environmental risk factors. *Eur J Prev Cardiol*. 2017;24(17):1819-1823. <http://journals.sagepub.com/doi/10.1177/2047487317734898>. Accessed June 17, 2018.

[18] Deshmukh P et al. Cognitive impairment and neurogenotoxic effects in rats exposed to low-intensity microwave radiation. *Int J Toxicol*. 2015;34(3):284-290. doi: 10.1177/1091581815574348.

[19] Zothansiam, Zosangzuali M, Lalramdinpuii M, Jagetia GC. Impact of radiofrequency radiation on DNA damage and antioxidants in peripheral blood lymphocytes of humans residing in the vicinity of mobile phone base stations. *Electromag Biol Med*. 2017;36(3):295-305. doi: 10.1080/15368378.2017.1350584.

[20] Zwamborn A, Vossen S, van Leersum B, Ouwens M, Mäkel W. Effects of Global Communication system radio-frequency fields on Well Being and Cognitive Functions of human subjects with and without subjective complaints. TNO Report FEL-03-C148. The Hague: TNO Physics and Electronics

Laboratory; 2003.

http://www.milieugezondheid.be/dossiers/gsm/TNO_rapport_Nederland_sept_2003.pdf.

Accessed June 16, 2018.

[21] Havas M. When theory and observation collide: Can non-ionizing radiation cause cancer? *Environ Pollut.* 2017;221:501-505. doi: 10.1016/j.envpol.2016.10.018.

[22] Narayanan SN, Kumar RS, Potu BK, Nayak S, Mailankot M. Spatial memory performance of Wistar rats exposed to mobile phone. *Clinics.* 2009;64(3):231-234.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2666459>. Accessed June 17, 2018.

[23] Houston BJ, Nixon B, King BV, De Iuliis GN, Aitken RJ. The effects of radiofrequency electromagnetic radiation on sperm function. *Reproduction.* 2016;152(6):R263-R266. <http://www.reproduction-online.org/content/152/6/R263.long>. Accessed June 17, 2018.

[24] Han J, Cao Z, Liu X, Zhang W, Zhang S. Effect of early pregnancy electromagnetic field exposure on embryo growth ceasing. *Wei Sheng Yan Jiu.* 2010;39(3):349-52 (in Chinese).

<https://www.ncbi.nlm.nih.gov/pubmed/20568468>.

[25] Salford LG, Brun AE, Eberhardt JL, Malmgren L, Persson BRR. Nerve cell damage in mammalian brain after exposure to microwaves from GSM mobile phones. *Environ Health Perspect.* 2003;111(7):881-883. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1241519/pdf/ehp0111-000881.pdf>. Accessed June 17, 2018.

[26] Milham S. Evidence that dirty electricity is causing the worldwide epidemics of obesity and diabetes. *Electromagn Biol Med.* 2014;33(1):75-78. doi: 10.3109/15368378.2013.783853.

[27] Yakymenko I, Tsybulin O, Sidorik E, Henshel D, Kyrylenko O, Kyrylenko S. Oxidative mechanisms of biological activity of low-intensity radiofrequency radiation. *Electromagn Biol Med.* 2016;35(2):186-202. doi: 10.3109/15368378.2015.1043557.

[28] Herbert M, Sage C. Findings in autism (ASD) consistent with electromagnetic fields (EMF) and radiofrequency radiation (RFR). In: Sage C, Carpenter D., eds. *BioInitiative Report: A Rationale for a Biologically-Based Public Exposure Standard for Electromagnetic Radiation. Sec. 20.* Sage Associates; 2012. http://www.bioinitiative.org/report/wp-content/uploads/pdfs/sec20_2012_Findings_in_Autism.pdf. Accessed June 29, 2018.

[29] Divan HA, Kheifets L, Obel C, Olsen J. Prenatal and postnatal exposure to cell phone use and behavioral problems in children. *Epidemiology* 2008;19: 523–529.

http://www.wifiinschools.com/uploads/3/0/4/2/3042232/divan_08_prenatal_postnatal

[_cell_phone_use.pdf](#). Accessed June 29, 2018.

[30] Divan HA, Kheifets L, Obel C, Olsen J. Cell phone use and behavioural problems in young children. *J Epidemiol Community Health.* 2010;66(6):524-529. doi: 10.1136/jech.2010.115402. Accessed July 16, 2018.

- [31] Li D-K, Chen H, Odouli R. Maternal exposure to magnetic fields during pregnancy in relation to the risk of asthma in offspring. *Arch Pediatr Adolesc Med*. 2011;165(10):945-950. <https://jamanetwork.com/journals/jamapediatrics/fullarticle/1107612>. Accessed June 29, 2018.
- [32] Warnke U. Bees, Birds and Mankind: Destroying Nature by 'Electrosmog.' Competence Initiative for the Protection of Humanity, Environment and Democracy; 2009. www.naturalscience.org/wp-content/uploads/2015/01/kompetenzinitiative-ev_study_bees-birds-and-mankind_04-08_english.pdf. Accessed June 10, 2018.
- [33] Balmori A. Electromagnetic pollution from phone masts. Effects on wildlife. *Pathophysiology*. 2009;16:191-199. doi:10.1016/j.pathophys.2009.01.007. Accessed June 10, 2018.
- [34] Cammaerts MC, Johansson O. Ants can be used as bio-indicators to reveal biological effects of electromagnetic waves from some wireless apparatus. *Electromagn Biol Med*. 2014;33(4):282-288. doi:10.3109/15368378.2013.817336.
- [35] Broomhall M. Report detailing the exodus of species from the Mt. Nardi area of the Nightcap National Park World Heritage Area during a 15-year period (2000-2015). Report for the United Nations Educational Scientific and Cultural Organization (UNESCO). <https://ehtrust.org/wp-content/uploads/Mt-Nardi-Wildlife-Report-to-UNESCO-FINAL.pdf>. Accessed June 17, 2018.
- [36] Kordas D. Birds and Trees of Northern Greece: Changes since the Advent of 4G Wireless. 2017. <https://einarflydal.files.wordpress.com/2017/08/kordas-birds-and-trees-of-northern-greece-2017-final.pdf>. Accessed June 29, 2018.
- [37] Waldmann-Selsam C, Balmori-de la Puente A, Breunig H, Balmori A. Radiofrequency radiation injures trees around mobile phone base stations. *Sci Total Environ*. 2016;572:554-569. doi:10.1016/j.scitotenv.2016.08.045.
- [38] Balmori A. Mobile phone mast effects on common frog (*Rana temporaria*) tadpoles: The city turned into a laboratory. *Electromagn Biol Med*. 2010(1-2):31-35. doi: 10.3109/15368371003685363.
- [39] Margaritis LH, Manta AK, Kokkaliaris KD, et al. *Drosophila* oogenesis as a bio-marker responding to EMF sources. *Electromagn Biol Med*. 2014;33(3):165-189. doi: 10.3109/15368378.2013.800102.
- [40] Kumar NR, Sangwan S, Badotra P. Exposure to cell phone radiations produces biochemical changes in worker honey bees. *Toxicol Int*. 2011;18(1):70-72. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3052591>. Accessed June 17, 2018.
- [41] Balmori A. Efectos de las radiaciones electromagnéticas de la telefonía móvil sobre los insectos. *Ecosistemas*. 2006;15(1):87-95. <https://www.revistaecosistemas.net/index.php/ecosistemas/article/download/520/495>. Accessed June 17, 2018.
- [42] Balmori A. The incidence of electromagnetic pollution on wild mammals: A new "poison" with a slow effect on nature? *Environmentalist*. 2010;30(1):90-97. doi: 10.1007/s10669-009-9248-y
- [43] Magras IN, Xenos TD. RF radiation-induced changes in the prenatal development of mice. *Bioelectromagnetics* 1997;18(6):455-461.

http://collectiveactionquebec.com/uploads/8/0/9/7/80976394/exhibit_r-62_magras_mice_study.pdf. Accessed June 17, 2018.

[44] Otitolaju AA, Osunkalu VO, Oduware R, et al. Haematological effects of radiofrequency radiation from GSM base stations on four successive generations (F1 – F4) of albino mice, *Mus Musculus*. *J Environ Occup Sci*. 2012;1(1):17-22. <https://www.ejmanager.com/mnstemps/62/62-1332160631.pdf?t=1532966199>. Accessed July 30, 2018.

[45] Magone I. The effect of electromagnetic radiation from the Skrunda Radio Location Station on *Spirodela polyrhiza* (L.) Schleiden cultures. *Sci Total Environ*. 1996;180(1):75-80. doi: 0048-9697(95)04922-3.

[46] Nittby H, Brun A, Strömlad S, et al. Nonthermal GSM RF and ELF EMF effects upon rat BBB permeability. *Environmentalist*. 2011;31(2):140-148. doi: 10.1007/s10669-011-9307-z.

[47] Haggerty K. Adverse influence of radio frequency background on trembling aspen seedlings: Preliminary observations. *International Journal of Forestry Research*. 2010; Article ID 836278. <http://downloads.hindawi.com/journals/ijfr/2010/836278.pdf>. Accessed June 17, 2018.

[48] Taheri M, Mortazavi SM, Moradi M, et al. Evaluation of the effect of radiofrequency radiation emitted from Wi-Fi router and mobile phone simulator on the antibacterial susceptibility of pathogenic bacteria *Listeria monocytogenes* and *Escherichia coli*. *Dose Response*. 2017;15(1):1559325816688527. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5298474>. Accessed June 18, 2018.

[49] International Agency for Research on Cancer. Non-ionizing radiation, part 2: radiofrequency electromagnetic fields. In: *IARC Monographs on the Evaluation of Carcinogenic Risks to Humans*. Vol 102. Lyon, France: WHO Press; 2013. <http://monographs.iarc.fr/ENG/Monographs/vol102/mono102.pdf>. Accessed July 2, 2018.

[50] Carlberg M, Hardell L. Evaluation of mobile phone and cordless phone use and glioma risk using the Bradford Hill viewpoints from 1965 on association and causation. *Biomed Res Int*. 2017;9218486. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5376454>. Accessed June 17, 2018.

[51] Blackman CF. Evidence for disruption by the modulating signal. In: Sage C, Carpenter D., eds. *Bioinitiative Report: A Rationale for a Biologically-Based Public Exposure Standard for Electromagnetic Radiation*. Sec. 15. Sage Associates; 2012. http://www.bioinitiative.org/report/wp-content/uploads/pdfs/sec15_2007_Modulation_Blackman.pdf. Accessed June 19, 2018.

[52] Williams ER. The global electrical circuit: a review. *Atmos Res*. 2009;91(2):140-152. doi:10.1016/j.atmosres.2008.05.018.

[53] Wever R. Human circadian rhythms under the influence of weak electric fields and the different aspects of these studies. *Int J Biometeorol*. 1973;17(3):227-232. www.vitatec.com/docs/referenz-umgebungsstrahlung/wever-1973.pdf. Accessed June 10, 2018.

[54] Wever R. ELF-effects on human circadian rhythms. In: *ELF and VLF Electromagnetic Field Effects*. (Persinger M, ed.) New York: Plenum; 1974:101-144.

[55] Engels S, Schneider N-L, Lefeldt N, et al. Anthropogenic electromagnetic noise disrupts magnetic compass orientation in a migratory bird. *Nature*. 2014;509:353-356. doi:10.1038/nature13290.

- [56] Ludwig W, Mecke R. Wirkung künstlicher Atmosphericics auf Säuger. *Archiv für Meteorologie, Geophysik und Bioklimatologie Serie B (Archives for Meteorology Geophysics and Bioclimatology Series B Theoretical and Applied Climatology)*. 1968;16(2-3):251-261. doi:10.1007/BF02243273.
- [57] Morley EL, Robert D. Electric fields elicit ballooning in spiders. *Current Biology*. 2018;28:1-7. [https://www.cell.com/current-biology/pdf/S0960-9822\(18\)30693-6.pdf](https://www.cell.com/current-biology/pdf/S0960-9822(18)30693-6.pdf). Accessed July 14, 2018.
- [58] Weber J. Die Spinnen sind Deuter des kommenden Wetters (Spiders Are Predictors of the Coming Weather). 1800; Landshut, Germany. "The electrical material works always in the atmosphere; no season can retard its action. Its effects on the weather are almost undisputed; spiders sense it, and alter their behaviour accordingly."
- [59] König H. Biological effects of extremely low frequency electrical phenomena in the atmosphere. *J Interdiscipl Cycle Res*. 2(3):317-323. www.tandfonline.com/doi/abs/10.1080/09291017109359276. Accessed June 10, 2018.
- [60] Sulman F. The Effect of Air Ionization, Electric Fields, Atmosphericics, and Other Electric Phenomena On Man and Animal. American lecture series. Vol 1029. Springfield, Ill: Thomas; 1980.
- [61] König HL, Krüger, AP, Lang S, Sönning, W. *Biologic Effects of Environmental Electromagnetism*. New York: Springer-Verlag; 1981. doi: 10.1007/978-1-4612-5859-9.
- [62] Sazanova E, Sazanov A, Sergeenko N, Ionova V, Varakin Y. Influence of near earth electromagnetic resonances on human cerebrovascular system in time of heliogeophysical disturbances. *Progress in Electromagnetics Research Symposium*. August 2013:1661-1665.
- [63] Cherry N. Schumann resonances, a plausible biophysical mechanism for the human health effects of solar/geomagnetic activity. *Natural Hazards*. 2002;26(3):279-331. doi:10.1023/A:1015637127504.
- [64] Polk C. Schumann resonances. In Volland H, ed. *CRC Handbook of Atmosphericics*. Vol. 1. Boca Raton, Fla: CRC Press; 1982:111-178. <https://archive.org/stream/in.ernet.dli.2015.132044/2015.132044.Crc-Handbook-Of-Atmosphericics-Vol-1#page/n115/mode/2up/search/polk>. Accessed June 18, 2018.
- [65] Park C, Helliwell R. Magnetospheric effects of power line radiation. *Science*. 1978;200(4343):727-730. doi:10.1126/science.200.4343.727.
- [66] Bullough K, Kaiser TR, Strangeways HJ. Unintentional man-made modification effects in the magnetosphere. *J Atm Terr Phys*. 1985;47(12):1211-1223.
- [67] Luetete JP, Park CG, Helliwell RA. The control of the magnetosphere by power line radiation. *J Geophys Res*. 1979;84:2657-2660.
- [68] Becker RO, Selden G. *The Body Electric: Electromagnetism and the Foundation of Life*. New York: Morrow; 1985:325-326.
- [69] Firstenberg A. Planetary Emergency. Cellular Phone Task Force website. <http://www.cellphonetaskforce.org/planetary-emergency>. Published 2018. Accessed June 10, 2018.
- [70] Becker RO. The basic biological data transmission and control system influenced by electrical forces. *Ann NY Acad Sci*. 1974;238:236-241. doi: 10.1111/j.1749-6632.1974.tb26793.x.

[71] Maxey ES, Beal JB. The electrophysiology of acupuncture; How terrestrial electric and magnetic fields influence air ion energy exchanges through acupuncture points. *International Journal of Biometeorology*. 1975;19(Supp. 1):124. doi:10.1007/BF01737335.

[72] Ćosić I, Cvetković D, Fang Q, Jovanov E, Lazoura H. Human electrophysiological signal responses to ELF Schumann resonance and artificial electromagnetic fields. *FME Transactions*. 2006;34:93-103. <http://scindeks-clanci.ceon.rs/data/pdf/1450-8230/2006/1450-82300602093C.pdf>. Accessed July 18, 2018.

[73] Cohen M, Behrenbruch C, Ćosić I. Is there a link between acupuncture meridians, earth-ionosphere resonances and cerebral activity? *Proceedings of the 2nd International Conference on Bioelectromagnetism, Melbourne, Australia*. 1998:173-174. doi: 10.1109/ICBEM.1998.666451.

[74] Chevalier G, Mori K, Oschman JL. The effect of earthing (grounding) on human physiology. *European Biology and Bioelectromagnetics*. January 2006:600-621. <http://162.214.7.219/~earthio0/wp-content/uploads/2016/07/Effects-of-Earthing-on-Human-Physiology-Part-1.pdf>. Accessed June 10, 2018. "Highly significant EEG, EMG and BVP results demonstrate that restoring the natural electrical potential of the earth to the human body (earthing) rapidly affects human electrophysiological and physiological parameters. The extreme rapidity of these changes indicates a physical/bioelectrical mechanism rather than a biochemical change."

[75] Firstenberg A. *Earth's Electric Envelope*. In: *The Invisible Rainbow: A History of Electricity and Life*. Santa Fe, NM: AGB Press; 2017: 113-131.

[76] Cannon PS, Rycroft MJ. Schumann resonance frequency variations during sudden ionospheric disturbances. *J Atmos Sol Terr Phys*. 1982;44(2):201-206. doi:10.1016/0021-9169(82)90124-6.

[77] Technical Report. European Telecommunications Standards Institute; 2007:7. http://www.etsi.org/deliver/etsi_tr/125900_125999/125914/07.00.00_60/

[tr_125914v070000p.pdf](http://www.etsi.org/deliver/etsi_tr/125900_125999/125914/07.00.00_60/tr_125914v070000p.pdf). Accessed June 10, 2018. "The Specific Anthropomorphic Mannequin (SAM) is used for radiated performance measurements [and is] filled with tissue simulating liquid."

[78] Research on technology to evaluate compliance with RF protection guidelines. *Electromagnetic Compatibility Laboratory, Tokyo*. http://emc.nict.go.jp/bio/phantom/index_e.html. Accessed July 18, 2018. "SAR is measured by filling phantom liquid that has the same electrical properties as those of the human body in a container made in the shape of the human body, and scanning the inside using an SAR probe."

[79] Becker RO, Marino AA. *Electromagnetism and Life*. Albany: State University of New York Press; 1982:39. "The evidence seems to be quite conclusive that there are steady DC electric currents flowing outside of the neurones proper in the entire nervous system."

[80] Nordenström B. *Biologically Closed Electric Circuits*. Stockholm: Nordic Medical Publications; 1983.

[81] Nordenström B. Impact of biologically closed electric circuits (BCEC) on structure and function. *Integr Physiol Behav Sci*. 1992;27(4):285-303. doi:10.1007/BF02691165.

[82] Devyatkov ND, ed. *Non-Thermal Effects of Millimeter Radiation*. Moscow: USSR Acad. Sci.; 1981 (Russian).

- [83] Devyatkov ND, Golant MB, Betskiy OV. Millimeter Waves and Their Role in the Processes of Life. (Millimetrovye volny i ikh rol' v protsessakh zhiznedeyatel'nosti). Moscow: Radio i svyaz' (Radio and Communication); 1991 (Russian).
- [84] Betskii OV. Biological effects of low-intensity millimetre waves (Review). Journal of Biomedical Electronics. 2015(1):31-47.<http://www.radiotec.ru/article/15678>. Accessed July 31, 2018.
- [85] Albanese R, Blaschak J, Medina R, Penn J. Ultrashort electromagnetic signals: Biophysical questions, safety issues and medical opportunities," Aviat Space Environ Med. 1994;65(5 Supp):A116-A120. <http://www.dtic.mil/dtic/tr/fulltext/u2/a282990.pdf>. Accessed June 18, 2018.
- [86] Pepe D, Aluigi L, Zito D. Sub-100 ps monocycle pulses for 5G UWB communications. 10th European Conference on Antennas and Propagation (EuCAP). 2016;1-4. doi: 10.1109/EuCAP.2016.7481123.
- [87] Nasim I, Kim S. Human exposure to RF fields in 5G downlink. arXiv:1711.03683v1.<https://arxiv.org/pdf/1711.03683>. Accessed June 17, 2018.
- [88] Thielens A, Bell D, Mortimore DB. Exposure of insects to radio-frequency electromagnetic fields from 2 to 120 GHz. Nature/Scientific Reports. 2018;8:3924. <https://www.nature.com/articles/s41598-018-22271-3.pdf>. Accessed June 17, 2018.
- [89] Hallmann CA, Sorg M, Jongejans E. More than 75 per cent decline over 27 years in total flying insect biomass in protected areas. PLOS One. 2017;12(10):e0185809. <http://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0185809&type=printable>. Accessed June 17, 2018.
- [90] Gandhi O, Riaz A. Absorption of millimeter waves by human beings and its biological implications. IEEE Trans Microw Theory Tech. 1986;34(2):228-235. doi:10.1109/TMTT.1986.1133316.
- [91] Russell CL. 5G wireless telecommunications expansion: Public health and environmental implications. Environ Res 2018;165:484-495.<https://zero5g.com/wp-content/uploads/2018/07/5-G-wireless-telecommunications-expansion-Public-health-and-environmental-implications-Cindy-L.-russell.pdf>. Accessed November 1, 2018.
- [92] Hardell L. World Health Organization, radiofrequency radiation and health—a hard nut to crack (review). Int J Oncol. 2017;51:405-413. doi:10.3892/ijo.2017.4046.
- [93] Pall M. 5G: Great risk for EU, U.S. and international health: Compelling evidence for eight distinct types of great harm caused by electromagnetic field (EMF) exposures and the mechanism that causes them. European Academy for Environmental Medicine. http://www.5gappeal.eu/wp-content/uploads/2018/06/pall_2018.pdf. Published May 2018. Accessed June 22, 2018.
- [94] Markov M, Grigoriev Y. Wi-Fi technology: An uncontrolled global experiment on the health of mankind, Electromagn Biol Med. 2013;32(2):200-208. http://www.avaate.org/IMG/pdf/Wi-fi_Technology_-_An_Uncontrolled_Global_Experiment_on_the_Health_of_Mankind_-_Marko_Markov_Yuri_G._Grigoriev.pdf. Accessed June 23, 2018.
- [95] Belyaev I, Alipov Y, Shcheglov V, Polunin V, Aizenberg O. Cooperative response of Escherichia coli cells to the resonance effect of millimeter waves at super low intensity. Electromagn Biol Med. 1994;13(1):53-66. doi:10.3109/15368379409030698.

- [96] Belyaev I. Nonthermal biological effects of microwaves: Current knowledge, further perspective, and urgent needs. *Electromagn Biol Med*. 2005;24(3):375-403. doi:10.1080/15368370500381844.
- [97] Bise W. Low power radio-frequency and microwave effects on human electroencephalogram and behavior. *Physiol Chem Phys*. 1978;10(5):387-398.
- [98] Brauer I. Experimentelle Untersuchungen über die Wirkung von Meterwellen verschiedener Feldstärke auf das Teilungswachstum der Pflanzen. *Chromosoma*. 1950;3(1):483-509. doi:10.1007/BF00319492.
- [99] Kondra P, Smith W, Hodgson G, Bragg D, Gavora J, Hamid M. Growth and reproduction of chickens subjected to microwave radiation. *Can J Anim Sci*. 1970;50(3):639-644. doi:10.4141/cjas70-087.
- [100] Frey AH, Seifert E. Pulse modulated UHF energy illumination of the heart associated with change in heart rate. *Life Sciences*. 1968;7(10 Part 2):505-512. doi: 10.1016/0024-3205(68)90068-4.
- [101] Mann K, Röschke J. Effects of pulsed high-frequency electromagnetic fields on human sleep. *Neuropsychobiology*. 1996;33(1):41-47. doi: 10.1159/000119247.
- [102] Tiagin NV. Clinical aspects of exposure to microwave radiation. Moscow: Meditsina; 1971 (Russian).
- [103] Belpomme D, Campagnac C, Irigaray P. Reliable disease biomarkers characterizing and identifying electrohypersensitivity and multiple chemical sensitivity as two etiopathogenic aspects of a unique pathological disorder. *Rev Environ Health* 2015;30(4):251–271. <https://www.jrseco.com/wp-content/uploads/Belpomme-Environmental-health-2015.pdf>. Accessed June 18, 2018.
- [104] Hecht K. Health Implications of Long-term Exposure to Electromog. Competence Initiative for the Protection of Humanity, the Environment and Democracy. 2016: 16, 42-46. http://kompetenzinitiative.net/KIT/wp-content/uploads/2016/07/KI_Brochure-6_K_Hecht_web.pdf. Accessed June 20, 2018.
- [105] Belyaev I, Dean A, Eger H, et al. EUROPAEM EMF Guideline 2016 for the prevention, diagnosis and treatment of EMF-related health problems and illnesses. *Rev Environ Health*. 2016;31(3):363-397. doi:10.1515/reveh-2016-0011.
- [106] Schreier N, Huss A, Rösli M. The prevalence of symptoms attributed to electromagnetic field exposure: A cross-sectional representative survey in Switzerland. *Soz Präventivmed*. 2006;51(4):202-209. doi:10.1007/s00038-006-5061-2. Accessed July 16, 2018.
- [107] Schroeder E. Stakeholder-Perspektiven zur Novellierung der 26. BImSchV: Ergebnisse der bundesweiten Telefonumfrage im Auftrag des Bundesamtes für Strahlenschutz (Report on stakeholder perspectives on amending the 26th Federal Emission Control Ordinance: Results of the nationwide telephone survey ordered by the Federal Office for Radiation Protection). Schr/bba 04.02.26536.020. Munich, Germany. 2002 (German). https://www.bfs.de/SharedDocs/Downloads/BfS/DE/berichte/emf/befuerchtungen.pdf?__blob=publicationFile&v=3. Accessed July 19, 2018.

[108] Hallberg Ö, Oberfeld G. Letter to the editor: Will we all become electrosensitive? *Electromagn Biol Med.* 2006;25:189-191. https://www.criirem.org/wp-content/uploads/2006/03/ehs2006_hallbergoberfeld.pdf. Accessed June 22, 2018.

[109] Brussels International Scientific Declaration on Electromagnetic Hypersensitivity and Multiple Chemical Sensitivity. ECRI Institute. http://eceri-institute.org/fichiers/1441982765_Statement_EN_DEFINITIF.pdf. Published 2015. Accessed June 10, 2018.

[110] Removal of barriers to entry, 47 U.S.C. § 253. <https://www.gpo.gov/fdsys/pkg/USCODE-2015-title47/pdf/USCODE-2015-title47-chap5-subchapII-partII-sec253.pdf>; 5G For Europe: An Action Plan. European Commission; 2016. http://ec.europa.eu/newsroom/dae/document.cfm?doc_id=17131. Accessed June 10, 2018.

[111] Federal Register – Rules and Regulations. 47 CFR Part 1 [WT Docket No 17–79; FCC 18–30] Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment. 2018;83(86). Accessed June 10, 2018.

[112] 5G For Europe: An Action Plan. European Commission; 2016. http://ec.europa.eu/newsroom/dae/document.cfm?doc_id=17131. Accessed June 10, 2018.

[113] PCIA – The Wireless Infrastructure Association. Model wireless telecommunications facility siting ordinance. 2012. https://wia.org/wp-content/uploads/Advocacy_Docs/PCIA_Model_Zoning_Ordinance_June_2012.pdf. Accessed June 29, 2018.

[114] Mobile services, 47 U.S.C. § 332(c)(7)(B)(iv). <https://www.gpo.gov/fdsys/pkg/USCODE-2016-title47/pdf/USCODE-2016-title47-chap5-subchapIII-partI-sec332.pdf>: “No state or local government or instrumentality thereof may regulate personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the [Federal Communications] Commission’s regulations concerning such emissions.” Courts have reversed regulatory decisions about cell tower placement simply because most of the public testimony was about health.

[115] *Cellular Telephone Company v. Town of Oyster Bay*, 166 F.3d 490, 495 (2nd Cir. 1999). <https://openjurist.org/166/f3d/490/cellular-telephone-company-at-v-town-of-oyster-bay>. Accessed June 10, 2018.; *T-Mobile Northeast LLC v. Loudoun County Bd. of Sup’rs*, 903 F.Supp.2d 385, 407 (E.D.Va. 2012). <https://caselaw.findlaw.com/us-4th-circuit/1662394.html>. Accessed June 10, 2018.

[116] Vogel G. A Coming Storm For Wireless? *TalkMarkets*. July 2017. <http://talkmarkets.com/content/stocks-equities/a-coming-storm-for-wireless?post=143501&page=2>. Accessed September 13, 2018.

[117] Swiss Re: SONAR – New emerging risk insights. July 2014:22. http://media.swissre.com/documents/SONAR_2014.pdf. Accessed June 10, 2018. “[A]n increasing level of interconnectivity and the growing prevalence of digital steering and feedback systems also give rise to new vulnerabilities. These could involve cascading effects with multiple damages as well as long-lasting interruptions if the problems turned out to be complex and/or difficult to repair. Interconnectivity and

permanent data generation give rise to concerns about data privacy, and exposure to electromagnetic fields may also increase.”

[118] Albert Einstein, letter to Max Born, Dec. 4, 1926.

[119] Active Denial Technology. Non-Lethal Weapons Program. <https://jnlwp.defense.gov/Press-Room/Fact-Sheets/Article-View-Fact-sheets/Article/577989/active-denial-technology/>. Published May 11, 2016. Accessed June 10, 2018.

[120] Conflicts of interest have frequently arisen in the past. For example, the EU Commission (2008/721/EC) appointed industry-supportive members for SCENIHR who submitted to the EU a misleading SCENIHR report on health risks, which gave the telecommunications industry carte blanche to irradiate EU citizens. The report is now quoted by radiation safety agencies in the EU. Another example is the US National Toxicology Program contracting with the IT'IS Foundation, which is funded by the entire telecommunications industry, to design, build and monitor the exposure facility for a two-year, 25-million-US-dollar study of cell phones. It subsequently produced a misleading report that is now quoted by industry officials in the US.

[121] Ross M, Mills M, Toohey D. Potential climate impact of black carbon emitted by rockets. *Geophys Res Lett.* 2010;37:L24810. <https://agupubs.onlinelibrary.wiley.com/doi/pdf/10.1029/2010GL044548>. Accessed June 17, 2018.

[122] Ross MN, Schaeffer PM. Radiative forcing caused by rocket engine emissions. *Earth's Future.* 2014;2:177-196. <https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1002/2013EF000160>. Accessed June 17, 2018.

[123] Callicott JB, Mumford K. Ecological sustainability as a conservation concept. *Conservation Biology.* 1997;11(1):32-40. <https://www.sierraforestlegacy.org/Resources/Community/Sustainability/>

SY_CallicottMumford1997.pdf. Accessed June 20, 2018.

**Summary of the Supreme Court of California's findings in the case of
T-Mobile West LLC et al., (Plaintiffs & Appellants)**

- vs -

City & County of San Francisco et al., (Defendants & Respondents)

S238001

April 4, 2019

The Supreme Court of California ruled in favor of the City and County of San Francisco in a recent case against T-Mobile West.

By ordinance the City and County of San Francisco requires telephone service companies to obtain permits to install and maintain lines and equipment in public rights-of-way. Some permits will not issue unless the application conforms to the City's established aesthetic guidelines. Plaintiffs assert a facial challenge urging that (1) the ordinance is preempted by state law and (2) even if not preempted, the ordinance violates a statute. The trial court and the Court of Appeal rejected both arguments.

The City ordinance was adopted in order to limit the intrusive effect of telephone and wireless telecommunication facilities, thus maintaining the beauty of the City, which is vital to its tourist industry and an important reason why residents and businesses locate there.

This is certainly a factor in many New Hampshire communities as well.

In addition, the San Francisco ordinance specifies areas designated for heightened aesthetic review, such as historic districts and areas that have 'good' or 'excellent' views or are adjacent to parks or open spaces. Wireless equipment located in these areas are required to be approved by the City's Planning Board that it would not degrade the aesthetic attributes or impair protected views.

Plaintiffs did seek declaratory and injunctive relief alleging five causes of action, but only one operative complaint was at issue. Plaintiffs alleged the ordinance violated a section of the Public Works Code by treating wireless providers differently from other telephone corporations and that the ordinance is preempted by this Code.

The trial court ruled that the Public Works Code did NOT preempt the challenged portions of the Ordinance and rejected plaintiff's claim. The Court of Appeal affirmed.

A lengthy discussion on Preemption Principles is included in the documentation for this case. Several cases were highlighted for consideration, but for me what sticks out is that, "The right of telephone corporations to construct telephone lines in public rights-of-way is not absolute." Instead, it is a 'limited right to use the highways... only to the extent necessary for the furnishing of services to the public.'

Because the location and manner of line installation are areas over which local governments traditionally exercise control, the ordinance is not preempted unless there is a clear indication of preemptive intent.

Overall, the gist of the plaintiff's argument was that enforcement of the Ordinance could hinder technological advancement in the state's telecommunications networks and their state-wide franchise. But the discussion states that "no legislation pursues its objectives at all costs." And the Legislature made clear that the goal of technological advancement is not paramount to all others. It therefore left room for local regulation of telephone line installation.

Lastly, and most importantly in my opinion, the California State Constitution puts principal regulatory authority over utilities with the Public Utilities Commission (PUC), but carves out an ongoing area of municipal control. A company seeking to build must approach the PUC and obtain a certificate of necessity, and will still be subject to local control over construction. **"Municipalities may surrender to the PUC regulation of a utility's relations with its customers, but they are forbidden from yielding to the PUC their police powers to protect the public from adverse impacts of utilities operations!"**

This is the point you have to take home today... The FCC has indemnified itself against any damages or claims resulting from the operation of wireless telecommunication facilities. And after 5G is rolled out, there will be claims! The Telecom companies have no insurance coverage against these claims, because the insurance industry won't provide it. So where will the claims fall to??? Directly to the Telecom Carriers? To the Federal Government? The State? The Municipalities? We don't know.

What we do know is that wireless telecommunications facilities present a number of concerns from health and environmental impacts, to security and privacy, to regulatory jurisdiction. We need to make sure our municipalities maintain control of our public rights-of-way because it is their duty to protect the public! They need to be better educated on the technologies so they can make better decisions and prevent dangerous high frequency bandwidths from permeating our everyday lives. (Example – **Ericsson Radio Systems on U.S. Cellular towers...** they are currently operating on 4G frequencies but can easily be adjusted to operate on 5G – see handout)

This California Supreme Court Ruling presents an excellent stepping stone towards these goals for New Hampshire. Given that we too need to preserve our beautiful views for our residents, businesses and tourist industry, as well as protect the public health and environment from damages, this case sets a precedent we can use in our fight to maintain control of our public rights-of-way.

Health and Human Services Committee
HB 522
April 16,2019

Thank you all for allowing testimony today on NH HB 522. My name is Deb Hodgdon. I am a retired accountant and have been a resident of Stratham for over thirty years. Never in my wildest dreams did I ever envision that in retirement, I would be concerned about bringing awareness to the potential health risks of wireless technology. Yet, here I am. I am just one of the many, who can feel wireless and its many negative side effects, when exposed. Last year, my doctor said to me, "Deb, I think you may be the canary in the coal mine!" I agree. I believe I am one of many and likely many more to come as people realize the connection.

Today, most of us are completely unaware that many symptoms, as well as serious chronic health issues may be related to our current technology. I discovered this inadvertently, while trying to find a safe way to come off Coumadin that I had been on for a decade after having unexplained multiple pulmonary embolisms in both lungs. I had random facial flushing, that I assumed were food sensitivities and/or hormones. I also had issues with blood pressure, rapid pulse, and breathlessness which I took note of, since those were the first symptoms that I had when I had with the PEs years ago. I had insomnia, and developed foggy brain to the point that I was afraid that I was developing some sort of early onset dementia. I also had dizziness, balance issues, tinnitus, nausea, heart palpitations, electrical buzzing in my body, headache, difficulty focusing and severe dry eyes. I did not know at the time, that these symptoms would disappear when we removed wireless from our home, but they did.

When I first told my family that wifi affected me, they laughed. Who wouldn't? I could not prove it to them.... Yet! However, when we turned the wifi off in our home, the plant they gave to me a year prior, started to grow. Within two months of shutting off wifi, it had grown rapidly between 15-18 inches and bloomed. The crazy growing plant got their attention. Now, they were listening. I am no scientist, but the plant was an eye opener.

After that, I purchased a meter to measure RF in order to ensure an RF free home. Several weeks after verifying an RF free home, I again felt ill. I took out my meter and we discovered the Microsoft update overnight on my computer randomly turned the Bluetooth back on.

Last winter, we tried to find a television that could have wifi and Bluetooth turned off. That was no easy task. The man who helped us, was aware of this issue as he had a customer return a television because it interfered with his pacemaker.

Several months ago, during a visit with our children, I suddenly felt sick. I asked whose phone was on. All phones were on airplane mode, as they had been for months when they visited, however I felt sick. I again took out my meter and despite being on airplane mode, their new iPhones emitted high levels. We discovered that Apple had made a change to their iPhones and airplane mode no longer shutdown all antennae. The phone and text antennae were off, leaving wifi and Bluetooth active.

Despite constantly changing, without warning industry challenges, I still have control in my home being able to choose how much RF I am exposed to. However, I do not have control in public places (like here), at a school, hospital, church, restaurant, supermarket, etc. Those places, I need to navigate carefully and I do, if I go there at all. I have not been on a plane, bus, subway since Oct 2017 after we returned from a hiking trip out west. That seemed to be the tipping point for me.

With the impending roll out of 5G technology, the proposed antenna will be so close to homes and even more powerful. What happens then to my right and ability to protect myself in my own home or in my yard from a technology that I will not use? As technology rapidly changes and brings us many benefits and ease of use, it should not be rushed to the point that we do not require industry to bring the best and safest technology to market, based upon biological third party scientific data. According to both Dr. Paul Heroux and Frank Clegg, ex-CEO of Microsoft Canada, the technology exists and can be accomplished. What about fiber optic? There are questions that need to be asked with regard to wireless technology.

The precautionary principle, I hope would prevail, especially with regard to our most vulnerable. Children do not create the environments they find themselves in. Adults do. I agree with Frank Clegg, who testified in February, that we have it backwards. It makes far more sense that we be expecting proof of safety before products are allowed, rather than proof of harm decades later. First do no harm. Please support NH HB 522.

Sincerely,

Deb Hodgdon
Stratham, NH

To: Senate Health and Human Services Committee
From: Lori Schreier, Owner of Fertile Fields Farm in Westmoreland, NH and former attorney.
April 16, 2019

I am testifying today in support of HB522. Thank you for the opportunity to speak to you today and for considering a Commission to review 5G's environmental and health effects before 5G is rolled out in New Hampshire. States and municipalities can help ensure that we have responsible and safe technology.

Others are going to testify on scientific, health and environmental impacts around 5G. I will give a brief summary of how widespread the concerns are highlighting calls for delays or moratoriums on 5G across the country and around the world. The locations with the most activity around 5G protests are those areas where the rollouts have happened or are moving fast, like CA and Europe. The citizens of New Hampshire are just awakening to the issue of 5G.

Public outcry has led to two dozen cities and counties suing the FCC (Federal Communications Commission) due to rules restricting local control over placement of small cell towers and antennae. These include Marin County, CA, San Jose, CA, LA, Las Vegas, Portland Oregon and 16 other cities in California, Washington and Arizona.

Additionally, many city ordinances are being proposed and enacted to limit and control wireless facilities like small cells in public rights of way (See Environmental Health Trust) Some examples include the California cities of Petaluma, Fairfax, Monterey, Mill Valley, Ross Valley Sebastopol, Sonoma and San Rafael, Lancaster, PA, Holyoke MA, Boonville, AR, Warren, CT, Pittsfield, MA, Hempstead, NY, Mason, OH, Little Silver NJ and others.

On May 15 there is a 5G Day of Action sponsored by Americans for Safe Technology and they list dozens of organizations participating nationwide.

The growing awareness of the health impact of the 4G/5G densification is resulting in action by policy makers worldwide. Cities are issuing resolutions and calls for research before deployment. There are citizen organizations in almost every country on this and a growing list of public officials speaking out. (Environmental Health Trust)

Some of the countries and international cities issuing a halt or delay in 5G include Switzerland, Florence Italy, Capital City of Rome, Brussels, Belgium, Germany, Malta, Russia's Ministry of Defense, members of Parliament in the Netherlands, Geneva, Madrid, Spain and others.

There are 63,379 signatories from at least 168 countries as of March 29, 2019 that signed this appeal to the UN, WHO, EU, Council of Europe and Governments of all Nations. It includes thousands of scientists, doctors and people from all walks of life. The appeal reads as follows and the whole document is attached:

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 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.

As a citizen of NH and as a person who is sensitive to wireless radio frequencies, I am hopeful that New Hampshire can lead the way to safe, responsible and accessible technology. Thank you for your time.

References to Some Examples in the United States to Halt or Delay 5G

<https://www.marini.com/2018/11/01/marin-supervisors-decide-to-join-legal-challenge-to-5g-rollou>

<https://statescoop.com/local-governments-file-three-lawsuits-against-fcc-over-5g-ruling/>

<https://ehtrust.org/firefighter-unions-opposing-cell-towers/>

Portland Oregon city officials state clear opposition to the installation of 5G networks around the city, supported by the mayor and two commissioners March 24, 2019

California Supreme Court Justices unanimously uphold a 2011 San Francisco ordinance requiring telecommunications companies to get permits before placing antennas on city infrastructure. April 5, 2019

https://takebackyourpower.net/5g-the-dominoes-are-starting-to-fall/?fbclid=IwAR2PiLwHdFP8TpDrxr4AIE1_GsTW1LVpOdysalpQkOggvJZRUdyzplD19xk

<https://ehtrust.org/usa-city-ordinances-to-limit-and-control-wireless-facilities-small-cells-in-rights-of-ways/>

The full details for City Ordinances is attached to this testimony.

<https://www.americansforresponsibletech.org/about>

References to Some International Actions To Halt And Delay 5G
Source: Environmental Health Trust website

<https://ehtrust.org/international-actions-to-halt-and-delay-5g/>

<https://www.5gspaceappeal.org/the-appeal>

Attached is the full Appeal Letter signed by the 63,379 signatories.

Florence applies the precautionary principle, refusing permissions for 5G and referring to “the ambiguity and the uncertainty of supranational bodies and private bodies (like ICNIRP)”, which “have very different positions from each other, despite the huge evidence of published studies” Italy, March 24, 2019

One Roman district votes against 5G trials, with others expected to follow. Other motions to Stop 5G are expected in the four regional councils, one provincial council and other municipal councils of Italy March 24, 2019

he Russian Ministry of Defence refuses to transfer frequencies for 5G, which effectively delays any 5G rollout there for several years. Russia. March 28, 2019

The Belgian Environment Minister announces that Brussels is halting its 5G rollout plans, saying, "The people of Brussels are not guinea pigs whose health I can sell at a profit. Belgium March 31, 2019

Germans sign a petition en masse to force the German Bundestag to debate 5G. April 4, 2019

Members of Parliament in the Netherlands insist that radiation research must be carried out before any approval of the 5G network. April 4, 2019

The Canton of Vaud adopts a resolution calling for a moratorium on 5G antennas until the publication this summer of a report on 5G by the Swiss Federal Office for the Environment. April 9, 2019

Geneva adopts a motion for a moratorium on 5G, calling on the Council of State to request WHO to monitor independent scientific studies to determine the harmful effects of 5G. April 10, 2019,

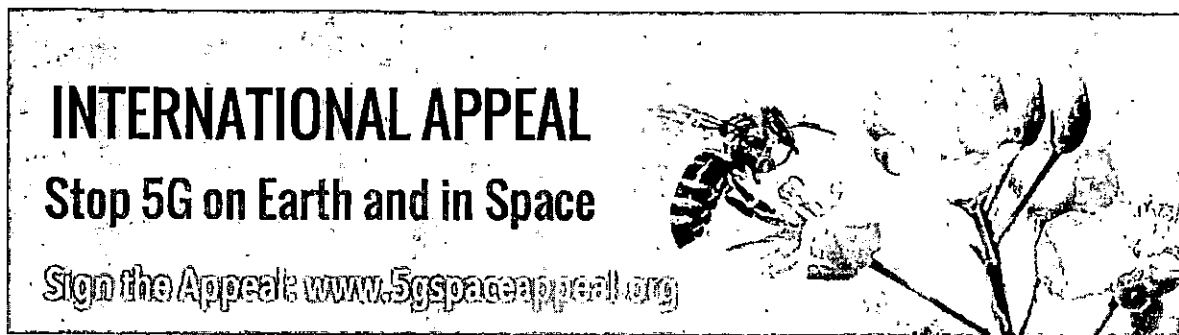
The last eight links can be found in this article.

https://takebackyourpower.net/5g-the-dominoes-are-starting-to-fall/?fbclid=IwAR2PiLwHdFP8TpDrxr4AIE1_GsTW1LVpOdysalpQkOggvJZRUdyzplD19xk

Madrid Spain

The Regional Federation of Neighborhood Associations of Madrid (FRAVM) protested this Saturday before the Ministry of Health to request a moratorium on the implementation of 5G technology and compliance with the precautionary principle in the face of exposure to electromagnetic fields. June 2018

<https://www.emfsa.co.za/news/madrid-spain-protest-against-the-implementation-of-5g-technology-j>



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,

International Appeal: Stop 5G on Earth and in Space

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.

(Note: References are provided as [hyperlinks](#) and endnotes.)

5G will result in a massive increase in inescapable, involuntary exposure to wireless radiation

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 metres¹ 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 rules⁴ 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,² 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 companies⁵ 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 watts⁶ 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).***

International Appeal: Stop 5G on Earth and in Space

Harmful effects of radio frequency radiation are already proven

Even before 5G was proposed, dozens of petitions and appeals⁷ 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.⁸

In 2015, 215 scientists from 41 countries communicated their alarm to the United Nations (UN) and World Health Organization (WHO).⁹ 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.^{10,11} Effects include:

- Alteration of heart rhythm¹²
- Altered gene expression¹³
- Altered metabolism¹⁴
- Altered stem cell development¹⁵
- Cancers¹⁶
- Cardiovascular disease¹⁷
- Cognitive impairment¹⁸
- DNA damage¹⁹
- Impacts on general well-being²⁰
- Increased free radicals²¹
- Learning and memory deficits²²
- Impaired sperm function and quality²³
- Miscarriage²⁴
- Neurological damage²⁵
- Obesity and diabetes²⁶
- Oxidative stress²⁷

Effects in children include autism,²⁸ attention deficit hyperactivity disorder (ADHD)^{29,30} and asthma.³¹

Damage goes well beyond the human race, as there is abundant evidence of harm to diverse plant- and wildlife^{32,33} and laboratory animals, including:

- Ants³⁴
- Birds^{35,36}
- Forests³⁷
- Frogs³⁸
- Fruit flies³⁹
- Honey bees⁴⁰
- Insects⁴¹
- Mammals⁴²
- Mice^{43,44}
- Plants⁴⁵
- Rats⁴⁶
- Trees⁴⁷

Negative microbiological effects⁴⁸ have also been recorded.

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).⁴⁹ However, recent evidence, including the latest studies on cell phone use and brain cancer risks, indicate that RF radiation is proven carcinogenic to humans⁵⁰ 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.⁵¹

International Appeal: Stop 5G on Earth and in Space

The deployment of 5G satellites must be prohibited

The Earth, the ionosphere and the lower atmosphere form the global electric circuit⁵² in which we live. It is well established that biological rhythms—of humans,^{53,54} birds,⁵⁵ hamsters,⁵⁶ and spiders^{57,58}—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 resonances⁶⁴ 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 radiation⁶⁵ reaches the Earth's ionosphere and magnetosphere, where it is amplified by wave-particle interactions.^{66,67} 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".⁶⁸ 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.⁶⁹

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.^{70,71,72,73} Adding 20,000 5G satellites will further pollute the global electric circuit^{74,75} and could alter the Schumann resonances,⁷⁶ 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.^{77,78} The assumption that millimetre waves do not penetrate beyond the skin completely ignores nerves,⁷⁹ blood vessels^{80,81} and other electrically conducting structures that can carry radiation-induced currents deep into the body.^{82,83,84} 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.⁸⁵ They become significant when either the power or the phase of the waves changes rapidly enough.⁸⁶ 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 burns⁸⁷ in humans from 5G radiation and resonant absorption by insects,⁸⁸ which absorb up to 100 times as much radiation at millimetre

International Appeal: Stop 5G on Earth and in Space

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,⁸⁹ 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.⁹⁰ Russell (2018) reviews the known effects of millimetre waves on skin, eyes (including cataracts), heart rate, immune system and DNA.⁹¹

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”.⁹² 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.⁹³

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”.⁹⁴ 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.⁹ 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. coli⁹⁵ and in rats,⁹⁶ altered EEG in humans,⁹⁷ growth stimulation in bean plants,⁹⁸ and stimulation of ovulation in chickens.⁹⁹

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.

International Appeal: Stop 5G 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 rhythm¹⁰⁰ and changes in brain function (EEG)¹⁰¹ are examples of immediate effects. A syndrome that was called radiowave sickness¹⁰² in the former Soviet Union and is called electromagnetic hypersensitivity (EHS) around the world today¹⁰³ 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.¹⁰⁴

The EUROPAEM 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.¹⁰⁵ 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,^{106,107} and that may soon affect everyone¹⁰⁸ 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).¹⁰⁹

World governments are failing in their 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.¹¹⁰ They are prohibiting local authorities from enforcing environmental laws,¹¹¹ 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”.¹¹²

Governments are also enacting laws to make wireless facilities a permitted use in all public rights-of-way.¹¹³ 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”,¹¹⁴ and courts have reversed regulatory

International Appeal: Stop 5G on Earth and in Space

decisions about cell tower placement simply because most of the public testimony was about health.¹¹⁵ Insurers will not provide coverage against EMF risks,¹¹⁶ 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.¹¹⁷

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 (1947) 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.”

International Appeal: Stop 5G on Earth and in Space

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)).

International Appeal: Stop 5G on Earth and in Space

World governments are playing dice with life on Earth

Albert Einstein famously asserted that “God does not play dice”.¹¹⁸ 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,¹¹⁹ 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,¹²⁰ 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,¹²¹ global warming,¹²² the atmosphere and the preservation of life on Earth. Not only ground-based but also space-based technology must be sustainable¹²³ for adults and children, animals and plants.

International Appeal: Stop 5G on Earth and in Space

Please respond to the Appeal Administrator listed below
detailing the measures you intend to take to protect the global population against RF radiation exposure, especially 5G radiation.

This appeal and your response will be publicly available on www.5gSpaceAppeal.org.

Respectfully submitted,

Arthur Firstenberg, Appeal Administrator, info@5gSpaceAppeal.org

Initial Signatories

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**

Klaus Buchner, Dr. rer. nat., Professor, MEP – Member of the European Parliament, Kompetenzinitiative zum Schutz von Mensch, Umwelt und Demokratie e.V., München, **Germany**

Daniel Favre, Dr. phil. nat., Biologist, A.R.A. (Association Romande Alerte aux Ondes Electromagnétiques), **Switzerland**

Annie Sasco, MD, DrPH, SM, HDR, former Chief of Research Unit of Epidemiology for Cancer Prevention at the International Agency for Research on Cancer (IARC), Lyon; former Acting Chief, Programme for Cancer Control of the World Health Organization (WHO); former Director of Research at the Institut National de la Santé et de la Recherche Médicale (INSERM); **France**

NORTH AMERICA

Martin Pall, Professor Emeritus of Biochemistry and Basic Medical Sciences, Washington State University, residing in Portland, Oregon, **USA**

Kate B. Showers, PhD, Soil Science, Senior Research Fellow, Centre for World Environmental History, University of Sussex, Falmer, Brighton, UK, residing in Bolton-Est, Québec, **Canada**

SOUTH AMERICA

Carlos Sosa, MD, University of Antioquia, Medellín, **Colombia**

International Appeal: Stop 5G on Earth and in Space

References

- ¹ De Grasse M. AT&T outlines 5G network architecture. RCR Wireless News, Oct. 20, 2016. <https://www.rcrwireless.com/20161020/network-infrastructure/att-outlines-5g-network-architecture-tag4>. Accessed July 9, 2018.
- ² Hong W, Jiang ZH, Yu C, et al. Multibeam antenna technologies for 5G wireless communications. *IEEE Tr Ant Prop.* 2017;65(12):6231-6249. doi: 10.1109/TAP.2017.2712819.
- ³ Chou H-T. Design Methodology for the Multi-Beam Phased Array of Antennas with Relatively Arbitrary Coverage Sector. Conference paper: 2017 11th European Conference on Antennas and Propagation; Paris, France. doi: 10.23919/EuCAP.2017.7928095.
- ⁴ 47 CFR § 30.202 – Power limits.
- ⁵ [SpaceX](#), [WorldVu](#), [Boeing](#), [Telesat Canada](#) and [Iridium](#).
- ⁶ Federal Communications Commission. *Pending Application for Satellite Space and Earth Station Authorization. Schedule S, Technical Report.* Dated April 2016, filed March 1, 2017. http://licensing.fcc.gov/myibfs/download.do?attachment_key=1200245. Accessed June 17, 2018.
- ⁷ Governments and organizations that ban or warn against wireless technology. Cellular Phone Task Force website. www.cellphonetaskforce.org/governments-and-organizations-that-ban-or-warn-against-wireless-technology/. Accessed June 10, 2018. Continually updated.
- ⁸ The International Doctors' Appeal (Freiburger Appeal). <http://freiburger-appell-2012.info/en/home.php?lang=EN>. Published in 2012. Accessed June 10, 2018.
- ⁹ International appeal: scientists call for protection from non-ionizing electromagnetic field exposure. International EMF Scientist Appeal website. <https://emfscientist.org/index.php/emf-scientist-appeal>. Published May 11, 2015. Accessed June 10, 2018. As of March 2018, 237 EMF scientists from 41 nations had signed the Appeal.
- ¹⁰ Glaser Z. Cumulated index to the bibliography of reported biological phenomena ('effects') and clinical manifestations attributed to microwave and radio-frequency radiation: report, supplements (no. 1-9). BEMS newsletter (B-1 through B-464), 1971-1981. <http://www.cellphonetaskforce.org/wp-content/uploads/2018/06/Zory-Glasers-index.pdf>. Accessed June 26, 2018. Report and 9 supplements issued by Naval Medical Research Institute, Bethesda, MD; Research Division, Bureau of Medicine & Surgery, Dept. of the Navy, Washington, DC; Electromagnetic Radiation Project Office, Naval Medical Research & Development Command, Bethesda, MD; Naval Surface Weapons Center, Dahlgren, VA; and National Institute for Occupational Safety and Health, Rockville, MD. Index by Julie Moore and Associates, Riverside, CA, 1984. Lt. Zorach Glaser, PhD, catalogued 5,083 studies, books and conference reports for the US Navy through 1981.
- ¹¹ Sage C, Carpenter D., eds. *BioInitiative Report: A Rationale for a Biologically-Based Public Exposure Standard for Electromagnetic Radiation.* Sage Associates; 2012. www.bioinitiative.org. Accessed June 10, 2018. The 1,470-page *BioInitiative Report*, authored by an international group of 29 experts, has reviewed more than 1,800 new studies and is continually updated.
- ¹² Grigoriev Y. Bioeffects of modulated electromagnetic fields in the acute experiments (results of Russian researches). *Annu Russ Natl Comm Non-Ionising Radiat Protect.* 2004:16-73. <http://bemri.org/publications/biological-effects-of-non-ionizing-radiation/78-grigoriev-bioeffects07/file.html>. Accessed June 17, 2018.
- ¹³ Obajuluwa AO, Akinyemi AJ, Afolabi OB, et al. Exposure to radio-frequency electromagnetic waves alters acetylcholinesterase gene expression, exploratory and motor coordination-linked behaviour in male rats. *Toxicol Rep.* 2017;4:530-534. <https://www.sciencedirect.com/science/article/pii/S221475001730063X/pdf?md5=0af5af76124b1f89f6d23c90c5c7764f&pid=1-s2.0-S221475001730063X-main.pdf>. Accessed June 17, 2018.
- ¹⁴ Volkow ND, Tomasi D, Wang G-J, et al. Effects of cell phone radiofrequency signal exposure on brain glucose metabolism. *JAMA.* 2012;305(8):808-813. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3184892>. Accessed June 17, 2018.

International Appeal: Stop 5G on Earth and in Space

- ¹⁵ Eghlidospour M, Ghanbari A, Mortazavi S, Azari H. Effects of radiofrequency exposure emitted from a GSM mobile phone on proliferation, differentiation, and apoptosis of neural stem cells. *Anat Cell Biol.* 2017;50(2):115-123. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5509895>. Accessed June 17, 2018.
- ¹⁶ Hardell L, Carlberg C. Mobile phones, cordless phones and the risk for brain tumors. *Int J Oncol.* 2009;35(1):5-17. <https://www.spandidos-publications.com/ijo/35/1/5/download>. Accessed June 17, 2018.
- ¹⁷ Bandara P, Weller S. Cardiovascular disease: Time to identify emerging environmental risk factors. *Eur J Prev Cardiol.* 2017;24(17):1819-1823. <http://journals.sagepub.com/doi/10.1177/2047487317734898>. Accessed June 17, 2018.
- ¹⁸ Deshmukh P et al. Cognitive impairment and neurogenotoxic effects in rats exposed to low-intensity microwave radiation. *Int J Toxicol.* 2015;34(3):284-290. doi: 10.1177/1091581815574348.
- ¹⁹ Zothansiana, Zosangzuali M, Lalramdinpuii M, Jagetia GC. Impact of radiofrequency radiation on DNA damage and antioxidants in peripheral blood lymphocytes of humans residing in the vicinity of mobile phone base stations. *Electromag Biol Med.* 2017;36(3):295-305. doi: 10.1080/15368378.2017.1350584.
- ²⁰ Zwamborn A, Vossen S, van Leersum B, Ouwens M, Mäkel W. Effects of Global Communication system radio-frequency fields on Well Being and Cognitive Functions of human subjects with and without subjective complaints. TNO Report FEL-03-C148. The Hague: TNO Physics and Electronics Laboratory; 2003. http://www.milieugezondheid.be/dossiers/gsm/TNO_rapport_Nederland_sept_2003.pdf. Accessed June 16, 2018.
- ²¹ Havas M. When theory and observation collide: Can non-ionizing radiation cause cancer? *Environ Pollut.* 2017;221:501-505. doi: 10.1016/j.envpol.2016.10.018.
- ²² Narayanan SN, Kumar RS, Potu BK, Nayak S, Mailankot M. Spatial memory performance of Wistar rats exposed to mobile phone. *Clinics.* 2009;64(3):231-234. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2666459>. Accessed June 17, 2018.
- ²³ Houston BJ, Nixon B, King BV, De Iulius GN, Aitken RJ. The effects of radiofrequency electromagnetic radiation on sperm function. *Reproduction.* 2016;152(6):R263-R266. <http://www.reproduction-online.org/content/152/6/R263.long>. Accessed June 17, 2018.
- ²⁴ Han J, Cao Z, Liu X, Zhang W, Zhang S. Effect of early pregnancy electromagnetic field exposure on embryo growth ceasing. *Wei Sheng Yan Jiu.* 2010;39(3):349-52 (in Chinese). <https://www.ncbi.nlm.nih.gov/pubmed/20568468>.
- ²⁵ Salford LG, Brun AE, Eberhardt JL, Malmgren L, Persson BRR. Nerve cell damage in mammalian brain after exposure to microwaves from GSM mobile phones. *Environ Health Perspect.* 2003;111(7):881-883. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1241519/pdf/ehp0111-000881.pdf>. Accessed June 17, 2018.
- ²⁶ Milham S. Evidence that dirty electricity is causing the worldwide epidemics of obesity and diabetes. *Electromagn Biol Med.* 2014;33(1):75-78. doi: 10.3109/15368378.2013.783853.
- ²⁷ Yakymenko I, Tsybulin O, Sidorik E, Henshel D, Kyrlylenko O, Kyrlylenko S. Oxidative mechanisms of biological activity of low-intensity radiofrequency radiation. *Electromagn Biol Med.* 2016;35(2):186-202. doi: 10.3109/15368378.2015.1043557.
- ²⁸ Herbert M, Sage C. Findings in autism (ASD) consistent with electromagnetic fields (EMF) and radiofrequency radiation (RFR). In: Sage C, Carpenter D., eds. *BioInitiative Report: A Rationale for a Biologically-Based Public Exposure Standard for Electromagnetic Radiation*. Sec. 20. Sage Associates; 2012. http://www.bioinitiative.org/report/wp-content/uploads/pdfs/sec20_2012_Findings_in_Autism.pdf. Accessed June 29, 2018.
- ²⁹ Divan HA, Kheifets L, Obel C, Olsen J. Prenatal and postnatal exposure to cell phone use and behavioral problems in children. *Epidemiology* 2008;19: 523-529. http://www.wifiinschools.com/uploads/3/0/4/2/3042232/divan_08_prenatal_postnatal_cell_phone_use.pdf. Accessed June 29, 2018.
- ³⁰ Divan HA, Kheifets L, Obel C, Olsen J. Cell phone use and behavioural problems in young children. *J Epidemiol Community Health.* 2010;66(6):524-529. doi: 10.1136/jech.2010.115402. Accessed July 16, 2018.

International Appeal: Stop 5G on Earth and in Space

- ³¹ Li D-K, Chen H, Odouli R. Maternal exposure to magnetic fields during pregnancy in relation to the risk of asthma in offspring. *Arch Pediatr Adolesc Med.* 2011;165(10):945-950. <https://jamanetwork.com/journals/jamapediatrics/fullarticle/1107612>. Accessed June 29, 2018.
- ³² Warnke U. *Bees, Birds and Mankind: Destroying Nature by 'Electrosmog.'* Competence Initiative for the Protection of Humanity, Environment and Democracy; 2009. www.naturalscience.org/wp-content/uploads/2015/01/kompetenzinitiative-ev_study_bees-birds-and-mankind_04-08_english.pdf. Accessed June 10, 2018.
- ³³ Balmori A. Electromagnetic pollution from phone masts. Effects on wildlife. *Pathophysiology.* 2009;16:191-199. doi:10.1016/j.pathophys.2009.01.007. Accessed June 10, 2018.
- ³⁴ Cammaerts MC, Johansson O. Ants can be used as bio-indicators to reveal biological effects of electromagnetic waves from some wireless apparatus. *Electromagn Biol Med.* 2014;33(4):282-288. doi: 10.3109/15368378.2013.817336.
- ³⁵ Broomhall M. *Report detailing the exodus of species from the Mt. Nardi area of the Nightcap National Park World Heritage Area during a 15-year period (2000-2015).* Report for the United Nations Educational Scientific and Cultural Organization (UNESCO). <https://ehtrust.org/wp-content/uploads/Mt-Nardi-Wildlife-Report-to-UNESCO-FINAL.pdf>. Accessed June 17, 2018.
- ³⁶ Kordas D. *Birds and Trees of Northern Greece: Changes since the Advent of 4G Wireless.* 2017. <https://einarilydal.files.wordpress.com/2017/08/kordas-birds-and-trees-of-northern-greece-2017-final.pdf>. Accessed June 29, 2018.
- ³⁷ Waldmann-Selsam C, Balmori-de la Puente A, Breunig H, Balmori A. Radiofrequency radiation injures trees around mobile phone base stations. *Sci Total Environ.* 2016;572:554-569. doi: 10.1016/j.scitotenv.2016.08.045.
- ³⁸ Balmori A. Mobile phone mast effects on common frog (*Rana temporaria*) tadpoles: The city turned into a laboratory. *Electromagn Biol Med.* 2010(1-2):31-35. doi: 10.3109/15368371003685363.
- ³⁹ Margaritis LH, Manta AK, Kokkaliaris KD, et al. Drosophila oogenesis as a bio-marker responding to EMF sources. *Electromagn Biol Med.* 2014;33(3):165-189. doi: 10.3109/15368378.2013.800102.
- ⁴⁰ Kumar NR, Sangwan S, Badotra P. Exposure to cell phone radiations produces biochemical changes in worker honey bees. *Toxicol Int.* 2011;18(1):70-72. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3052591>. Accessed June 17, 2018.
- ⁴¹ Balmori A. Efectos de las radiaciones electromagnéticas de la telefonía móvil sobre los insectos. *Ecosistemas.* 2006;15(1):87-95. <https://www.revistaecosistemas.net/index.php/ecosistemas/articulo/download/520/495>. Accessed June 17, 2018.
- ⁴² Balmori A. The incidence of electromagnetic pollution on wild mammals: A new "poison" with a slow effect on nature? *Environmentalist.* 2010;30(1):90-97. doi: 10.1007/s10669-009-9248-y
- ⁴³ Magras IN, Xenos TD. RF radiation-induced changes in the prenatal development of mice. *Bioelectromagnetics* 1997;18(6):455-461. http://collectiveactionquebec.com/uploads/8/0/9/7/80976394/exhibit_r-62_magras_mice_study.pdf. Accessed June 17, 2018.
- ⁴⁴ Otitoloju AA, Osunkalu VO, Oduware R, et al. Haematological effects of radiofrequency radiation from GSM base stations on four successive generations (F1 – F4) of albino mice, *Mus Musculus.* *J Environ Occup Sci.* 2012;1(1):17-22. <https://www.ejmanager.com/mnstemps/62/62-1332160631.pdf?t=1532966199>. Accessed July 30, 2018.
- ⁴⁵ Magone I. The effect of electromagnetic radiation from the Skrunđa Radio Location Station on *Spirodela polyrhiza* (L.) Schleiden cultures. *Sci Total Environ.* 1996;180(1):75-80. doi: 0048-9697(95)04922-3.
- ⁴⁶ Nittby H, Brun A, Strömblad S, et al. Nonthermal GSM RF and ELF EMF effects upon rat BBB permeability. *Environmentalist.* 2011;31(2):140-148. doi: 10.1007/s10669-011-9307-z.
- ⁴⁷ Haggerty K. Adverse influence of radio frequency background on trembling aspen seedlings: Preliminary observations. *International Journal of Forestry Research.* 2010; Article ID 836278. <http://downloads.hindawi.com/journals/ijfr/2010/836278.pdf>. Accessed June 17, 2018.
- ⁴⁸ Taheri M, Mortazavi SM, Moradi M, et al. Evaluation of the effect of radiofrequency radiation emitted from Wi-Fi router and mobile phone simulator on the antibacterial susceptibility of pathogenic bacteria

International Appeal: Stop 5G on Earth and in Space

- Listeria monocytogenes* and *Escherichia coli*. *Dose Response*. 2017;15(1):1559325816688527. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5298474>. Accessed June 18, 2018.
- ⁴⁹ International Agency for Research on Cancer. Non-ionizing radiation, part 2: radiofrequency electromagnetic fields. In: *IARC Monographs on the Evaluation of Carcinogenic Risks to Humans*. Vol 102. Lyon, France: WHO Press; 2013. <http://monographs.iarc.fr/ENG/Monographs/vol102/mono102.pdf>. Accessed July 2, 2018.
- ⁵⁰ Carlberg M, Hardell L. Evaluation of mobile phone and cordless phone use and glioma risk using the Bradford Hill viewpoints from 1965 on association and causation. *Biomed Res Int*. 2017;9218486. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5376454>. Accessed June 17, 2018.
- ⁵¹ Blackman CF. Evidence for disruption by the modulating signal. In: Sage C, Carpenter D., eds. *BioInitiative Report: A Rationale for a Biologically-Based Public Exposure Standard for Electromagnetic Radiation*. Sec. 15. Sage Associates; 2012. http://www.bioinitiative.org/report/wp-content/uploads/pdfs/sec15_2007_Modulation_Blackman.pdf. Accessed June 19, 2018.
- ⁵² Williams ER. The global electrical circuit: a review. *Atmos Res*. 2009;91(2):140-152. doi:10.1016/j.atmosres.2008.05.018.
- ⁵³ Wever R. Human circadian rhythms under the influence of weak electric fields and the different aspects of these studies. *Int J Biometeorol*. 1973;17(3):227-232. www.vitatec.com/docs/referenz-umgebungsstrahlung/wever-1973.pdf. Accessed June 10, 2018.
- ⁵⁴ Wever R. ELF-effects on human circadian rhythms. In: *ELF and VLF Electromagnetic Field Effects*. (Persinger M, ed.) New York: Plenum; 1974:101-144.
- ⁵⁵ Engels S, Schneider N-L, Lefeldt N, et al. Anthropogenic electromagnetic noise disrupts magnetic compass orientation in a migratory bird. *Nature*. 2014;509:353-356. doi:10.1038/nature13290.
- ⁵⁶ Ludwig W, Mecke R. Wirkung künstlicher Atmosphärischer auf Säuger. *Archiv für Meteorologie, Geophysik und Bioklimatologie Serie B (Archives for Meteorology Geophysics and Bioclimatology Series B Theoretical and Applied Climatology)*. 1968;16(2-3):251-261. doi:10.1007/BF02243273.
- ⁵⁷ Morley EL, Robert D. Electric fields elicit ballooning in spiders. *Current Biology*. 2018;28:1-7. [https://www.cell.com/current-biology/pdf/S0960-9822\(18\)30693-6.pdf](https://www.cell.com/current-biology/pdf/S0960-9822(18)30693-6.pdf). Accessed July 14, 2018.
- ⁵⁸ Weber J. *Die Spinnen sind Deuter des kommenden Wetters (Spiders Are Predictors of the Coming Weather)*. 1800; Landshut, Germany. "The electrical material works always in the atmosphere; no season can retard its action. Its effects on the weather are almost undisputed; spiders sense it, and alter their behaviour accordingly."
- ⁵⁹ König H. Biological effects of extremely low frequency electrical phenomena in the atmosphere. *J Interdiscipl Cycle Res*. 2(3):317-323. www.tandfonline.com/doi/abs/10.1080/09291017109359276. Accessed June 10, 2018.
- ⁶⁰ Sulman F. *The Effect of Air Ionization, Electric Fields, Atmospheric, and Other Electric Phenomena On Man and Animal*. American lecture series. Vol 1029. Springfield, Ill: Thomas; 1980.
- ⁶¹ König HL, Krüger, AP, Lang S, Sönning, W. *Biologic Effects of Environmental Electromagnetism*. New York: Springer-Verlag; 1981. doi: 10.1007/978-1-4612-5859-9.
- ⁶² Sazanova E, Sazanov A, Sergeenko N, Ionova V, Varakin Y. Influence of near earth electromagnetic resonances on human cerebrovascular system in time of heliogeophysical disturbances. *Progress in Electromagnetics Research Symposium*. August 2013:1661-1665.
- ⁶³ Cherry N. Schumann resonances, a plausible biophysical mechanism for the human health effects of solar/geomagnetic activity. *Natural Hazards*. 2002;26(3):279-331. doi:10.1023/A:1015637127504.
- ⁶⁴ Polk C. Schumann resonances. In Volland H, ed. *CRC Handbook of Atmospheric*. Vol. 1. Boca Raton, Fla: CRC Press; 1982:111-178. <https://archive.org/stream/in.ernet.dli.2015.132044/2015.132044.Crc-Handbook-Of-Atmospheric-Vol-1#page/n115/mode/2up/search/polk>. Accessed June 18, 2018.
- ⁶⁵ Park C, Helliwell R. Magnetospheric effects of power line radiation. *Science*. 1978;200(4343):727-730. doi:10.1126/science.200.4343.727.
- ⁶⁶ Bullough K, Kaiser TR, Strangeways HJ. Unintentional man-made modification effects in the magnetosphere. *J Atm Terr Phys*. 1985;47(12):1211-1223.

International Appeal: Stop 5G on Earth and in Space

- ⁶⁷ Luetze JP, Park CG, Helliwell RA. The control of the magnetosphere by power line radiation. *J Geophys Res.* 1979;84:2657-2660.
- ⁶⁸ Becker RO, Selden G. *The Body Electric: Electromagnetism and the Foundation of Life.* New York: Morrow; 1985:325-326.
- ⁶⁹ Firstenberg A. Planetary Emergency. Cellular Phone Task Force website. www.cellphonetaskforce.org/planetary-emergency. Published 2018. Accessed June 10, 2018.
- ⁷⁰ Becker RO. The basic biological data transmission and control system influenced by electrical forces. *Ann NY Acad Sci.* 1974;238:236-241. doi: 10.1111/j.1749-6632.1974.tb26793.x.
- ⁷¹ Maxey ES, Beal JB. The electrophysiology of acupuncture; How terrestrial electric and magnetic fields influence air ion energy exchanges through acupuncture points. *International Journal of Biometeorology.* 1975;19(Supp. 1):124. doi:10.1007/BF01737335.
- ⁷² Ćosić I, Cvetković D, Fang Q, Jovanov E, Lazoura H. Human electrophysiological signal responses to ELF Schumann resonance and artificial electromagnetic fields. *FME Transactions.* 2006;34:93-103. <http://scindeks-clanci.ceon.rs/data/pdf/1450-8230/2006/1450-82300602093C.pdf>. Accessed July 18, 2018.
- ⁷³ Cohen M, Behrenbruch C, Ćosić I. Is there a link between acupuncture meridians, earth-ionosphere resonances and cerebral activity? Proceedings of the 2nd International Conference on Bioelectromagnetism, Melbourne, Australia. 1998:173-174. doi: 10.1109/ICBEM.1998.666451.
- ⁷⁴ Chevalier G, Mori K, Oschman JL. The effect of earthing (grounding) on human physiology. *European Biology and Bioelectromagnetics.* January 2006:600-621. <http://162.214.7.219/~earthio/wp-content/uploads/2016/07/Effects-of-Earthing-on-Human-Physiology-Part-1.pdf>. Accessed June 10, 2018. "Highly significant EEG, EMG and BVP results demonstrate that restoring the natural electrical potential of the earth to the human body (earthing) rapidly affects human electrophysiological and physiological parameters. The extreme rapidity of these changes indicates a physical/bioelectrical mechanism rather than a biochemical change."
- ⁷⁵ Firstenberg A. Earth's Electric Envelope. In: *The Invisible Rainbow: A History of Electricity and Life.* Santa Fe, NM: AGB Press; 2017: 113-131.
- ⁷⁶ Cannon PS, Rycroft MJ. Schumann resonance frequency variations during sudden ionospheric disturbances. *J Atmos Sol Terr Phys.* 1982;44(2):201-206. doi:10.1016/0021-9169(82)90124-6.
- ⁷⁷ *Technical Report.* European Telecommunications Standards Institute; 2007:7. www.etsi.org/deliver/etsi_tr/125900_125999/125914/07.00.00_60/tr_125914v070000p.pdf. Accessed June 10, 2018. "The Specific Anthropomorphic Mannequin (SAM) is used for radiated performance measurements [and is] filled with tissue simulating liquid."
- ⁷⁸ Research on technology to evaluate compliance with RF protection guidelines. Electromagnetic Compatibility Laboratory, Tokyo. http://emc.nict.go.jp/bio/phantom/index_e.html. Accessed July 18, 2018. "SAR is measured by filling phantom liquid that has the same electrical properties as those of the human body in a container made in the shape of the human body, and scanning the inside using an SAR probe."
- ⁷⁹ Becker RO, Marino AA. *Electromagnetism and Life.* Albany: State University of New York Press; 1982:39. "The evidence seems to be quite conclusive that there are steady DC electric currents flowing outside of the neurones proper in the entire nervous system."
- ⁸⁰ Nordenström B. *Biologically Closed Electric Circuits.* Stockholm: Nordic Medical Publications; 1983.
- ⁸¹ Nordenström B. Impact of biologically closed electric circuits (BCEC) on structure and function. *Integr Physiol Behav Sci.* 1992;27(4):285-303. doi:10.1007/BF02691165.
- ⁸² Devyatkov ND, ed. *Non-Thermal Effects of Millimeter Radiation.* Moscow: USSR Acad. Sci.; 1981 (Russian).
- ⁸³ Devyatkov ND, Golant MB, Betskiy OV. *Millimeter Waves and Their Role in the Processes of Life. (Millimetrovye volny i ikh rol' v protsessakh zhiznedeyatel'nosti).* Moscow: Radio i svyaz' (Radio and Communication); 1991 (Russian).
- ⁸⁴ Betskiy OV. Biological effects of low-intensity millimetre waves (Review). *Journal of Biomedical Electronics.* 2015(1):31-47. <http://www.radiotec.ru/article/15678>. Accessed July 31, 2018.

International Appeal: Stop 5G on Earth and in Space

- ⁸⁵ Albanese R, Blaschak J, Medina R, Penn J. Ultrashort electromagnetic signals: Biophysical questions, safety issues and medical opportunities," *Aviat Space Environ Med.* 1994;65(5 Supp):A116-A120. www.dtic.mil/dtic/tr/fulltext/u2/a282990.pdf. Accessed June 18, 2018.
- ⁸⁶ Pepe D, Aluigi L, Zito D. Sub-100 ps monocycle pulses for 5G UWB communications. 10th European Conference on Antennas and Propagation (EuCAP). 2016;1-4. doi: [10.1109/EuCAP.2016.7481123](https://doi.org/10.1109/EuCAP.2016.7481123).
- ⁸⁷ Nasim I, Kim S. Human exposure to RF fields in 5G downlink. arXiv:1711.03683v1. <https://arxiv.org/pdf/1711.03683>. Accessed June 17, 2018.
- ⁸⁸ Thielens A, Bell D, Mortimore DB. Exposure of insects to radio-frequency electromagnetic fields from 2 to 120 GHz. *Nature/Scientific Reports.* 2018;8:3924. <https://www.nature.com/articles/s41598-018-22271-3.pdf>. Accessed June 17, 2018.
- ⁸⁹ Hallmann CA, Sorg M, Jongejans E. More than 75 percent decline over 27 years in total flying insect biomass in protected areas. *PLOS One.* 2017;12(10):e0185809. <http://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0185809&type=printable>. Accessed June 17, 2018.
- ⁹⁰ Gandhi O, Riaz A. Absorption of millimeter waves by human beings and its biological implications. *IEEE Trans Microw Theory Tech.* 1986;34(2):228-235. doi:10.1109/TMTT.1986.1133316.
- ⁹¹ Russell CL. 5G wireless telecommunications expansion: Public health and environmental implications. *Environ Res* 2018;165:484-495. <https://zero5g.com/wp-content/uploads/2018/07/5-G-wireless-telecommunications-expansion-Public-health-and-environmental-implications-Cindy-L.-russell.pdf>. Accessed November 1, 2018.
- ⁹² Hardell L. World Health Organization, radiofrequency radiation and health - a hard nut to crack (review). *Int J Oncol.* 2017;51:405-413. doi:10.3892/ijo.2017.4046.
- ⁹³ Pall M. 5G: Great risk for EU, U.S. and international health: Compelling evidence for eight distinct types of great harm caused by electromagnetic field (EMF) exposures and the mechanism that causes them. European Academy for Environmental Medicine. http://www.5gappeal.eu/wp-content/uploads/2018/06/pall_2018.pdf. Published May 2018. Accessed June 22, 2018.
- ⁹⁴ Markov M, Grigoriev Y. Wi-Fi technology: An uncontrolled global experiment on the health of mankind, *Electromagn Biol Med.* 2013;32(2):200-208. http://www.avaate.org/IMG/pdf/Wi-fi_Technology_-_An_Uncontrolled_Global_Experiment_on_the_Health_of_Mankind_-_Marko_Markov_Yuri_G._Grigoriev.pdf. Accessed June 23, 2018.
- ⁹⁵ Belyaev I, Alipov Y, Shcheglov V, Polunin V, Aizenberg O. Cooperative response of Escherichia coli cells to the resonance effect of millimeter waves at super low intensity. *Electromagn Biol Med.* 1994;13(1):53-66. doi:10.3109/15368379409030698.
- ⁹⁶ Belyaev I. Nonthermal biological effects of microwaves: Current knowledge, further perspective, and urgent needs. *Electromagn Biol Med.* 2005;24(3):375-403. doi:10.1080/15368370500381844.
- ⁹⁷ Bise W. Low power radio-frequency and microwave effects on human electroencephalogram and behavior. *Physiol Chem Phys.* 1978;10(5):387-398.
- ⁹⁸ Brauer I. Experimentelle Untersuchungen über die Wirkung von Meterwellen verschiedener Feldstärke auf das Teilungswachstum der Pflanzen. *Chromosoma.* 1950;3(1):483-509. doi:10.1007/BF00319492.
- ⁹⁹ Kondra P, Smith W, Hodgson G, Bragg D, Gavora J, Hamid M. Growth and reproduction of chickens subjected to microwave radiation. *Can J Anim Sci.* 1970;50(3):639-644. doi:10.4141/cjas70-087.
- ¹⁰⁰ Frey AH, Seifert E. Pulse modulated UHF energy illumination of the heart associated with change in heart rate. *Life Sciences.* 1968;7(10 Part 2):505-512. doi: 10.1016/0024-3205(68)90068-4.
- ¹⁰¹ Mann K, Röschke J. Effects of pulsed high-frequency electromagnetic fields on human sleep. *Neuropsychobiology.* 1996;33(1):41-47. doi: 10.1159/000119247.
- ¹⁰² Tiagin NV. *Clinical aspects of exposure to microwave radiation.* Moscow: Meditsina; 1971 (Russian).
- ¹⁰³ Belpomme D, Campagnac C, Irigaray P. Reliable disease biomarkers characterizing and identifying electrohypersensitivity and multiple chemical sensitivity as two etiopathogenic aspects of a unique pathological disorder. *Rev Environ Health* 2015;30(4):251-271. <https://www.irseco.com/wp-content/uploads/Belpomme-Environmental-health-2015.pdf>. Accessed June 18, 2018.

International Appeal: Stop 5G on Earth and in Space

- ¹⁰⁴ Hecht K. *Health Implications of Long-term Exposure to Electrosmog*. Competence Initiative for the Protection of Humanity, the Environment and Democracy. 2016: 16, 42-46. http://kompetenzinitiative.net/KIT/wp-content/uploads/2016/07/KI_Brochure-6_K_Hecht_web.pdf. Accessed June 20, 2018.
- ¹⁰⁵ Belyaev I, Dean A, Eger H, et al. EUROPAEM EMF Guideline 2016 for the prevention, diagnosis and treatment of EMF-related health problems and illnesses. *Rev Environ Health*. 2016;31(3):363-397. doi:10.1515/reveh-2016-0011.
- ¹⁰⁶ Schreier N, Huss A, Rössli M. The prevalence of symptoms attributed to electromagnetic field exposure: A cross-sectional representative survey in Switzerland. *Soz Präventivmed*. 2006;51(4):202-209. doi:10.1007/s00038-006-5061-2. Accessed July 16, 2018.
- ¹⁰⁷ Schroeder E. Stakeholder-Perspektiven zur Novellierung der 26. BImSchV: Ergebnisse der bundesweiten Telefonumfrage im Auftrag des Bundesamtes für Strahlenschutz (Report on stakeholder perspectives on amending the 26th Federal Emission Control Ordinance: Results of the nationwide telephone survey ordered by the Federal Office for Radiation Protection). Schr/bba 04.02.26536.020. Munich, Germany. 2002 (German). https://www.bfs.de/SharedDocs/Downloads/BfS/DE/berichte/emf/befuerchtungen.pdf?__blob=publicationFile&v=3. Accessed July 19, 2018.
- ¹⁰⁸ Hallberg Ö, Oberfeld G. Letter to the editor: Will we all become electrosensitive? *Electromagn Biol Med*. 2006;25:189-191. https://www.criirem.org/wp-content/uploads/2006/03/ehs2006_hallbergoberfeld.pdf. Accessed June 22, 2018.
- ¹⁰⁹ Brussels International Scientific Declaration on Electromagnetic Hypersensitivity and Multiple Chemical Sensitivity. ECRI Institute. http://eceri-institute.org/fichiers/1441982765_Statement_EN_DEFINITIF.pdf. Published 2015. Accessed June 10, 2018.
- ¹¹⁰ Removal of barriers to entry, 47 U.S.C. § 253. www.gpo.gov/fdsys/pkg/USCODE-2015-title47/pdf/USCODE-2015-title47-chap5-subchapII-partII-sec253.pdf; *5G For Europe: An Action Plan*. European Commission; 2016. http://ec.europa.eu/newsroom/dae/document.cfm?doc_id=17131. Accessed June 10, 2018.
- ¹¹¹ Federal Register – Rules and Regulations. 47 CFR Part 1 [WT Docket No 17–79; FCC 18–30] *Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment*. 2018;83(86). Accessed June 10, 2018.
- ¹¹² *5G For Europe: An Action Plan*. European Commission; 2016. http://ec.europa.eu/newsroom/dae/document.cfm?doc_id=17131. Accessed June 10, 2018.
- ¹¹³ PCIA – The Wireless Infrastructure Association. Model wireless telecommunications facility siting ordinance. 2012. https://wia.org/wp-content/uploads/Advocacy_Docs/PCIA_Model_Zoning_Ordinance_June_2012.pdf. Accessed June 29, 2018.
- ¹¹⁴ Mobile services, 47 U.S.C. § 332(c)(7)(B)(iv). www.gpo.gov/fdsys/pkg/USCODE-2016-title47/pdf/USCODE-2016-title47-chap5-subchapIII-partI-sec332.pdf: “No state or local government or instrumentality thereof may regulate personal wireless service facilities on the basis of the environmental effects of radio frequency emissions to the extent that such facilities comply with the [Federal Communications] Commission’s regulations concerning such emissions.” Courts have reversed regulatory decisions about cell tower placement simply because most of the public testimony was about health.
- ¹¹⁵ *Cellular Telephone Company v. Town of Oyster Bay*, 166 F.3d 490, 495 (2nd Cir. 1999). <https://openjurist.org/166/f3d/490/cellular-telephone-company-at-v-town-of-oyster-bay>. Accessed June 10, 2018.; *T-Mobile Northeast LLC v. Loudoun County Bd. of Sup’rs*, 903 F.Supp.2d 385, 407 (E.D.Va. 2012). <https://caselaw.findlaw.com/us-4th-circuit/1662394.html>. Accessed June 10, 2018.
- ¹¹⁶ Vogel G. A Coming Storm For Wireless? *TalkMarkets*. July 2017. www.talkmarkets.com/content/stocks--equities/a-coming-storm-for-wireless?post=143501&page=2. Accessed September 13, 2018.
- ¹¹⁷ Swiss Re: SONAR - New emerging risk insights. July 2014:22. http://media.swissre.com/documents/SONAR_2014.pdf. Accessed June 10, 2018. “[A]n increasing level of interconnectivity and the growing prevalence of digital steering and feedback systems also give rise to new vulnerabilities. These could involve cascading effects with multiple damages as well as long-lasting interruptions if the problems turned

International Appeal: Stop 5G on Earth and in Space

out to be complex and/or difficult to repair. Interconnectivity and permanent data generation give rise to concerns about data privacy, and exposure to electromagnetic fields may also increase.”

¹¹⁸ Albert Einstein, letter to Max Born, Dec. 4, 1926.

¹¹⁹ Active Denial Technology. Non-Lethal Weapons Program. <https://inlwp.defense.gov/Press-Room/Fact-Sheets/Article-View-Fact-sheets/Article/577989/active-denial-technology/>. Published May 11, 2016. Accessed June 10, 2018.

¹²⁰ Conflicts of interest have frequently arisen in the past. For example, the EU Commission (2008/721/EC) appointed industry-supportive members for SCENIHR who submitted to the EU a misleading SCENIHR report on health risks, which gave the telecommunications industry carte blanche to irradiate EU citizens. The report is now quoted by radiation safety agencies in the EU. Another example is the US National Toxicology Program contracting with the IT'IS Foundation, which is funded by the entire telecommunications industry, to design, build and monitor the exposure facility for a two-year, 25-million-US-dollar study of cell phones. It subsequently produced a misleading report that is now quoted by industry officials in the US.

¹²¹ Ross M, Mills M, Toohey D. Potential climate impact of black carbon emitted by rockets. *Geophys Res Lett*. 2010;37:L24810. <https://agupubs.onlinelibrary.wiley.com/doi/pdf/10.1029/2010GL044548>. Accessed June 17, 2018.

¹²² Ross MN, Schaeffer PM. Radiative forcing caused by rocket engine emissions. *Earth's Future*. 2014;2:177-196. <https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1002/2013EF000160>. Accessed June 17, 2018.

¹²³ Callicott JB, Mumford K. Ecological sustainability as a conservation concept. *Conservation Biology*. 1997;11(1):32-40. https://www.sierraforestlegacy.org/Resources/Community/Sustainability/SY_CallicottMumford1997.pdf. Accessed June 20, 2018.

From: **Lori Schreier** schreierlori@aol.com
Subject:
Date: April 15, 2019 at 9:15 PM
To:



USA City Ordinances To Limit And Control Wireless Facilities Small Cells In Rights Of Ways (Environmental Health Trust)



LOCAL GOVERNMENT POLICIES & ORDINANCES TO REGULATE AND CONTROL WIRELESS FACILITIES SMALL CELLS

From coast to coast local governments are taking action to protect their communities from the unfettered deployment of 4G and 5G “small cell” wireless facilities. Several cities are passing ordinances that strictly limit the buildout. Many policymakers ask “What are other cities doing?”

This page is a compilation of top examples of what cities are doing to protect their communities. For each city we provide a short synopsis along with a link to download the ordinance or policy. Scroll down to see the City and policy. Please download and share these examples with your community.

Local ordinances note various purposes such as preserving visual character, protecting environmental resources, and protecting residents against adverse health effects. They take a variety of approaches, such as prohibiting small cells in certain areas, creating application and recertification fees and imposing aesthetic and administrative requirements. Some combine several of these approaches.

Importantly, federal pre-emption has been exaggerated. Local governments do have authority to impose procedural requirements for example. Please consider these two useful documents that came out of the efforts in Montgomery County Maryland by the law office of *Mark C. Del Bianco* and which clarify what localities can and cannot do in terms of procedural requirements for companies.

- 12/ 20/2018 “Summary of Proposed FCC Small Cell Order”: A critical read on the FCC order.
- 10/2018 Memo: “Federal Law Does Not Prohibit the County from Imposing Stricter Procedural Requirements on Wireless Facilities Than on Other Pole Attachments”

See more resources on 5G – including the research in health effects and impacts to people, trees and wildlife here. Wireless radiation has harmful biological effects levels far below government limits.

Examples of areas addressed in these ordinances:

Examples of areas addressed in these ordinances.

LOCATION

- Prohibiting small cell installations in residential areas, certain streets, etc
- Requiring installations to be a certain distance away from residences, schools, hospitals, and/or other installations
- Specifying that installations must be relocated if/when they would interfere with a public project

AESTHETICS / ENVIRONMENT

- Aesthetic, design, and noise requirements such as colocation, camouflage, height and light limits, etc.

ADMINISTRATIVE / LEGAL

- Requiring that residents who will be within a certain distance of an installation be notified
- Instating automatic time limits for permits
- Requiring annual recertification fees
- Requiring permittees to defend and indemnify the city from any liabilities arising from permits and the installation, operation and maintenance of small cell installations
- Reserving the right to hire independent consultants at the applicant's expense

OTHER

- Appointing a committee to study the viability of a fiber optic network

EXAMPLES OF POLICIES & ORDINANCES

Note: These were compiled from EHT research of various sources and a special thank you to Physicians for Safe Technology, My Streets My Choice, Scientists for Wired Technology and Last Tree Laws for their extensive resources utilized on this page. Please be sure to go to these pages for more information. Please contact EHT to add your Cities information to this page.

In addition, Americans For Responsible Technology has created a Sample Small Cell Ordinance that cities can use as a starting point which incorporates several- although not all- of these issues. Please download their model ordinance and utilize their extensive resources at this link.

Petaluma, California: Ordinance of the City Council of Petaluma

- Protect environmental resources; protect residents against adverse health effects
- Protect visual character; don't create visual blight
- Protect environmental resources; protect residents against adverse health effects
- Commercial or industrial zones
- Antennas must connect to an already existing utility pole that can support its weight.
- Service wires must be installed within the width of the existing utility

- Servicing wires must be installed within the width of the existing utility.
- All ground-mounted equipment not to be installed inside the pole must be undergrounded, flush to the ground, within three (3) feet of the utility pole.
- Dedicated power source to be installed and metered separately.
- 1,500 feet minimum between each Small Cell facility.
- No Small Cell shall be within 500 feet of any residence.
- An encroachment permit must be obtained for any work in the right-of-way.

Petaluma, California: Ordinance of the City Council of Petaluma PDF

Fairfax, California: Urgency Ordinance to Establish New Regulations for Wireless Telecommunications Facilities; Ad hoc committee to study viability of fiber network

Ordinance modeled after Mill Valley's:

- Small cells prohibited in residential zones
- 1500 feet separation
- City to study citywide fiberoptic cable network.

Fairfax, California: Urgency Ordinance No. 819 to Establish New Regulations for Wireless Telecommunications Facilities

News: Marin Independent Journal Fairfax to study fiber-optic broadband amid protest against 5G

Warren Connecticut

This policy defines adequate coverage and adequate capacity. It details that it was designed “to locate towers and/or antennas in a manner which protects property values, as well as the general safety, health, welfare and quality of life of the citizens of Warren and all those who visit this community, minimize the total number and height of towers throughout Warren, and provide standards and requirements for the regulation, placement, design, appearance, construction, monitoring, modification and removal of telecommunications facilities and towers.”

- “Coverage is considered to be “adequate” within that area surrounding a Base Station where the predicted or measured median field strength of the transmitted signal is such that the majority of the time, transceivers properly installed and operated will be able to communicate with the base station. In the case of cellular communications in a rural environment like Warren, this would be a signal strength of at least -90 dBm for at least 75% of the coverage area. It is acceptable for there to be holes within the area of Adequate Coverage where the signal is less than -90 dBm, as long as the signal regains its strength to greater than -90 dBm further away from the Base Station.”
- “Capacity is considered to be “adequate” if the Grade of Service (GOS) is p.05 or

better for median traffic levels offered during the typical busy hour, as assessed by direct measurement of the Personal Wireless Service Facility in question.”

TOWN OF WARREN SECTION 29 – SPECIAL PERMIT FOR
TELECOMMUNICATIONS: FACILITIES AND TOWERS December 11, 2012, Warren
website link

Burlington, Massachusetts: Town of Burlington Policy Applications for Small Cell Wireless Installations, October 22, 2018

- Small Cell Committee drafted policy with annual recertification fees. Verizon withdrew its application, concerned by the precedent it would set and questioning its legality.
- Verizon attorney Mr. Klasnick stated “My client respectfully requests to withdraw the petition rather than have a fee,” he said.(BCATTV)

The Town of Burlington Policy / Application for Small Cell Wireless Installations approved by the Burlington Board of Selectmen on October 22, 2018 PDF.

According to BCATTV Verizon Drops Small Cell Wireless Booster Application in Face of Fees:

“This week Selectman Jim Tigges, the board’s representative on the Small Cells Committee, said the group had come up with a new policy for small cell applications. The policy contains a number of provisions while filing an application, including setting installation fees, listing the town department that must receive a copy for review and setting up the timeline for approval.

The Verizon application, however, would not be subject to the policy because it was submitted before its adoption. However, Tigges and the committee did have a number of conditions for the project it recommended to the board. They included:

- No apparatus on double poles
- An agreement to annual recertification
- Equipment shall be located on top of the poles, colored similarly to the pole so as to blend in.
- Equipment shall not interfere with other equipment on the pole, nor obstruct or interfere with access to or operation of street lights or traffic controls devices on the pole.
- Poles must meet ADA standards.”

-NEWS: Verizon Drops Small Cell Wireless Booster Application in Face of Fees, October 23, 2018

Palos Vardes, California

According to citizens of the City, after citizen uproar, Crown Castle began complying with municipal aesthetic requirements and moving proposed locations out of neighborhoods and away from homes. The ordinance has four key components, if these are met the site will almost certainly be approved:

- Minimal antenna size with screening
- All accessory equipment underground (everything except the antenna)
- Combining sites with existing vertical infrastructure (streetlights, traffic signals, etc.)
- Strict location restrictions, no sites on local, residential streets without an exception granted

If they don't comply with these, then the applicant must demonstrate the site is required to fill a significant gap and there is no less intrusive alternative to receive an exception. This is not simply checking a box (i.e. the applicant just claiming these conditions exist) but has to be demonstrated to the City planning commission via engineering analysis.

Palos Vardes, California Ordinance Chapter 12.18 – WIRELESS

TELECOMMUNICATIONS FACILITIES IN THE PUBLIC RIGHT-OF-WAY

Monterey California

Monterey California has now included that it can deny outright an incomplete application “without prejudice”. That stops the shotclock, and it allows an application to be resubmitted all over again along with paying the fees again.

to be updated soon.

Mill Valley, California: Urgency Ordinance No 18, September 6, 2018

- New or updated facilities prohibited in residential zones. Commercial only.
- Facilities installed on poles in public right of way must be 1,500 feet apart
- Design, noise standards
- Facilities in public right of way that would interfere with future projects / improvements must be relocated
- Promptly remove facilities when no longer needed; replace with smaller facilities as feasible
- Defend and indemnify the City

Mill Valley, California: Urgency Ordinance No 18, September 6, 2018 PDF

News Stories

Tech Crunch” Bay Area Blocks 5G Deployment Over Cancer Concerns

Marin Post Mill Valley Council Adopts Wireless Ordinance Protects Community

San Anselmo, California Council Policy

- People within 300 feet of proposed antenna will be notified
- Town is entitled to employ independent consultant at applicant's expense to evaluate exceptions

San Anselmo, California PDF

Ross Valley, California: Wireless Telecommunications Facilities

- Modeled after Mill Valley's
- Adopted regulations prohibit facilities in residential and downtown zoning district.
- Facilities proposed in the public right-of-way subject to separate design criteria.
- Limits height and width of facilities to a minimum necessary for property function.
- Maximum height of 24 feet above the height of the existing utility pole and 7 feet above a street light standard.
- Requires equipment to be placed underground.

Ross Valley, California: Wireless Telecommunications Facilities PDF

News Stories

<https://www.marinij.com/2018/10/27/ross-valley-officials-work-to-tighten-5g-antenna-rules/>

Danville, California: Proposed Ordinance No. 2018-07: Wireless Communication Facilities

- Aesthetic requirements (design guidelines may be developed and amended from time to time to clarify aesthetic and public safety goals and standards)
- Utilities must be underground to extent feasible. "Meters, panels, disconnect switches and other associated improvements must be placed in inconspicuous locations to the extent possible".
- Permits valid for initial period of 10 years max
- "Where feasible, the location of wireless communication facilities shall be encouraged to be located on publicly owned or controlled property or right-of-way."
- Would allow small cells in residential districts:

–"All facilities shall be substantially screened from the view of surrounding properties and the public view or collocated with existing facilities or structures so as not to create substantial additional visual, noise, or thermal impacts. "

–Property owners within 300 ft of proposed site must be notified

Danville, California: Ordinance No. 2018-07 Wireless Communications Facilities PDF

Other Links

<http://mystreetmychoice.com/danville.html>

<http://scientists4wiredtech.com/danville/municipal-wireless-code/>

Little Silver New Jersey

- Carriers should provide notice to property owners within five hundred (500') feet of the proposed Telecommunications Facility.
 - The applicant must demonstrate to the reasonable satisfaction of the Borough that no existing personal wireless Telecommunication Service Facility within a reasonable distance can accommodate needs.
 - Indemnification clause: "Each license grantee shall indemnify and hold the Borough and its officers, employees, agents and representatives harmless from and against any and all damages, losses and expenses, including reasonable attorney's fees and costs of suit or defense, arising out of, resulting from or alleged to arise out of or result from the negligent, careless or wrongful acts, omissions, failures to act or misconduct of the grantee or its affiliates, officers, employees, agents, contractors or subcontractors in the construction, operation, maintenance, repair or removal of its Telecommunications Facilities, and in providing or offering Telecommunications Services over the facilities, whether such acts or omissions are authorized, allowed or prohibited by this Chapter or by a grant agreement made or entered into pursuant to this Chapter."
 - "Little Silver New Jersey: AN ORDINANCE AMENDING AND SUPPLEMENTING CHAPTER 16A "LAND USE AND DEVELOPMENT ORDINANCE" OF THE REVISED GENERAL ORDINANCES OF THE BOROUGH OF LITTLE SILVER, COUNTY OF MONMOUTH, STATE OF NEW JERSEY AMENDING SECTION 16A-2 "DEFINITIONS" AND 16A-5 GENERAL PROVISION ADDING NEW SUBSECTION 5-28 "PLACEMENT OF TELECOMMUNICATIONS FACILITIES"
-

Walnut City, California

"Telecommunication towers and antennas shall not be located within 1,500 feet of any school (nursery, elementary, junior high, and high school), trail, park or outdoor recreation area, sporting venues, and residential zones."

Screenshot of Ordinance from Walnut Website,

To see the code online go to <https://qcode.us/codes/walnut/>, Click on "Title 6: Planning and Zoning" Click on "Chapter 6.88 ANTENNAS AND COMMUNICATION FACILITIES", Click on "6.88.060 Design standards, See Item "O.

Sebastopol, California: City Council Agenda Item Report and Urgency Ordinance

(Recommended)

- Purpose: Institute a moratorium on applications for small cells in the public right-of-way until adoption of a permanent ordinance

Previous regulations on telecommunications facilities (according to the recommended urgency ordinance, these did not anticipate 5G and do not address installation of telecommunications facilities in the right-of-way):

- Purpose: Protect visual character, inhabitants, environmental resources

Cannot be located in any required yard setback area

- Facilities within 400 feet of residential areas, schools, churches, hospitals etc must comply with NIER standards
- Minor facilities must be 75 feet away from a “residential dwelling unit” except 1 single family residence on the property where it is located

Sebastopol, California: City Council Agenda Item Report and Urgency Ordinance Establishing a Moratorium on Small Cells in the Public Right of Way

Other Links

- <http://scientists4wiredtech.com/sebastopol/sb-muni-code/>
- <http://mystreetmychoice.com/sebastopol.html>

Pittsfield, Massachusetts: Proposed Section: Wireless Communications Facilities

- Telecom company must prove preferred site/existing structure does not work
- Above ground aesthetic requirements
- Sound and light restrictions with emphasis on industry proving compliance

Pittsfield, Massachusetts: Proposed Section: Wireless Communications Facilities PDF

Hempstead, New York: Wireless Communications Facilities

- Requires a special use permit for cell towers that encourages location of new wireless facilities so as to minimize their impact on historically sensitive areas around residences, schools, houses of worship, day-care centers. Seven consideration factors are listed in order from more to least preferred, with existing towers being most preferred and new towers in residential zones least preferred.
- Prohibits towers from exceeding a height that permits it to operate without artificial lighting
- Allows the town to hire consultants and do inspections
- Set a fee schedule of \$500 per pole
- Requires a 4 foot warning sign on the pole
- Utilities at wireless installations should be underground when possible

Hempstead, New York: Wireless Communications Facilities Ordinance eCode Chapter 142

Other Links

<https://mdsafetech.org/cell-tower-and-city-ordinances/>

<https://hempsteadny.gov/permits-and-applications/wireless-telecom-ordinance>

Mason, Ohio: Zoning Ordinance – Wireless Communications Systems

- No small cells in residential areas or within 100 feet of property used for residential use
- Small cells must be 2000 feet apart (unless colocated)
- Small cells are between 20-30 ft high (may be able to exceed 30 ft if colocated)
- Every attempt shall be made to locate small cells on existing structures; if not available, within public right of way
- All related equipment should be underground or wholly contained so not visible
- Each facility shall consist of no more than 1 antenna/user and capable of providing communication for at least 2 users

Mason, Ohio Zoning Ordinance PDF

Sonoma, California: Report and Urgency Ordinance

On Nov 5, 2018 Sonoma approved their 5G urgency ordinance.

“Based on the foregoing, the City Council finds and determines that the immediate preservation of the public health, safety and welfare requires that this Ordinance be enacted as an urgency ordinance pursuant to Government Code Section 36937(b), and take effect immediately upon adoption. Therefore, this Ordinance is necessary for the immediate preservation of the public peace, health, safety and welfare and its urgency is hereby declared.”

The City also has a Small Cell Tower page.

Sonoma California Ordinance on 5G PDF

San Rafael, California: City Council Report

Dec. 5, 2018 front page news story: <https://www.marinij.com/2018/12/04/san-rafael-officials-work-to-tighten-5g-antenna-rules/>

Dec. 18, 2018 front page story: <https://www.marinij.com/2018/12/18/san-rafael-adopts-urgency-ordinance-to-keep-grip-on-5g-proliferation/>

- City Staff Report: URGENCY ORDINANCE AMENDING THE SAN RAFAEL MUNICIPAL CODE TITLE 14 (ZONING) AND ACCOMPANYING POLICY

RESOLUTION TO ESTABLISH PROVISIONS AND PROCEDURES FOR REGULATING THE PLACEMENT OF SMALL WIRELESS FACILITIES

- San Rafael, California: December 2018 Documentation for City Action on 12/18/2018

This document also reviews other Cities 5G small cell policies.

News stories

"I want the city and county government to clearly say no to the FCC," said resident Arthur Saftlas. "No 5G installations of any kind in Marin, until it can be proven safe for us and the environment." - San Rafael, Calif., Officials Work to Tighten 5G Regulation

- San Rafael Residents Take Pre-emptive Strike Against 5G

Lancaster, Pennsylvania: Zoning Changes via Ordinance 9-2016

- City Council rushed through zoning changes to declare many streets off limits to new poles (said they could be much taller than existing ones)
- Public Utility Commission stripped Mobilitie and other distributed-antenna companies of utility status, meaning that they would not get any more "certificates of public convenience" in Pennsylvania.

Lancaster, Pennsylvania Ordinance No. 9-2016 PDF

News Stories

- <http://www.philly.com/philly/business/comcast/philly-and-suburbs-brace-for-attack-of-the-small-cells-20170601.html?arc404=true>
- <http://www.govtech.com/dc/articles/Philadelphia-Braces-For-Small-Cell-Future.html>

Holyoke, MA: Initial Request

- Draft policy \$500 fee for city inspection of rooftop poles/roofs every 2 years
- Holyoke has submitted an order from councilor Bartley Roman to limit equipment and require \$500 apiece per small cell—\$500 may exceed FCC limits. At-large councilor Rebecca Lisi, on behalf of a Holyoke resident, recently submitted to the town lawyer a copy of the ordinance drafted by Pittsfield.

Information from <https://www.lasttreelaws.com/ordinances.html>

Booneville, Arkansas, September 2018

Proposed Ordinance would limit cell towers to 250 ft max; industrial zones

News Stories

Cell tower ordinance read for first time at council meeting, Sept 5, 2018

OTHER ACTIONS

Monterey, California: Verizon's application denied

Commissioners overruled staff and voted 7-0 to deny telecom giant Verizon's small cell application

Small Cell Towers nixed in 7-hour Monterey Planning Commission

- <http://mystreetmychoice.com/monterey.html>

Los Angeles, California: Deal with Verizon; letter from Mayor to FCC

- “in exchange for amenities such as free Wi-Fi in Skid Row and at recreation centers, \$400,000 of scholarship money, and launching an innovation center in the city, L.A. is charging Verizon just \$175 per device per year for 10 years for up to 1,000 installations, plus the cost of electricity.” (LA Times)
- “In a letter to the FCC, Mayor Eric Garcetti urged the commission to rewrite the ruling before its adoption, arguing that the decision would “insert confusion into the market, and sow mistrust between my technology team and the carriers with whom we have already reached agreements.”” (LA Times)

News Stories

LA Times: 5G service rolls out — but not without controversy

San Jose, California: Negotiated agreement

“officials made improved access to areas with low internet participation a precondition for reducing fees...agreement set tiered costs per network node installation, with lower fees for companies deploying more nodes. Along with this incentive, three companies pledged to contribute a total of \$24 million over the next decade to a digital inclusion fund.” (GovTech)

News Stories

September 2018 The Future of 5G: The Bitter Battle for Local Control

Note: These were compiled from EHT research of various sources and a special thank you to Physicians for Safe Technology, My Streets My Choice and Last Tree Laws for their extensive resources. Please contact EHT to add your Cities information.

Other Important Websites on 5G and Small Cells.

Whatis5g.info

MyStreetMyChoice

**New Hampshire Health & Human Services
Senate Committee Public Hearing**

February 12, 2019

HB522, Establishing a commission to study the environmental and health effects of evolving 5G technology

Good afternoon. My name is Cecelia Doucette from Ashland, Massachusetts. Thank you for the opportunity to present for New Hampshire House Bill 522, Establishing a commission to study the environmental and health effects of evolving 5G technology.

I became a technology safety educator after helping Ashland Public Schools become the first in the nation to begin taking precautions with wireless technology. In the next ten minutes I'd like to overview what I've learned and present solutions for safer, faster, more secure technology.

The Fine Print

When our schools read the fine print that comes with our wireless devices, they recognized they had legal exposure for harm. If any of you have an iPhone with you, I'd like to guide you to where the industry's legal fine print is written.

Please take out your iPhones and go into Settings. Then remember the acronym GAL, as in this gal at the hearing showed you this. Scroll down a bit and tap **General**, and at the top tap **About**. Then scroll all the way down and tap **Legal**. At the bottom of Legal, tap RF Exposure.

That legal fine print contains two really important warnings. One, keep radiation devices away from your body or you may exceed the FCC limits for public radiation exposure. Mind you, those FCC exposures were never safety tested and are now proven to be extremely toxic in the scientific literature.

Two, the fine print also tells us to use a hands-free option such as speaker phone. What they don't tell us is that our one device now has at least five separate antennas that are constantly pulsing radiation for a handshake with the nearest cell tower or router.

Just by holding a device in active mode, you are exposing yourself to constant radiation from a cell antenna, a data antenna, a wi-fi antenna, a Bluetooth antenna, a locator antenna, and by now a public hotspot because the industry is using us as their network.

Legislation

I have also collaborated with the Massachusetts legislature, as have other citizens. We lead the nation with 19 bill to address man-made radiation.

- We have Representative Lewis's House 2885 and Senator Cyr's Resolve 129 that would form a special commission to address wireless radiation, 5G and public health.
- We have Senator Cyr's S. 130 to protect children from hand-held devices.
- Representative Dykema's House 1874 asks the Massachusetts Department of Elementary and Secondary Education to ensure safe technology in our schools and colleges. There is already a federal lawsuit in Massachusetts under the Americans with Disabilities Act against the Fay School where children have become ill from the industrial strength wi-fi systems.
- Senator Michael Moore has S. 1988 giving the public the right to opt out of hazardous utility "smart" meters. Vermont already offers a no-fee opt-out.
- Representative David Linsky has H. 1956 to address the high voltage power lines as there is a cancer cluster under them in his district.
- Republican leader Representative Bradley Jones introduced House 383 to set up a 5G task force.

Other states have also introduced safe technology legislation including California, Hawaii, Montana, Oregon and Vermont.

State Education and Public Health Authorities

We've educated the Massachusetts Department of Elementary and Secondary Education, and they are just waiting for higher authorities to publish safe technology guidance. That may come through our legislature, or the Massachusetts Department of Public Health.

The Boston Globe investigated the wireless radiation issue in January, and in their article the Department of Public Health indicates guidance will be released in the next six months. The DPH current guidance is harmfully out of date with current science. They have new guidances written for cell towers, cell phones and wi-fi, and high voltage power lines which emit another form of toxic man-made radiation. We are hoping these will be released soon.

The Industry

As you may already be seeing, the industry is aggressively trying to pass bills at the federal level and put in by-laws at the state and local level that would take away home rule from our local municipalities.

They aim to install this toxic infrastructure for 5G and the Internet of Things (IoT) before the public catches on that current science confirms wireless radiation is carcinogenic and causes DNA damage, and that other studies link it to our skyrocketing rates of infertility, neurotoxicity, autism, Alzheimer's and more.

There is much push-back, however. The U.S. Conference of Mayors has put out a position statement opposing 5G, California Governor Jerry Brown already vetoed a 5G bill, and 80 towns are suing the state of Ohio to retain local control.

Burlington, Massachusetts ratified a Small Cell Policy that would require the telecom companies to annually recertify their equipment is still viable, and Burlington will charge the vendor an annual fee so the town can hire an independent consultant to execute the annual recertification process.

The Verizon lawyer indicated his client did not wish to set precedent for recertification or for a fee, so he withdrew Verizon's seven small cell applications.

The FCC

Harvard reports the FCC is captured by the industries it presumably regulates, and has been using the big tobacco playbook to suppress evidence of harm and create doubt among consumers while promoting their toxic products.

FCC Commissioner Brendan Carr recently stated publicly that 5G is safe, and in December Senator Richard Blumenthal and Congresswoman Anna Eshoo sent a formal letter asking him to provide the science on which he based that claim. The FCC failed to respond.

Congresswoman Eshoo then filed a federal bill in January to block the FCC from taking away local control.

Senator Blumenthal recently questioned the FCC in a hearing with the Senate Commerce, Science, and Transportation Committee. The wireless carriers conceded they are not aware of any independent scientific studies on the safety of 5G technologies. Blumenthal also criticized the FCC & FDA for inadequate answers on outstanding public health questions.

Legal Issues

As Microsoft's Frank Clegg indicated, Lloyds of London, Swiss Re and others already recognize wireless radiation as a leading risk and put exclusions in their policies.

That means the industry may not be insured for damages, and they typically pass that liability onto those with whom they sign contracts, namely our towns, schools, etc.

With regard to 5G, there are lawsuits mounting against the FCC and industry, as well as states for letting this technology in. Court cases are already being won around the world for wireless damages so it would behoove New Hampshire to proactively get ahead of this.

Solutions for Responsible Technology Infrastructure

We are fortunate to have many solutions today to help implement responsible technology. We can start by measuring our exposures against biological safety limits.

The bottom line is, wireless technology is harmful and unreliable so it is best to bring hard-wiring to the premises and teach the public to use technology safely.

Many communities are building and managing their own fiber-optic networks which New Hampshire may wish to consider. You can learn more about this in *Reinventing Wires: The Future of Landlines and Networks*.

Grassroots Environmental Education has also developed a Model Wireless Telecommunications Ordinance to help you quickly protect New Hampshire property values, privacy, safety, energy consumption and public health.

Solutions for Educating the Public

As for educating the public, we can learn to put our devices in airplane mode and just go active periodically to check for messages. Airplane mode generally turns off all the antennas.

When we are not on the go, we can also hardwire them through inexpensive Ethernet cables and adapters, then turn off the antennas.

We are fortunate today to have excellent resources built to train the public.

The film that won Best Documentary at the D.C. Independent Film Festival is called Generation Zapped. In 74-minutes everyone can understand the urgency of this issue. It is being screened on April 29 at Stratham's Cooperative Middle

School, and you can also download it on-line for just a few dollars for private viewing.

The non-profit Wireless Education also provides easy half-hour courses on-line to quickly train entire families, schools, communities and workforces.

Almost immediately, when one chooses to reduce wireless radiation exposures, we see a drastic reduction in insomnia, headaches, nosebleeds, nausea, fatigue, brain fog, behavior issues, anxiety, depression and more.

However, if wireless infrastructure is allowed to continue to be installed for “small cells” and “smart” utilities, our bodies will never get a chance to recover.

A lot has happened even since the House Committee heard this bill on February 16th. Belgium, Geneva and others have called for a halt to 5G until it's proven biologically safe. Cancer clusters among children and staff have broken out in schools in California and Pennsylvania.

Please, enact House Bill 522 to ensure responsible hard-wired technology infrastructure in New Hampshire, and teach the public to use their personal devices safely.

I will email you my testimony so you have the links to investigate the documents I presented. I would like to leave with the Chair and Vice Chair with a copy of Reinventing Wires, and one for the public record.

I would be honored to answer any questions you may have now and/or when you form a commission. Thank you for your time and consideration.

rd

Submitted by Cecelia Doucette, Technology Safety Educator,
31 Fatima Drive, Ashland, MA, 01721 c2douce@gmail.com, 508-881-3878

Hello,

My name is Jennifer White and I'm a small business owner who lives in the Monadnock Region of New Hampshire with my husband and 9 year old son, Evan. I've had my business for over 18 years now and thus was an early adopter of cell phones and wireless technology to support my business. I'm 44 years old, have always exercised, eaten healthy and aside from what I'm about to tell you, have been extremely healthy through my life. About 7 years ago, I developed Electromagnetic Sensitivity and it has since changed my life. I didn't wake up one morning desiring to study the health effects of wireless technology on humans...this was an unfortunate circumstance that happened to me and thus, I've studied this subject in great depth over the years, both to Educate myself on how I can build up my defenses to this ever-growing technology but also, because I wouldn't ever want any human being to endure what I had for almost two years while I was sick. It took me moving from our home in CT where the power company refused to remove the Smart Meter from our home, and moving to an extremely low EMF home in NH to regain my health. . Even so, I have struggled greatly through the years with this sensitivity. I use the term sensitivity lightly because although, I can physically FEEL the negative effects that this is having on my body, I believe that this is affecting us all!

Some of the symptoms that I suffer with when I am in high fields of EMF are awful headaches, tinnitus, a buzzing in

my head, almost like an electrical current.. dizziness, burning sensation in my eyes and it also effects my nervous system. When I am in a low EMF environment, those symptoms all disappear.

My nine year old son Evan is also Sensitive and has been since the age of three years old. I take him to the movies, the mall and other areas of high EMF and he complains of headaches, dizziness and nausea. He comes home from school and complains of the same. During summer vacation, when he is home where we have a wired ethernet computer and no wireless in the home...he bounces back to his healthy self. When we travel and are in high fields of EMF, these complaints all come back. The reason I am telling you this is that, although invisible...these Electromagnetic fields are extremely damaging. Especially to young children who are still developing. My son was exposed at a young age to the Smart Meter on our home and in close proximity to his bedroom and also a wifi router that was also near his bedroom, and because at the time, we did not know the ramifications of this technology...he now experiences great discomfort from EMF. Right now....we have a choice in our home to keep our environment safe for our child and myself. We do not have wifi but a wired computer system, we have a landline, we keep our cell phones off when not in use, we do not have a Smart Meter and Eversource has allowed us to keep our Analog meter and do a self meter read every month.

My son's school has also worked with us this year to provide a more comfortable environment for my son. They

moved the wireless router out of his room and to the other side of the school. They do not use the smartboard or I pads in the classroom, and they have allowed me to plug in a special Blushield plug in device which mitigates the EMF in his classroom. This has all provided more comfort and the ability for my son to go to school without being sick everyday. If you allow 5G to roll out, this could mean that I have a mini cell tower outside of my home, outside of my son's school even and the many years that I have struggled to control our environment, keep it safe for both myself and son...are gone!

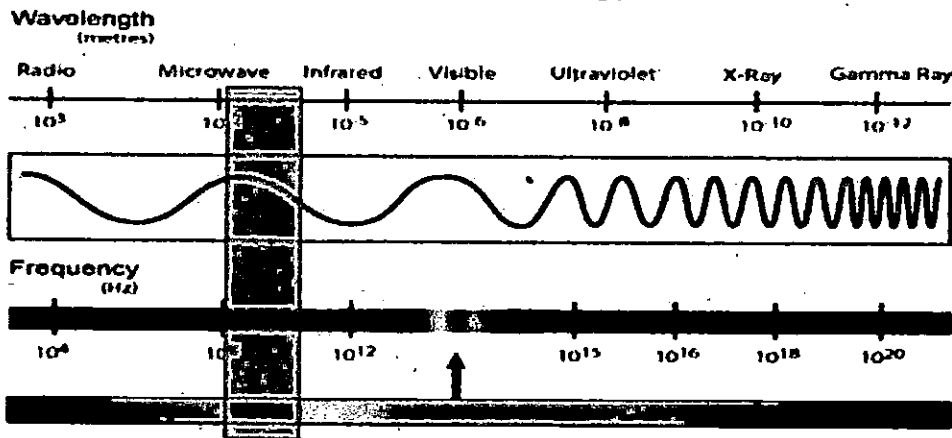
I'm only one of many residents of New Hampshire that is speaking right now but isn't public health of ALL residents of New Hampshire what should be most important here. I can't bear to think of other people experiencing what we have..this has literally changed my life and my son's for the worse. I didn't ask for this. However, I feel it's my responsibility to take a stand and ask that you test this technology before moving forward. It was a 2.4 GHZ frequency output that caused myself and my sons' sensitivity. For him, it was only a matter of under two years before he developed his sensitivity since children are more at risk since they are still developing. With 4G we are currently running on a 5GHZ output. With 5G we are talking of an output of upwards of 24 GHZ, that is 10 time the EMF output compared to what it was. Senator Blumenthal from Connecticut asked the FCC directly if the health effects of this technology have been tested. The answer was NO. How can we move forward without testing this?? I'm asking you, please to pass this bill and test the

health effects of 5G before any further damage is done. Public health is potentially at risk here and it's up to you to take a stand for the people of New Hampshire and put our health before money and the convenience of better download speeds. Thank you for your time.

Millimeter waves

The term millimeter waves generally refers to the portion of electromagnetic spectrum between 30 and 300 GHz, corresponding to wavelength of 10 to 1 mm. Thus, the millimeter wave spectrum lies between the microwaves and infrared portions.

THE ELECTRO MAGNETIC SPECTRUM



Damage from pollutants:

Verizon and ATT's own mobile device insurance does not include coverage for emission of Pollutants which they clearly define Wireless Radiation by all its names (EMF, electromagnetic fields, microwaves, non-ionizing radiation) as a pollutant actually in greater detail than any of the other pollutants. See direct quotes from their current insurance as of 10-14-18. See attached for copies of their insurance plans.

Verizon

"Pollution The discharge, dispersal, seepage, migration, escape or presence of pollutants. Pollutants means any solid, liquid, gaseous, or thermal irritant or contaminant including smoke, vapor, soot, fumes, acid, alkalis, chemicals, artificially produced electric fields, magnetic field, electromagnetic field, sounds waves, microwaves, all artificially produced ionizing or non-ionizing radiation and/or waste. Waste includes materials to be recycled, refurbished or reclaimed."

Source: https://www.phoneclaim.com/verizon/pdf/ASVZW-713_TMP_WebReady_NW-FL.pdf

ATT

"P. "Pollutants" means: Any solid, liquid, gaseous, or thermal irritant or contaminant including smoke, vapor, soot, fumes, acid, alkalis, chemicals, artificially produced electric fields, magnetic field, electromagnetic field, electromagnetic pulse, sound waves, microwaves, and all artificially produced ionizing or non-ionizing radiation and waste. Waste includes materials to be recycled, reconditioned or reclaimed."

Source: https://www.phoneclaim.com/att/pdf/ATT_MI_v1.pdf

Insurance Industry Exclusion of Wireless Radiation from Coverage - Define as a Pollutant

Exclusions of Coverage for injury or damage caused by pollutants with wireless radiation (Electromagnetic fields or radiation) included as a pollutant are common place. For instance, from a non-profit Directors and Officers Insurance Plan with Hartford Insurance:

"Pollutants" means any solid, liquid, gaseous or thermal irritant, nuisance or contaminant, including, without limitation, smoke, vapor, soot, fumes, acids, alkalis, chemicals, odors, noise, lead, oil or oil product, radiation, asbestos or asbestos-containing product, waste and **any electric, magnetic or electromagnetic field of any frequency. Waste includes, without limitation, material to be recycled, reconditioned or reclaimed. Pollutants also means any substance located anywhere in the world identified on a list of hazardous substances issued by any federal agency (including, nonexclusively, the Environmental Protection Agency) or any state, county, municipality or locality or counterpart thereof, or any foreign equivalent thereof.**



7 Clair Road West, P.O. Box 27051, Guelph, ON, N1L 0A0 › Tel 519.240.8735
support@slt.co › www.slt.co

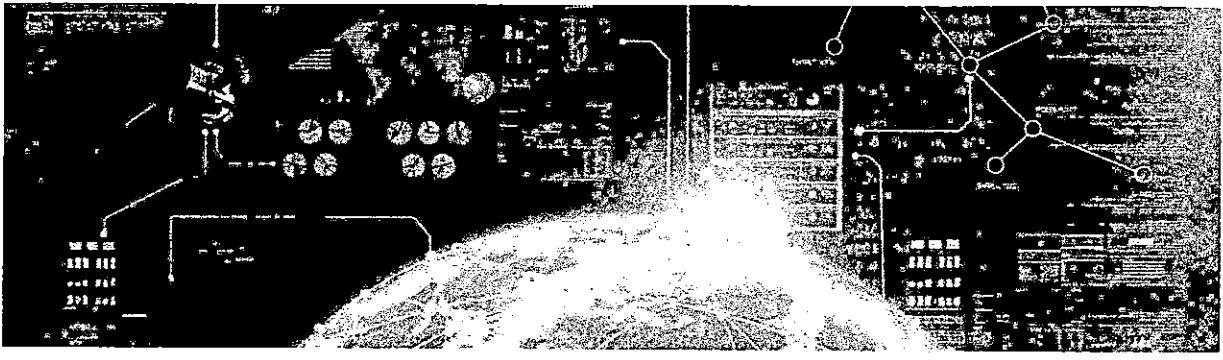
International Radio Frequency "RF" Exposure Limits for 1800 MHz Range

(Cell Phone, WiFi, Smart Meters, etc)

Location	Reference	Exposure time	Limit Based On	Lower by	$\mu\text{W}/\text{m}^2$	V/m
Most of Western Europe	IEEE C95.1-1999 and ICNIRP	30 minutes	Thermal / Heating		10,000,000	61.4
USA	(FCC) IEEE C95.1-1999 and ICNIRP	30 minutes	Thermal / Heating		10,000,000	61.4
Canada	Safety Code 6, Table 5 (2015)	6 minutes	Thermal / Heating	66 x	4,393,278.4	40.7
Russia	Sanitary Norms and Regulations 2.2.4/2.1.8.055-96	3 hours +	Biological Effects	100 x	100,000	6.14
China	UDC 614.898.5 GB 9175 -88	3 hours +	Biological Effects	100 x	100,000	6.14
Italy	Sanitary Norms and Regulations 2.2.4/2.1.8.055-96	3 hours +	Biological Effects	100 x	100,000	6.14
Most of Eastern Europe	Sanitary Norms and Regulations 2.2.4/2.1.8.055-96	3 hours +	Biological Effects	100 x	100,000	6.14
Switzerland	Ordinance on Protection from Non-ionising Radiation (NISV)	Long Term	Precautionary	100 x	100,000	6.14
Toronto Board of Health, Canada	Proposed 1999	Long Term	Precautionary	100 x	100,000	6.14
Bio-Initiative Report recommendation	Bio-Initiative Report 2007	Long Term	Biological / Precautionary	10,000 x	1,000	0.614
Salzburg Resolution on Mobile Telecommunication	Preventive public health protection, Salzburg, June 7-8, 2000	Long Term	Precautionary	10,000 x	1,000	0.614
European Parliament	Resolution 1815, Strasburg, May 27, 2011	Long Term	Precautionary	10,000 x	106	0.2
Building Biology Guidelines Germany (Sleeping Areas)	SBM2008 - Level of No Biological Concern	Long Term	Precautionary	100,000,000 x	0.1	0.00614
Cell Phone Operational Requirements				10,000,000,000 x	0.001	0.000,0614
Natural Cosmic Radiation	MAES 2000	Long Term	Natural Exposure	10,000,000,000,000 x	0.000,001	0.000,000,0614
Average Indoor Urban Exposure Toronto, Canada	Safe Living Technologies Inc. 2011	Long Term			200 - 5000	0.3 - 1.4

①

5G ? IoT



*Microwave Radiation, when used to transfer data from Point-A to Point-B, is comprised of **micro-second pulses of electrical power sprayed through the atmosphere**. Microwave radiation either penetrates or reflects off of anything or anyone in its path. The data transferred are electrical impulses or "bullets" traveling at the speed of light, **about 670 million miles per hour**. These pulses of data transmission can cause harm to many living organisms, including humans,*

How Do Microwaves Radiate Over Long Distances?

Electromagnetic waves are produced whenever charged particles are accelerated. In the near-field region (within 3-4 wavelengths from the source antenna charges), waves are incoherent, erratic, and choppy, with high micro-second peaks of Electric and Magnetic fields. This creates a toxic "hell-stew" of powerful zaps, crackles, and pops that are difficult to characterize with any degree of accuracy. Unfortunately, this is the range

where people typically hold their wireless devices, and where many "smart" home appliances or other IoT things, sensors, robots, machines, etc. may be found. Whenever one sends/receives wireless digital data from a device, machine, or "thing", a toxic spherical cloud, 36" to 48" in diameter, forms around it, exposing everyone nearby to peaks of RF/MW radiation.

How Does Microwave Radiation Send and Receive Digital Data?

A wavelength carries massive numbers of erratic pulses of digital data, that wirelessly transmit text, image, audio and video data to and from computers, tablets, phones and the (predicted) billions of IoT machines, appliances, "things," sensors and devices. Unfortunately, the microwaves used for this purpose are not the smooth sine waves you may have learned about in text books that describe the transmission of visible light (430 to 770 THz) or Alternating Current electrical power (60 Hz). Natural Electromagnetic Fields (EMF) come from two main sources: the sun, and thunderstorm activity. Human-made, pulsed RF/EMF differ from natural EMF .

Human-made Radio-Frequency Electromagnetic Fields (RF/EMF) and the resulting RF/MW radiation are defined by the equation: $c = f \lambda$, where c = the speed of light, f = the frequency, and λ = the wavelength. This means that since c is a constant, as frequency increases, wavelength decreases.

Frequency is measured in a unit called **Hertz**, which represents the number

of cycles or oscillations of a wave in one second. The unit Hertz is named after Heinrich Rudolph Hertz, discussed below, a German scientist who first demonstrated that electromagnetic waves radiate at a constant speed.

In order to transmit digital data, an antenna's microchips distort the waves' shape or pace to modulate (encode) the data stream onto the carrier waves at the source before the antenna transmits them. At the destination, other microchips demodulate (decode) the data stream so the destination device can display the text/image or play the audio/video. A **modem** is a device that literally **modulates** and **demodulates** data streams; engineers shortened the name to **modem**. Each antenna in this scheme is a two-way microwave radiation transmitter/receiver.

There are an infinite number of combinations of wavelength, frequency, intensity, and modulation, the mathematical transformations that encode data onto a carrier wave. Each combination is a new **digital fingerprint** that uniquely identifies a new human-made, potentially toxic agent that, when transmitted into the air, instantly fills our homes, schools, workplaces or public spaces. Below is a list of the Microwave Radiation frequencies that – with the advent of 5g – will be added to our already EMF saturated airwaves.

The Panoply of Microwave Radiation

Frequencies/Wavelengths in a 4g/5g World

- **5g:** 600 MHz = waves 20 inches long
- **4g:** 700 MHz = waves 17 inches long
- **3g/4g:** 800 MHz = waves 15 inches long

- 3g/4g: 900 MHz = waves 13 inches long
- 3g/4g: 1800 MHz = waves 7 inches long
- 3g/4g: 2100 MHz = waves 6 inches long
- Wi-Fi: 2450 MHz = waves 5 inches long (unlicensed)
- 5g: 3100 MHz to 3550 MHz = waves 3.8 to 3.3 inches long
- 5g: 3550 MHz to 3700 MHz = waves 3.3 to 3.2 inches long
- 5g: 3700 MHz to 4200 MHz = waves 3.2 to 2.8 inches long
- 5g: 4200 to 4900 MHz = waves 2.8 to 2.4 inches long
- Wi-Fi: 5800 MHz = waves 2.0 inches long (unlicensed)
- 5g: 24,250 to 24,450 MHz = waves 0.5 inch long
- 5g: 25,050 to 25,250 MHz = waves 0.5 inch long
- 5g: 25,250 to 27,500 MHz = waves 0.4 inch long
- 5g: 27,500 to 29,500 MHz = waves 0.4 inch long
- 5g: 31,800 to 33,400 MHz = waves 0.4 inch long
- 5g: 37,000 to 40,000 MHz = waves 0.3 inch long
- 5g: 42,000 to 42,500 MHz = waves 0.3 inch long
- 5g: 57,000 to 64,500 MHz = waves 0.3 inch long (unlicensed)
- 5g: 64,000 to 71,000 MHz = waves 0.2 inch long
- 5g: 71,000 to 76,000 MHz = waves 0.2 inch long
- 5g: 81,000 to 86,000 MHz = waves 0.1 inch long

All of the waves listed above are examples of both Microwaves and Radio waves, therefore, scientists use the term Radio-Frequency Microwave Radiation (RF/MW radiation) to describe this entire range of wavelengths/frequencies.

- **Radio waves** are from 1 mm to 100,000,000 meters (frequency of 300,000 MHz down to 3 Hz)
- **Microwaves** are from 1 mm to 1 meter (frequency of 300,000 MHz down to 300 MHz)

Microwave radiation can have different properties, depending on its wavelength. The longer waves (20" down to 5") travel further and penetrate

deeper into buildings and living tissue. The shorter waves (0.5" down to 0.1") are called millimeter waves (mm-waves) because they measure from 10 mm (at 30,000 MHz), down to 1 mm (at 300,000 MHz). The mm-waves are not as efficient because they don't travel as far, tend to reflect off of buildings, and deposit mainly into the eyes and skins of living organisms.

Millimeter waves (from 10-mm|30GHz to 1-mm|300GHz) are readily absorbed by the atmosphere and by the eyes and skin of living organisms

In the first quarter of 2017, the US population was being irradiated primarily by the following pulsed microwave radiation:

- **700 million to 2.1 billion** microwaves per second for 2G/3G/4G mobile data sent to cell phones
- **2.4 billion to 5.8 billion** microwaves per second for Wi-Fi data to tablets/laptops

In the second-half of 2017, if Verizon, AT&T, and other wireless carriers have their way, we will be radiated with the following pulsed microwave radiation in 10-15 targets cities – **24 billion to 90 billion** microwaves per second for 5g services and for navigation-assisted cars

By encouraging the construction of four or five competing wireless networks to provide 10+ Gbps wireless data transfers, the US government has created a serious problem as this scheme is energy-inefficient, ludicrously redundant, and extremely hazardous to wildlife and to us.

How Did Our Government Respond to the “Partial Findings” of the NTP Study

In May of 2016, scientists at the US National Toxicology Program released “partial findings” from a \$25 million study on cellphone radiation, that found that both hyperplasias (abnormal increases in volume of a tissue or organ caused by the formation and growth of new normal cells) and tumors occur at significantly higher rates in the presence of continuous radio frequency/microwave radiation,

Disregarding these findings, six short weeks later, the FCC approved a move to 5g, and the wireless industry got to work installing Distributed Antenna Systems (a network of small cells) on utility poles around the country just as quickly as they possibly could. Some antennas have been placed as close as 20 feet from second story bedroom windows and will spray 4g or 5g radio frequency/microwave radiation 24/7/365 on the unfortunate person who unknowingly sleeps there. Cancer clusters have been documented for people living closer than 2,000 feet to mobile communications base stations, so **antennas for mobile communications base stations should never be lower than 200 feet, and no closer than 2,000 feet to people and other living organisms.**

Massive electromagnetic pollution is spiraling out of control, with both Industry and Government denying the scientific proof of harm from microwave radiation. Our Government and the Wireless Industry should not transmit digital data wirelessly, using the data-dense modulation schemes:

Orthogonal Frequency-Division Multiplexing (OFDM/OFDMA) used in Wi-Fi, 4g/LTE and 5g – because the *US Government has already proven that the data-sparse 2G modulation is hazardous. We must, instead, transmit data from Point A to Point B to every business, every home, every school and farm with far superior fiber optic cables.*

On Jan. 8th, 2018, President Trump issued an Executive Order to expedite Broadband to rural America. The gist of the Order is that rural areas are to be outfitted with wireless infrastructure. The American people have already paid for fast, safe, reliable, cyber secure, energy efficient fiber to all homes and businesses around the country, including rural areas! Only a fraction of that fiber was delivered. And now the wireless industry, with the support of our government, is trying to pull a "bait and switch" and substitute slower, harmful, less cyber secure and less energy efficient wireless broadband both in rural America and in urban areas as well. (See article about the Book of Broken Promises by Bruce Kushnick, https://www.huffingtonpost.com/bruce-kushnick/the-book-of-broken-promis_b_5839394.html) For more on this please see <http://scientists4wiredtech.com/regulation/kushnick-primer/>

Share this:

2

Links to Resources

Facebook Page

Newsletter Archive

Contact Us



Copyright © 2018 | All Rights Reserved.



**Presentation Prepared for NH House Science
Technology Committee in Support of HB522
An Industry Perspective
on 5G Wireless Technologies**

**Environmental Health Trust
Canadians for Safe Technology**

**Frank Clegg
Feb. 12, 2019**



Bio and Organization's Focus

- 40+ years in the technology industry
- Most recent position, President of Microsoft Canada

C4ST: Canadians for Safe Technology (CEO and Chairman)

- 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 to coast.

Environmental Health Trust (Co-Chairman Business Advisory Group)

The only nonprofit in the world today that both:

- Carries out high-level critical research on controllable environmental health hazards
- 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.



Abysmal track record of protecting citizens

- Asbestos
 - Cigarette smoking
 - Bisphenol-A (BPA)
 - Thalidomide
 - Urea formaldehyde insulation
-
- Concrete action was not taken until decades after the original science showing harm was published
 - Cisco projects 500 billion wireless connected objects by 2030
 - On average 59 per individual¹ on earth (will be higher in developed countries)



¹ The UN projects a population of 8.5 billion people by 2030;
<https://www.un.org/sustainabledevelopment/blog/2015/07/un-projects-world-population-to-reach-8-5-billion-by-2030-driven-by-growth-in-developing-countries/>



My Industry has lost the public's trust

- Lloyd's of London and Swiss Re have identified EMR as emerging risks
- 10K reports identify business risks with EMR (Verizon and British Telecom)
- Facebook's breach that impacted 80+ million consumers
- Similar to Yahoo's 2014 security breach impacting 500 million customers that wasn't reported until 2016
- The \$35million fine may not impact the behaviour of companies with billions of dollars on their balance sheet.
- France's "Phonagate" that showed 90+% of phones exceed safety regulations

Challenging the business case of wireless solutions

Schoechle, Timothy, Re-Inventing Wires: The Future of Landlines and Networks, National Institute for Science, Law & Public Policy Washington, DC. (2018)

Wireless networks:

- 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
- Can leave people vulnerable in the event of a 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 strategy

- If asked if the technology is safe, states “We meet Federal Guidelines (if used correctly)”
- Bury warnings inside devices or their manuals so they are legally protected
- Resist any actions that will slow the deployment/acceptance of new technology
- Pre-emptively introduce legislation that will streamline the installation of new technology (5G)
- Constipate the regulation process with industry funded studies that are inconclusive, or show no harm
- Continue to take advantage of the current process of introducing new technology and letting others monitor for damage

Government needs to take a proactive approach

- The penetration of wireless devices is unprecedented in history and will continue
- Government regulation must break the current paradigm of introducing new technology and then monitoring for damage
- Pass HB522 to understand the consequences of an unmonitored 5G deployment
 - Investigate, monitor and regulate the cumulative effects of 59 devices per person
 - Challenge/Encourage industry to explore and develop safer alternatives
 - Test the technology before it is released to the market
 - Develop alternatives for individuals who are Electrosensitive

(Appendix):Manufacturers should

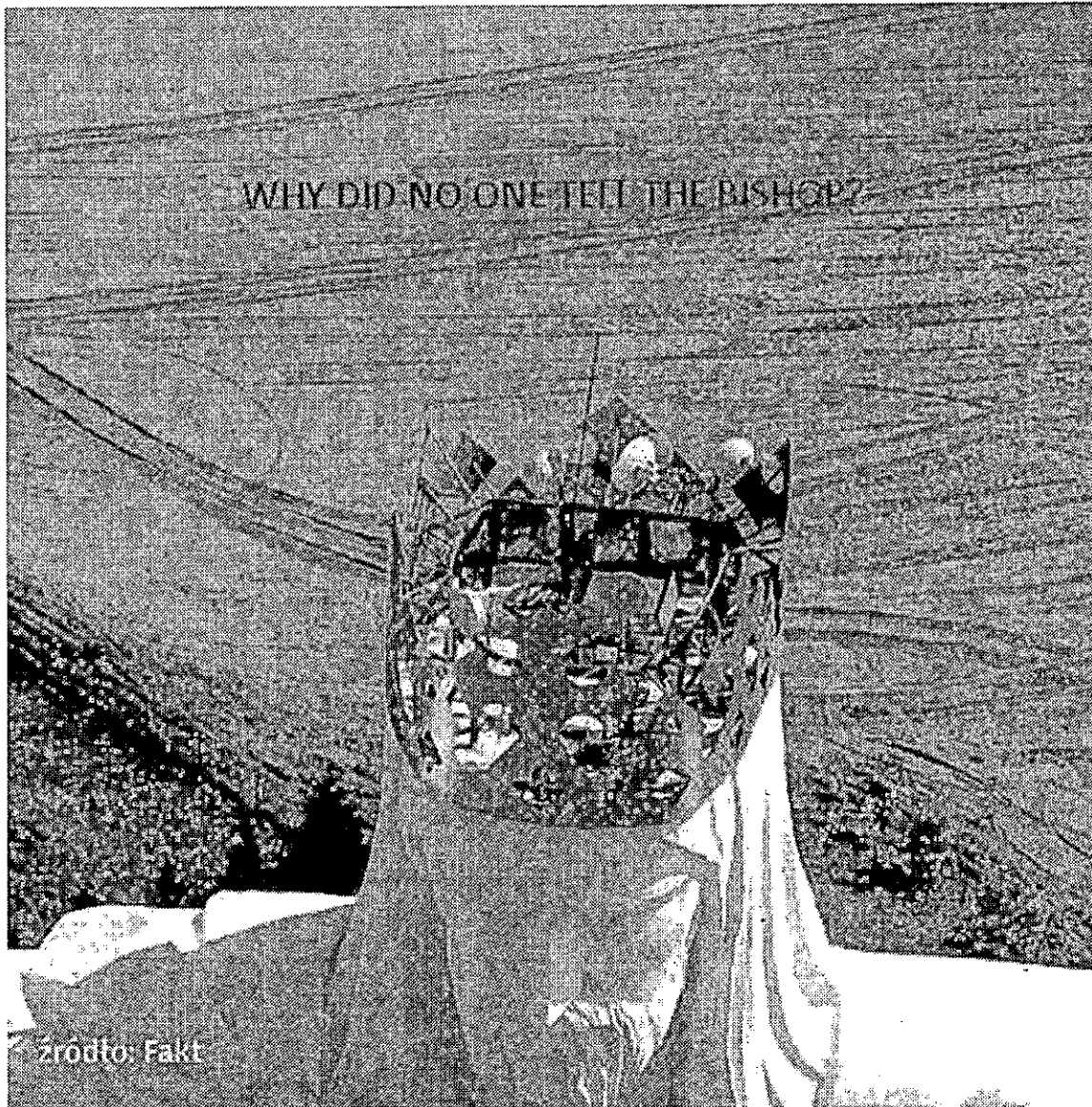
For devices

- Post visible warnings of potential harm on all devices
 - Orange, prominent in Europe and Africa, offers advice on the safe use of cell phones.
- Develop "on demand" technology for baby monitors, portable phones, etc.
 - Many models are available in Europe
- Improve use of devices for their safe use
 - Off-line mode in schools (hardware and software)
 - Ear bud ease of use
 - Default settings to "off" for sharing or "low" for radiation power levels
 - Turn cell phone off or send warning if placed near the body

For installations

- Start with a wired approach to solutions vs. wireless
- Develop a mindset with developers, designers, installers to meet consumer demand with minimal radiation exposure
 - Smart meters on a point-to-point system vs. a wireless grid
 - Refrain from placing cell towers and antennae close to sensitive areas

WHY DID NO ONE TELL THE BISHOP?

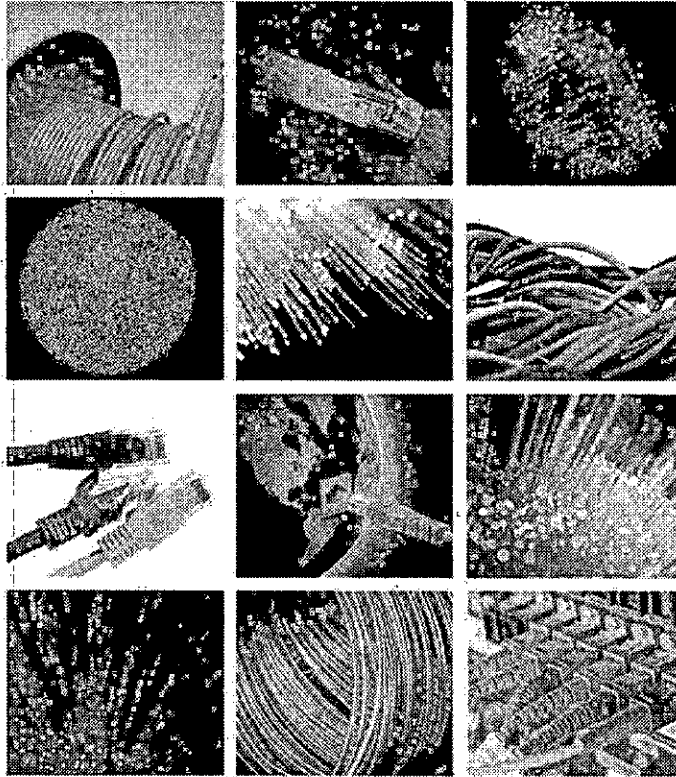


zrodlo: Fakt

Timothy Schöechle, PhD

Re-Inventing Wires:

The Future of Landlines and Networks

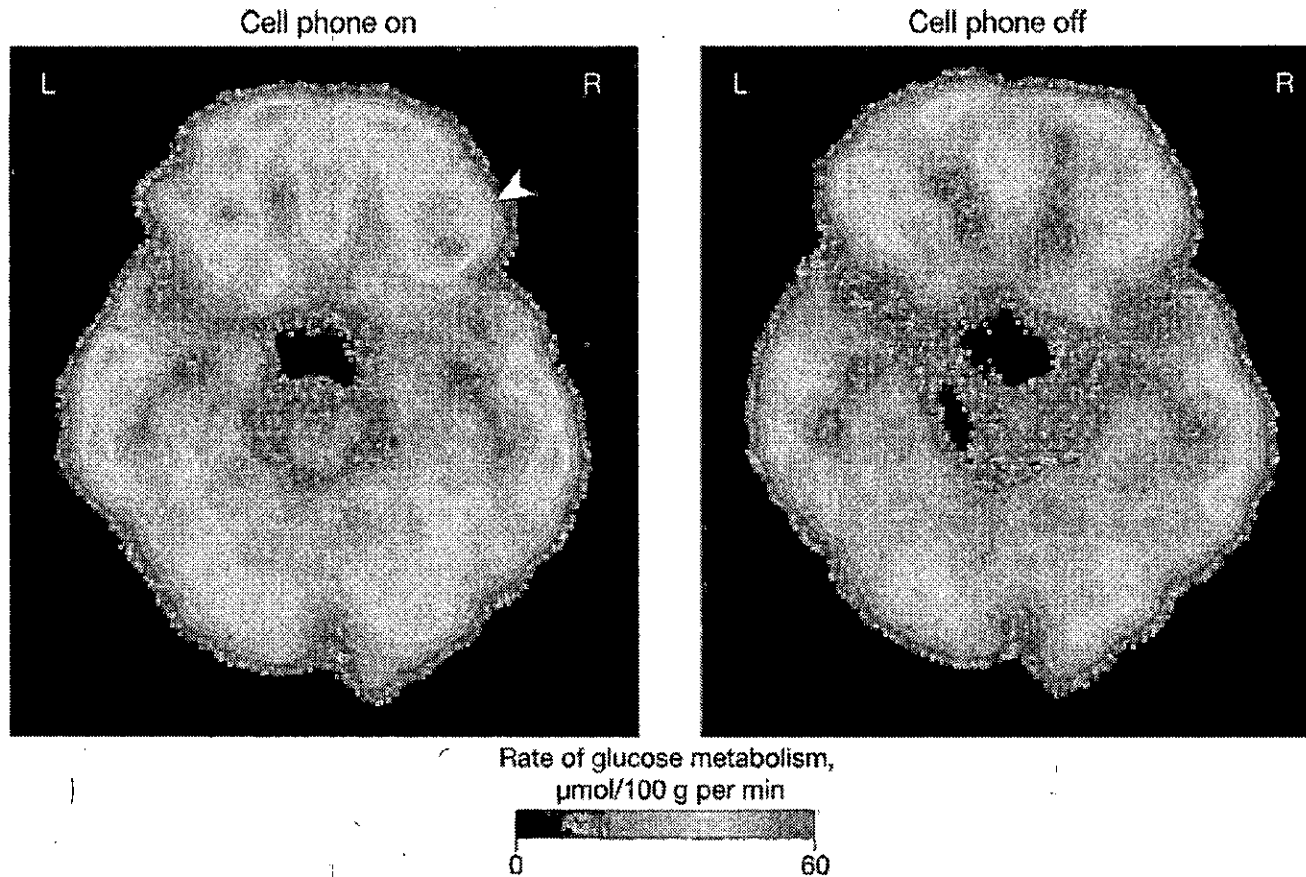


National Institute for Science, Law & Public Policy
Washington, DC

OPTICAL FIBER AND TELEPHONE WIRES ARE A SUPERIOR SOLUTION



VICTIMS AMONG US: THE HYPERSENSITIVE

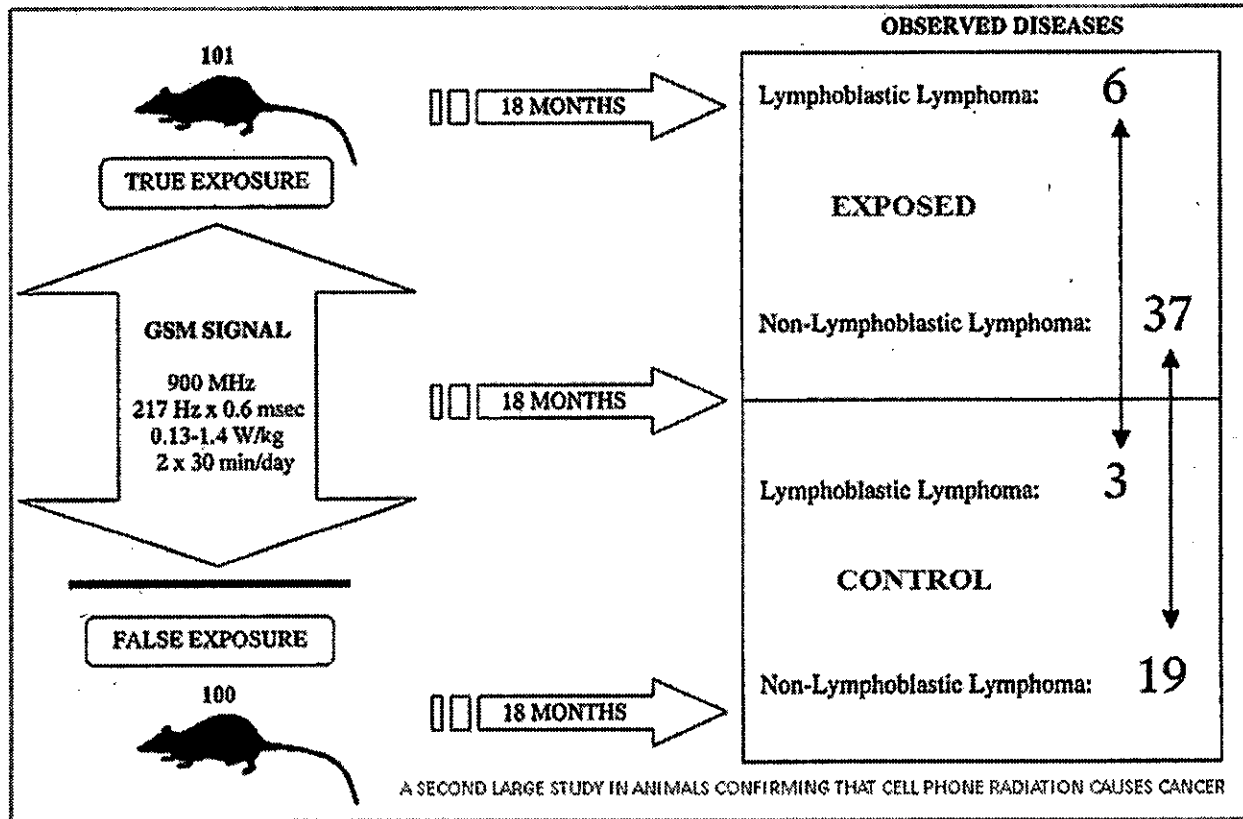


NUCLEAR MAGNETIC RESONANCE SHOWS EFFECTS ON THE BRAIN BELOW FCC LIMITS

Figure 2. Brain Glucose Metabolic Images Showing Axial Planes at the Level of the Orbitofrontal Cortex

Images are from a single participant representative of the study population. Glucose metabolism in right orbitofrontal cortex (arrowhead) was higher for the "on" than for the "off" condition (see "Methods" for description of conditions).

Repacholi 1997

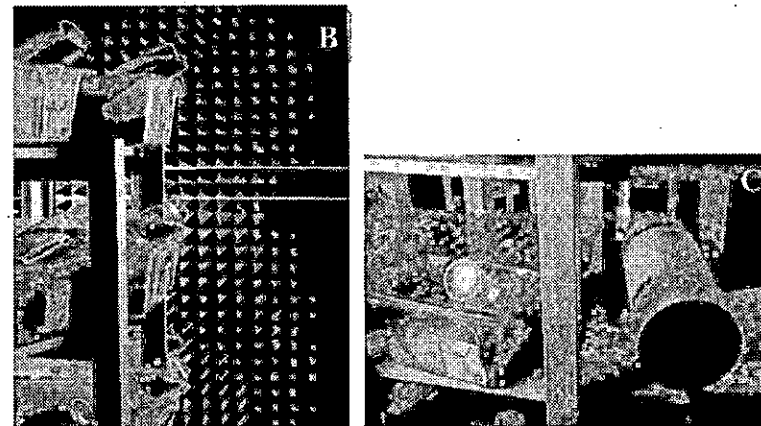
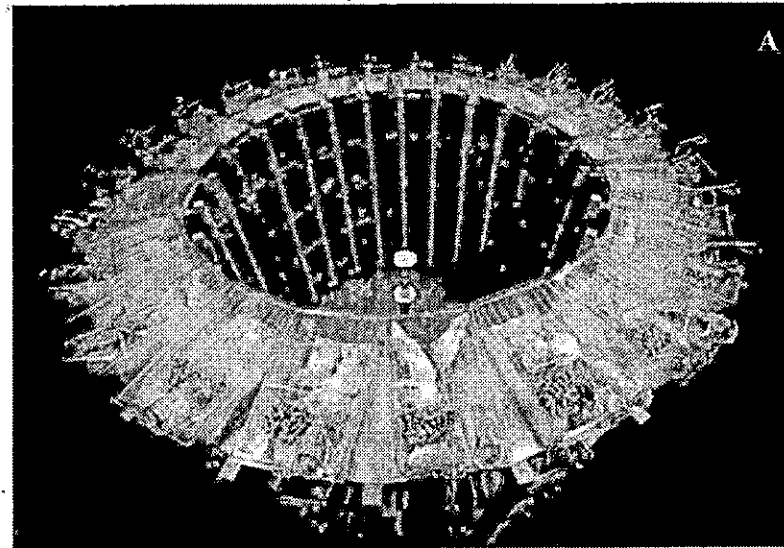


Chow, 1992

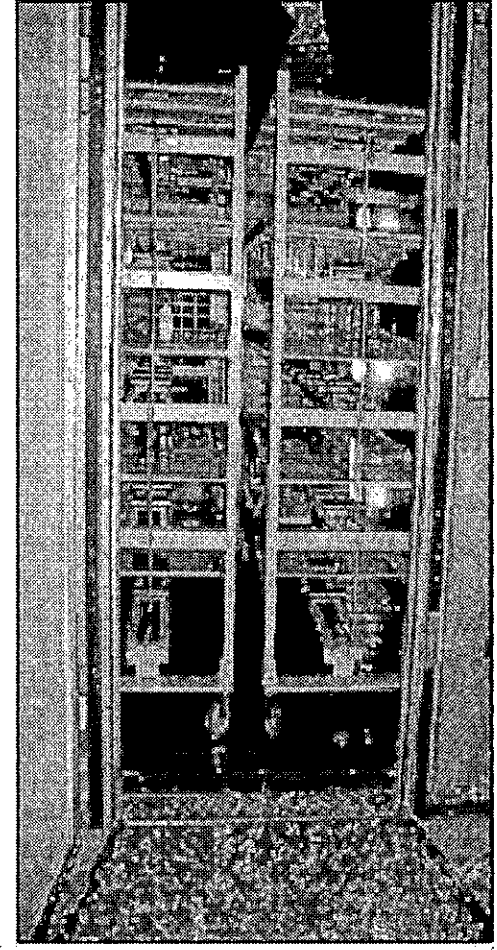
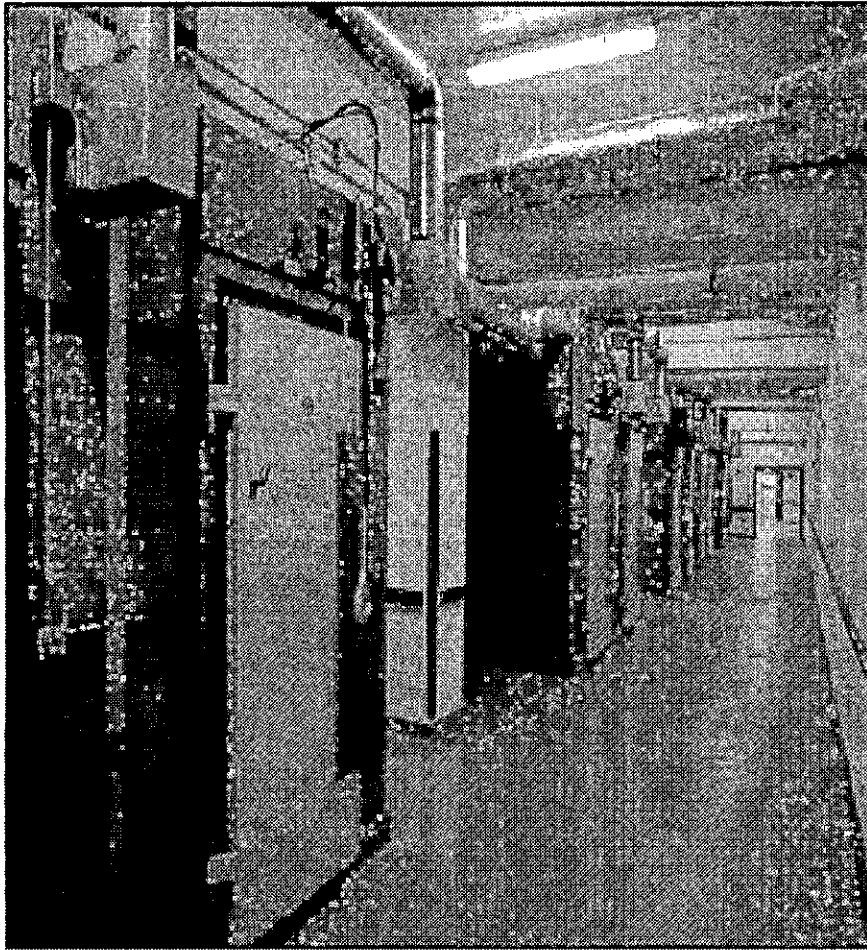
The finding of a near fourfold increase of primary malignancies in the exposed animals is provocative. These data cannot be considered as an artifact because different statistical analyses led to similar results. Although the overall difference in numbers of primary malignancies is statistically significant, the biological significance of this difference is open to question. First, detection of this difference required the collapsing of sparse data without regard for the specific type of malignancy or tissue of origin. Also, when the incidence of the specific primary malignancies in exposed animals was compared with specific tumor incidence reported in the literature, the exposed animals had an incidence similar to that of untreated control rats of the same strain maintained under similar SPF conditions. It is important to note that no single type of primary malignancy was enhanced in the exposed animals.

From the standpoint of carcinogenesis and under the assumption that the initiation process is similar for both benign and malignant tumors, benign neoplasms have considerable significance. That treatment groups showed no difference in incidence of benign tumors is an important element in defining the promotion and induction potential of microwave radiation for carcinogenesis.

ONE OF THE FIRST LARGE STUDIES IN ANIMALS CONFIRMING THAT CELL PHONE RADIATION CAUSES CANCER



A LARGE STUDY FROM ITALY RELEASED IN 2018 SHOWING THAT BASESTATION RADIATION CAN CAUSE CANCER



National Toxicology Program

**National Institutes of Health Public Health Service
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES**

LABORATORY TESTS (25 MS) CONFIRMING THE ABILITY OF CELL PHONE RADIATION TO CAUSE CANCER.

WORLD HEALTH ORGANIZATION
INTERNATIONAL AGENCY FOR RESEARCH ON CANCER



IARC MONOGRAPHS ON THE EVALUATION OF CARCINOGENIC RISKS TO HUMANS

VOLUME 80
NON-IONIZING RADIATION, PART 1:
STATIC AND EXTREMELY LOW-FREQUENCY
(ELF) ELECTRIC AND MAGNETIC FIELDS

2002
IARC Press
L Y O N
FRANCE

M
IARC MONOGRAPHS

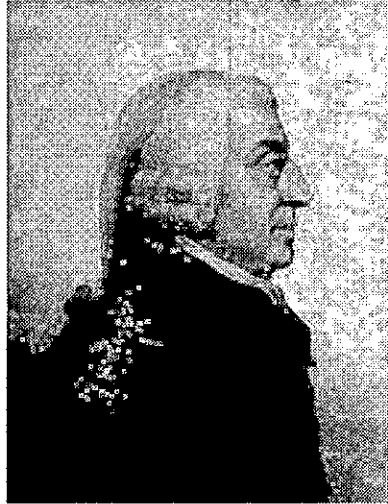


NON-IONIZING RADIATION,
PART 2: RADIOFREQUENCY
ELECTROMAGNETIC FIELDS

VOLUME 102

IARC MONOGRAPHS
ON THE EVALUATION
OF CARCINOGENIC RISKS
TO HUMANS

TWO MAJOR WORLD REPORTS ON CANCERS CAUSED BY ELECTROMAGNETIC RADIATION



Adam Smith
The Wealth Of Nations
(1776)
Book IV, Chapter VIII,
p. 145,
paragraphs c29-30.

To widen the market and to narrow the competition, is always the interest of the dealers...

The proposal of any new law or regulation of commerce which comes from this order, ought always to be listened to with great precaution, and ought never to be adopted till after having been long and carefully examined, not only with the most scrupulous, but with the most suspicious attention.

It comes from an order of men, whose interest is never exactly the same with that of the public, who have generally an interest to deceive and even oppress the public, and who accordingly have, upon many occasions, both deceived and oppressed it.

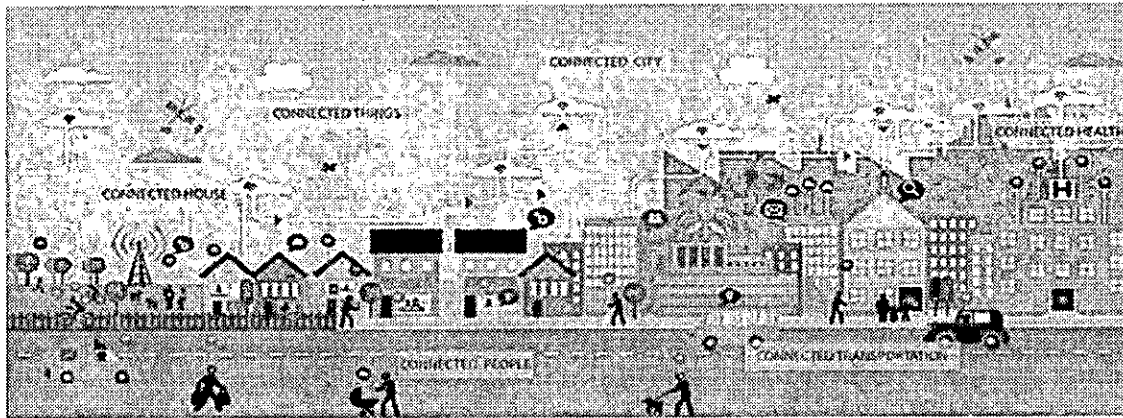
SMITH WARNS US ABOUT LETTING THE MERCHANTS MAKE THE RULES

THERE HAVE ALWAYS BEEN STRONG DISAGREEMENTS ABOUT SAFE LEVELS FOR ELECTROMAGNETIC RADIATION

In 1960, at a meeting between
the American National Standards Institute,
the US Navy and
the Institute of Electrical and Electronics Engineers,
it was found that a number of RF-MW limits were being used since 1953 by various groups.

THE STANDARDS (1960) FOR EXPOSURE TO RADIO-FREQUENCY AND MICROWAVE RADIATION

US Air Force	10 mW/cm ²
General Electric	1 mW/cm ²
Bell Laboratories	0.1 mW/cm ²
Soviets	0.01 mW/cm ²



February 12th, 2019

State House
Concord
New Hampshire

STATE OF NEW HAMPSHIRE
House Bill 522
Rep. Abrami, Sen. Sherman

What you are not told about 5G and the Internet of Things



Paul Héroux, PhD paul.heroux@mcgill.ca
Professor of Toxicology and Health Effects of Electromagnetism
McGill University Medicine
Department of Surgery, McGill University Health Center
InVitroPlus Laboratory, Tel. (514) 398-6988
<http://www.invitroplus.mcgill.ca/>

Voting Sheets

Senate Health and Human Services Committee

EXECUTIVE SESSION RECORD

2018-2019 Session

Bill # HB 527

Hearing date:

Executive Session date: March 26, 2019

Motion of: OTP Vote: 5-0

Committee Member	Present	Made by	Second	Yes	No
Sen. Sherman, Chair	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sen. Fuller Clark, Vice Chair	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sen. Chandley	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sen. Bradley	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Sen. Gray	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Motion of: _____ Vote: _____

Committee Member	Present	Made by	Second	Yes	No
Sen. Sherman, Chair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sen. Fuller Clark, Vice Chair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sen. Chandley	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sen. Bradley	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sen. Gray	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Motion of: _____ Vote: _____

Committee Member	Present	Made by	Second	Yes	No
Sen. Sherman, Chair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sen. Fuller Clark, Vice Chair	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sen. Chandley	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sen. Bradley	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sen. Gray	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Reported out by: Sherman
Consent

Committee Report

STATE OF NEW HAMPSHIRE

SENATE

REPORT OF THE COMMITTEE
FOR THE CONSENT CALENDAR

Tuesday, May 28, 2019

THE COMMITTEE ON Health and Human Services

to which was referred **HB 522**

AN ACT

establishing a commission to study the
environmental and health effects of evolving 5G
technology.

Having considered the same, the committee recommends that the Bill

OUGHT TO PASS

BY A VOTE OF: 5-0

Senator Tom Sherman
For the Committee

HB522 will establish a commission to study the environmental and health effects of evolving 5G technology. The committee heard compelling testimony from Granite Staters who are concerned about the emergence of 5G technology, and the potential unintended consequences that it could pose for the health of New Hampshire citizens. There are still many unanswered questions surrounding 5G technology, and the formation of this commission will allow the legislature to assess the positive and negative implications of this technology and determine if further legislative action is appropriate.

Doug Marino 271-8631

FOR THE CONSENT CALENDAR

HEALTH AND HUMAN SERVICES

HB 522, establishing a commission to study the environmental and health effects of evolving 5G technology.

Ought to Pass, Vote 5-0.

Senator Tom Sherman for the committee.

HB522 will establish a commission to study the environmental and health effects of evolving 5G technology. The committee heard compelling testimony from Granite Staters who are concerned about the emergence of 5G technology, and the potential unintended consequences that it could pose for the health of New Hampshire citizens. There are still many unanswered questions surrounding 5G technology, and the formation of this commission will allow the legislature to assess the positive and negative implications of this technology and determine if further legislative action is appropriate.

Docket of HB522

Docket Abbreviations

Bill Title: establishing a commission to study the environmental and health effects of evolving 5G technology.

Official Docket of HB522.:

Date	Body	Description
1/15/2019	H	Introduced 01/03/2019 and referred to Science, Technology and Energy HJ 3 P. 18
1/30/2019	H	Public Hearing: 02/12/2019 01:30 pm LOB 304
2/20/2019	H	Executive Session: 02/26/2019 10:15 am LOB 304
2/27/2019	H	Committee Report: Ought to Pass for 03/07/2019 (Vote 11-8; RC) HC 14 P. 19
3/7/2019	H	Special Order to 03/14/2019 Without Objection HJ 8 P. 60
3/14/2019	H	Ought to Pass: MA VV 03/14/2019 HJ 9 P. 37
3/25/2019	S	Introduced 03/21/2019 and Referred to Health and Human Services; SJ 10
4/11/2019	S	Hearing: 04/16/2019, Room 101, LOB, 01:00 pm; SC 18
5/28/2019	S	Committee Report: Ought to Pass, 05/30/2019; Vote 5-0; CC; SC 24A
5/30/2019	S	Ought to Pass: MA, VV; OT3rdg; 05/30/2019; SJ 18
6/12/2019	S	Enrolled Bill Amendment #2019-2461e Adopted, VV, (In recess of 06/06/2019); SJ 20
6/12/2019	H	Enrolled Bill Amendment #2019-2461e: AA VV 06/06/2019 HJ 18 P. 46
6/28/2019	S	Enrolled (In recess 06/27/2019); SJ 21
6/28/2019	H	Enrolled 06/27/2019 HJ 20 P. 53
7/24/2019	H	Signed by Governor Sununu 07/19/2019; Chapter 260; I. Sec. 2 Eff: 11/01/2020 II. Rem. Eff: 07/19/2019

NH House

NH Senate

Other Referrals

Senate Inventory Checklist for Archives

Bill Number: HB 522

Senate Committee: HHS

Please include all documents in the order listed below and indicate the documents which have been included with an "X" beside

Final docket found on Bill Status

Bill Hearing Documents: {Legislative Aides}

Bill version as it came to the committee

All Calendar Notices

Hearing Sign-up sheet(s)

Prepared testimony, presentations, & other submissions handed in at the public hearing

Hearing Report

Revised/Amended Fiscal Notes provided by the Senate Clerk's Office

Committee Action Documents: {Legislative Aides}

All amendments considered in committee (including those not adopted):

___ - amendment # ___ ___ - amendment # ___

___ - amendment # ___ ___ - amendment # ___

Executive Session Sheet

Committee Report

Floor Action Documents: {Clerk's Office}

All floor amendments considered by the body during session (only if they are offered to the senate):

___ - amendment # ___ ___ - amendment # ___

___ - amendment # ___ ___ - amendment # ___

Post Floor Action: (if applicable) {Clerk's Office}

Committee of Conference Report (if signed off by all members. Include any new language proposed by the committee of conference):

Enrolled Bill Amendment(s) **2461**

Governor's Veto Message

All available versions of the bill: {Clerk's Office}

___ as amended by the senate ___ as amended by the house

final version

Completed Committee Report File Delivered to the Senate Clerk's Office By:

Committee Aide

Date

Senate Clerk's Office jm

June 10, 2019
2019-2461-EBA
11/01

Enrolled Bill Amendment to HB 522

The Committee on Enrolled Bills to which was referred HB 522

AN ACT establishing a commission to study the environmental and health effects of evolving 5G technology.

Having considered the same, report the same with the following amendment, and the recommendation that the bill as amended ought to pass.

FOR THE COMMITTEE

Explanation to Enrolled Bill Amendment to HB 522

This enrolled bill amendment makes technical corrections.

Enrolled Bill Amendment to HB 522

Amend RSA 12-K:14, I(c) as inserted by section 1 of the bill by replacing line 4 with the following:

businesses and businesses working on the development of autonomous vehicles which will rely on 5G

Amend RSA 12-K:14, I(d)(3) as inserted by section 1 of the bill by replacing line 3 with the following:

significant DNA damage, brain and heart tumors, infertility, and so many other ailments, been

Amend section 2 of the bill by replacing line 2 with the following:

to the commission to study the environmental and health effects of the evolving 5G technology, are