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LEGISLATIVE REFERENCE BUREAU
State of Hawaii
State Capitol, Room 446
415 S. Beretania Street
Honolulu, Hawaii 96813

Written Testimony

HCR197 **REQUESTING A STUDY THAT SUMMARIZES THE PUBLISHED REPORTS AND** **STUDIES ON THE EFFECTS OF 5G WIRELESS TECHNOLOGY ON BIOLOGICAL** **LIFE**

Testimony by the Legislative Reference Bureau
Charlotte A. Carter-Yamauchi, Director

Presented to the House Committees on Energy and Environmental Protection and Intrastate
Commerce

Thursday, March 21, 2019, 11:45 a.m.
Conference Room 325

Chairs Lowen and Ohno and Members of the Committee:

Good morning Chairs Lowen and Ohno and members of the Committees, my name is Charlotte Carter-Yamauchi and I am the Director of the Legislative Reference Bureau. Thank you for providing the opportunity to submit written comments on H.C.R. No. 197, Requesting a Study that Summarizes the Published Reports and Studies on the Effects of 5G Wireless Technology on Biological Life.

The purpose of this measure is to request that:

- (1) The Legislative Reference Bureau conduct a study that summarizes the salient points of existing published reports and studies from reputable sources that have evaluated the effects of 5G on biological life, highlighting any information that could apply to the biological life of Hawaii; and
- (2) The Legislative Reference Bureau submit a report of its findings and recommendations to the Legislature no later than twenty days prior to the convening of the Regular Session of 2020.

While the Legislative Reference Bureau takes no position on the merits of the measure, we submit the following comments for your consideration.

The Bureau believes that, as currently drafted, the services requested under the measure would be manageable and that the Bureau will be able to provide the services in the time allotted; provided that the Bureau's interim workload is not adversely impacted by too many other studies or additional responsibilities, such as conducting studies, writing or

finalizing other reports, drafting legislation, or any combination of these for the Legislature or for other state agencies, task forces, or working groups that may be requested or required under other legislative measures.

Thank you again for your consideration.

HCR-197

Submitted on: 3/20/2019 7:29:11 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Brian Murphy	PATIENTS WITHOUT TIME	Support	No

Comments:

Aloha lawmakers,

We must protect Hawaii's most vulnerable citizens, and seriously ill, and not expose them to dangerous influences.

Please, do due diligence in exploring all available research on 5G.

Mahalo,

Brian Murphy, Director

PATIENTS WITHOUT TIME

HCR-197

Submitted on: 3/20/2019 11:14:56 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Sylvia Dolena	Pele Lani Farm LLC	Support	No

Comments:

There are too many unknowns. Do we want to risk our health and lives for faster data transmissions? Please SUPPORT THIS STUDY.

- Scientists worldwide are calling for a halt to 5G. Over 200 scientists and doctors issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G.

- Research shows health harm. The US National Institutes of Health (NIH) National Toxicology Program studies found "clear evidence of cancer", increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy.

Research shows cancer risk. The World Health Organization's International Agency for Research on Cancer concluded in 2011 that RF radiation of frequencies 30kHz – 300 GHz are possibly carcinogenic to humans (Group 2B).

HCR-197

Submitted on: 3/20/2019 11:47:09 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Puanani Rogers	Ho`okipa Network - Kauai and Aha Moku Kauai	Support	No

Comments:

HCR-197

Submitted on: 3/20/2019 11:54:25 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Christopher Lawinski	Hawaii Whole Person Healing Collective, LLC	Support	No

Comments:

5G is categorically different than anything that has ever existed in the history of the planet. 5G includes the higher millimeter wave (MMW) frequencies never before used for Internet or cell phones. 5G wireless technology relies on millions more new antennas clustered lower to the ground and closer to homes and schools. 5G small cell towers will be placed every 2-10 houses because millimeter waves are poorly transmitted through objects.

Radiation emitted by 5G small cells will be ten to hundreds of times greater than what exists today. Wireless antennas emit millimeter and microwaves – non-ionizing radiation - and essentially function as cell towers. Each 5G installation will have up to or more than a thousand antennas transmitting simultaneously.

Residential neighborhoods will be saturated with small cell towers. The Federal Communications Commission has given permission for millions of wireless transmitters to be built in public rights-of-way in close proximity to homes and apartments. This will have grave implications for the health of all residents and negatively affect property values.

The risk of conventional microwave and radio frequency technology, such as emitted by your cell phone and wireless router, is well documented as being toxic to cells and specifically the mitochondria and the genome. The US National Institutes of Health (NIH) National Toxicology Program studies found “clear evidence of cancer”, increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy. The World Health Organization’s International Agency for Research on Cancer concluded in 2011 that RF radiation of frequencies 30kHz – 300 GHz are possibly carcinogenic to humans (Group 2B). Peer reviewed, published science indicates that exposure to wireless radiation can increase cancer risks, alter brain development and damage sperm. Wireless technology was never tested for long-term safety. Children are more vulnerable and cumulative exposure shows harm.

Despite the known hazards of wireless EMF, the telecommunications industry had neither done nor intended to do any health and safety studies on 5G technology. As a result, scientists worldwide are calling for a halt to 5G. Over 200 scientists and doctors

issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G.

We need to know more about the health risk of this technology before the population is exposed to a significant hazard.

Christopher Lawinski, MD

Hi MD #15225, exp 1/31/2020

HCR-197

Submitted on: 3/20/2019 12:46:26 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Julie Chen	Paradise Action Womens Alliance	Support	Yes

Comments:

Aloha ~

PLEASE SUPPORT HCR 197 for the sake of our health & the health of our children, land, birds, animals, and life itself!!!

- Residential neighborhoods will be saturated with small cell towers. The Federal Communications Commission has given permission for millions of wireless transmitters to be built in public rights-of-way in close proximity to homes and apartments. This will have grave implications for the health of all residents and negatively affect property values.

The risk of conventional microwave and radio frequency technology, such as emitted by your cell phone and wireless router, is well documented as being toxic to cells and specifically the mitochondria and the genome. The US National Institutes of Health (NIH) National Toxicology Program studies found “clear evidence of cancer”, increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy. The World Health Organization’s International Agency for Research on Cancer concluded in 2011 that RF radiation of frequencies 30kHz – 300 GHz are possibly carcinogenic to humans (Group 2B). Peer reviewed, published science indicates that exposure to wireless radiation can increase cancer risks, alter brain development and damage sperm. Wireless technology was never tested for long-term safety. Children are more vulnerable and cumulative exposure shows harm.

Despite the known hazards of wireless EMF, the telecommunications industry had neither done nor intended to do any health and safety studies on 5G technology!

As a result, scientists worldwide are calling for a halt to 5G. Over 200 scientists and doctors issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G.

We need more studies to document the hazards of this technology before it is unwittingly rolled out to expose the general public!

HCR197, aims to curb the onslaught of this hazardous technology upon us by calling for a health study on 5G.

Thank you for caring for the people and doing what is right!

MALAMA PONO!!!

J CHEN.



March 20, 2019

Honorable Nicole E. Lowen
Chair, House Energy & Environmental Protection Committee
Hawaii State Capitol, Room 425
Honolulu, Hawaii 96813

Honorable Takashi Ohno
Chair, House Intrastate Commerce Committee
Hawaii State Capitol, Room 435
Honolulu, HI 96813

Honorable Tina Wildberger
Vice Chair, House Energy and Environmental Protection Committee
Hawaii State Capitol, Room 327
Honolulu, Hawaii 96813

Honorable Dale T. Kobayashi
Vice Chair, House Intrastate Commerce Committee
Hawaii State Capitol, Room 326
Honolulu, HI 96813

RE: Information Related to HR 178/HCR 197

Dear Chairs Lowen and Ohno and Vice Chairs Wildberger and Kobayashi,

On behalf of CTIA, the trade association for the wireless communications industry, I am writing to respectfully submit information related to HR 178/HCR 197. CTIA is not a scientific agency and defers to those experts that are. Per the attached, the consensus among health experts is that the weight of scientific evidence shows no known adverse health effects to humans from exposure to wireless antennas or devices.

Sincerely,

A handwritten signature in cursive script that reads "Bethanne Cooley".

Bethanne Cooley
Senior Director, State Legislative Affairs
CTIA



Encl: "5G Small Cell Wireless Facilities;" Dr. Kenneth R. Foster to Shreveport, Louisiana City Council;
April 28, 2018
Professor Christopher C. Davis, Testimony before the Maryland House Economic Matters Committee;
given February 21, 2019
Professor Eric Swanson, Testimony before the New Orleans City Council; given March 14, 2019
"Protecting Health and Safety"

Kenneth R. Foster
Electromagnetic Safety Consulting

April 28, 2018

Honorable Jerry Bowman
Chair, Shreveport City Council
9311 Lytham Drive
Shreveport, LA 71129

RE: 5G Small Cell Wireless Facilities

Dear Mr. Chairman:

I have been asked by CTIA to express my opinion addressing the state of the science regarding the safety of 5G millimeter wave technology. I have not received and do not intend to receive any money or other compensation from CTIA, or anyone else, for providing this letter. Furthermore, the letter expresses my opinions alone. CTIA did not dictate the contents of this letter and I do not represent CTIA in this matter.

By way of introduction, I am professor (now emeritus) of Bioengineering at the University of Pennsylvania, who has been working since 1971 on research related to health and safety aspects of radiofrequency (RF) energy. I am also a Registered Professional Engineer in Pennsylvania, and apart from my university duties, for the past two decades I have had an engineering practice involving RF exposure assessment, including certification of RF transmitters for compliance with FCC exposure limits. In that context I have analyzed many (hundreds) of cellular telephone base stations and other transmitting facilities. I am also a member of IEEE ICES Committee SC4, which establishes international safety limits for human exposure to RF electromagnetic fields. I make it my business to keep current in this topic and have written many papers in this area. A summary C.V. is attached.

The current generation of cell telephone technology utilizes RF waves in several bands from about 700 MHz to 1.9 GHz. The new generation of wireless communications, 5G, operates at higher frequencies in the millimeter wave band (near or above 30 GHz), for both handsets and infrastructure (base stations). Unlike RF signals at lower frequencies, millimeter waves are absorbed within a half of a millimeter or less of the surface of the body and essentially do not penetrate below the skin. Millimeter wave technology has been used for many years without demonstrated adverse effects to humans apart from thermal effects at exposure levels that are far above FCC and other safety limits.

I have not been asked to perform a compliance assessment of any small cell wireless facilities that may be installed in Shreveport and I do not have specific information about the proposed facilities. Consequently my response is generic, without reference to any proposed installation. However, in my experience, RF exposure levels from wireless base stations at places of public access are invariably far below FCC limits, provided that individuals do not closely approach (within the compliance distance) the transmitting surface of the antennas. The compliance distance is a term of art for the distance of closest approach to the transmitting surface of an antenna where the RF fields are below FCC exposure limits, even under “worst case” assumptions.

One expert from a firm that makes small cells (Ericsson) determined the compliance distance for one type of 5G small cell to be 1.5 meters in front of the transmitting surface of the antenna, and essentially zero from the rear surface of the antennas.¹ This means that, for that particular system, RF exposure levels more than 1.5 meters (about 5 ft) directly in front of the transmitting surface of the antennas will unequivocally be below

¹ https://www.itu.int/en/ITU-T/Workshops-and-Seminars/20171205/Documents/S3_Christer_Tornevik.pdf

safety limits, and that one can approach the rear surface of the transmitting antenna array very closely without exceeding limits. The compliance distance for small cells of the type proposed for Shreveport may differ from the Ericsson estimate depending on their particular design, but I anticipate it will be similar to that for the Ericsson small cell. This should be confirmed by an appropriate analysis by a qualified professional.

The FCC exposure limits (together with those of most other countries around the world) are based on limits developed by independent organizations, in particular the IEEE and (for the FCC limits) the National Council on Radiation Protection and Measurements (NCRP),² and, more recently, the International Commission on Nonionizing Radiation Protection (ICNIRP). All of these limits are generally similar. They are designed to exclude all known hazards of RF energy with a considerable safety factor. With few and highly specialized exceptions, these hazards are associated with excessive heating of tissue. That would require exposure to RF energy at levels far above anything that would be possible with ordinary cellular telephone equipment, and is more of a concern for workers on towers on which high powered broadcast antennas are mounted.

Many organizations continue to review the scientific literature in this field as it develops, including the World Health Organization, the FCC, and IEEE and ICNIRP standards setting organizations. The FCC states that it "closely monitors all of these study results [referring to health studies related to human exposure to RF fields]. However, at this time, there is no basis on which to establish a different safety threshold than our current requirements."²

The 2005 IEEE standard for human exposure to RF energy (IEEE C95.1-2005), which applies to fields from 3 kHz to 300 GHz (including millimeter waves) stated: "A review of the extensive literature on RF biological effects, consisting of well over 1300 primary peer reviewed publications published as early as 1950, reveals no adverse health effects that are not thermally related... This conclusion is consistent with those reached by other scientific expert groups and government agencies..."³ Since that standard was approved, numerous health agency reviews have conducted their own reviews and arrived at similar conclusions.⁴ Consistently, however, they recommend that more research be done on the topic.

Pakhomov et al.⁵ presented a comprehensive review of the biological effects of mm waves. This review covered about 50 papers published in peer reviewed Western sources and more than 300 papers published in the Former Soviet Union before the year 1997. This review concluded "It is important to note that, even with the variety of bioeffects reported, no studies have provided evidence that low-intensity MMW [millimeter wave] radiation represents a health hazard for human beings." Since then there have been many more publications on the biophysics and biological effects of millimeter waves.

The literature on biological effects of RF fields, at any frequency, is scattered, with studies varying in quality, endpoint, exposure level, and relevance to human health. This is a difficult literature to evaluate and any fair assessment requires teams of experts to critically evaluate each study in the context of other knowledge in this field. My own preference is to defer to expert judgments of health agencies that have critically reviewed the literature using teams of experts.

² <https://www.fcc.gov/consumers/guides/wireless-devices-and-health-concerns>

³ IEEE C95.1-2005, IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz (2005).

⁴ Luc, V. (2012). Evaluations of international expert group reports on the biological effects of radiofrequency fields. In *Wireless communications and networks-recent advances*. InTech. <https://www.intechopen.com/download/pdf/31625>.

⁵ Pakhomov, Andrei G., et al. "Current State and Implications of Research on Biological Effects of Millimeter Waves." *Bioelectromagnetics* 19 (1998): 393-413.

To my knowledge, no health agency has concluded that research to date has demonstrated health hazards of millimeter waves, apart from effects at high exposure levels (far above those produced by cellular telephone systems) associated with excessive heating of tissue. In view of the large amount of research done on the subject for over half a century, I consider it unlikely that major and previously unknown hazards of RF energy will come to light, particularly at the low exposure levels produced by wireless communications systems in the environment. However, continued research on a number of topics related to RF safety is still needed. As a member of a standards setting organization, I continue to keep abreast of the literature as it develops and would not hesitate to advocate strongly for a major revision of the standards should the evidence warrant it.

I sincerely hope that my comments will be helpful to you. I would be pleased to answer any questions that you might have about millimeter waves.

Sincerely yours,

A handwritten signature in black ink that reads "Kenneth R. Foster". The signature is written in a cursive, slightly slanted style.

Kenneth R. Foster, Ph.D., P.E.

SUMMARY RESUME

NAME Kenneth R. Foster

DATE/PLACE OF BIRTH July 21, 1945
Baltimore, Maryland

NATIONALITY United States Citizen

EDUCATION 1967 B.S.(Honors) Physics
Michigan State University
1971 Ph.D. (Physics)
Indiana University
Professional Engineer in the State of Pennsylvania
(Certificate Number: PE_030018_E).

EMPLOYMENT

Lieutenant, Medical Service Corps, USNR 1971-6
Department of Bioengineering
University of Pennsylvania 1976-present
Postdoctoral Fellow (1976-7)
Assistant Professor (1977-83)
Associate Professor (1983-present)
Professor (1999-)
Consultant, World Health Organization EMF Project, Geneva, Switzerland 2000 (sabbatical leave from the University of Pennsylvania)

HONORS/DISTINCTIONS

Indiana University Physics Department Award for Excellence in Teaching, 1970.
Defense Nuclear Agency Certificate of Achievement, 1976.
Fellow, Institute of Electrical and Electronics Engineers, 1988.
Fellow, American Institute of Medical and Biological Engineering, 1991
D'Arsonval Award, Bioelectromagnetics Society, 2016

PROFESSIONAL SERVICE

AdCom, IEEE Engineering in Medicine and Biology Society, 1984-6, 1988-
Associate Editor, IEEE Transactions on Biomedical Engineering, 1985-1989
Program Chair, 1987 IEEE EMBS Annual Meeting (1200 papers presented)
Conference Chair, 13th Annual Northeast Bioengineering Conference, 1987
Chair, IEEE Committee on Man and Radiation 1997-9
Chair, IEEE EMBS Ethics and Professional Responsibility Committee, 1989-1993
President, IEEE Society on Social Implications of Technology 1996-8
President, Philadelphia Society for Risk Analysis 1996-7
President, IEEE Society on Social Implications of Technology, 1996-8
Member, IEEE ICES SC4 (sets exposure standards for RF energy) 1998-
Member, National Council on Radiation Protection and Measurements 2000 – 2006
Member, Physical Agents Committee, American Conference of Industrial Hygienists (ACGIH) 2012-

RESEARCH EXPERIENCE AND DIRECTION

Since receipt of the Ph.D. in 1971, Dr. Foster has been engaged in studies on the interaction of nonionizing radiation and biological systems, with more than 160 papers in peer-reviewed journals on topics including biophysical mechanisms of interaction, exposure assessment of RF fields in the environment, and medical applications of RF fields. In addition he has written widely about the public controversy surrounding these issues. He is coauthor or coeditor of two books on risk assessment and the law.



I am Christopher C. Davis, a physicist, biophysicist, engineer, and professor specializing in electromagnetic theory and related areas. I am a tenured full professor of Electrical and Computer Engineering at the University of Maryland in College Park, Maryland. I also hold an endowed chaired professorship as Minta Martin Professor of Engineering.

I have taught electromagnetic theory and related subjects since 1975. Electromagnetic theory is the study of electromagnetic waves, like radiofrequency (RF) waves, their propagation characteristics and how they interact with various structures and organisms. I am a member of several professional societies that have recognized my experiences and expertise in bioelectromagnetics and related fields. I am an elected Fellow of the Institute of Electrical and Electronics Engineers (IEEE), the Institute of Physics, and a Fellow of SPIE (The International Society for Optics and Photonics.). I am a past member of the IEEE Committee on Man and Radiation, and a past Chair of that committee's Sub Committee on RF and Microwaves.

I have been involved with research on the possible biological effect of RF, including microwave and millimeter wave fields, and how such waves are absorbed by various materials for over 40 years. I have submitted my curriculum vitae, which summarizes my education, experience, and publications.

I am here today at the request of CTIA to explain that: (1) the Federal Communications Commission (FCC) has established exposure limits that apply to small cell facilities and are based on recommendations from international expert standard setting bodies that continually evaluate the science; (2) the FCC standards are conservative, with a fifty-fold safety factor below the threshold at which there is any known potential health effect from exposure to RF fields; and (3) my calculations demonstrate that the public's exposure to RF emissions from small cell facilities operating at maximum power will be hundreds of times below the FCC's conservative limits.

The FCC has established exposure limits for all RF-regulated transmitters, which includes small cell wireless facilities. Specifically, the FCC has adopted "Maximum Permissible Exposure (MPE) limits for electric and magnetic field strength and power density for transmitters operating at frequencies from 300 kHz to 100 GHz," which apply to the frequencies utilized in small cell wireless facilities. All RF emitting transmitters and facilities must either comply with the FCC guidelines (or be categorically excluded under those guidelines) or file an Environmental Assessment with the FCC. In addition to federal enforcement of the limits, it is common for authorities to "require a certificate of compliance with FCC rules related to radio frequency emission from a small cell wireless facility."

The FCC exposure limits (together with those of most other countries around the world) are based on limits developed by independent expert organizations. The FCC limits are based on recommendations from the IEEE (certified by the American National Standards Institute (ANSI)) and the National Council on Radiation Protection and Measurements (NCRP), which

the FCC accurately characterizes as “internationally recognized for their expertise in this area.”¹ Other countries base their standards on the recommendations from the International Commission on Nonionizing Radiation Protection (ICNIRP), which the FCC describes as “an international non-profit-making body of independent scientific experts addressing the possibility of adverse effects on human health of exposure to non-ionizing radiation.”²

The ANSI/IEEE, NCRP and ICNIRP limits are generally similar. They are designed to exclude all known hazards of RF energy with, in the words of the FCC, “a very large margin of safety” such that the limits are “many times below levels that are generally accepted as having the potential to cause adverse health effects.”³ Many organizations continue to review the scientific literature in this field as it develops, including the FCC, World Health Organization, and the IEEE and ICNIRP standards setting organizations. The FCC states that it “closely monitors all [health studies related to human exposure to RF fields]. However, at this time, there is no basis on which to establish a different safety threshold than our current requirements.”⁴

In my experience, RF exposure levels from wireless base stations are invariably far below the FCC limits. The FCC notes that “most facilities create maximum exposures that are only a small fraction of the limits.”⁵ Indeed, the FCC states that: “Measurements made near typical cellular and PCS installations, especially those with tower-mounted antennas, have shown that ground-level power densities are hundreds to thousands of times less than the FCC's limits for safe exposure. This makes it extremely unlikely that a member of the general public could be exposed to RF levels in excess of FCC guidelines due solely to cellular or PCS base station antennas located on towers or monopoles.”⁶ My calculations confirm that it is also extremely unlikely that a member of the general public could be exposed to emissions from small cell facilities that exceed the FCC guidelines.

The FCC regulations allow 0.533 milliwatts per square centimeter MPE at 800 MHz and 1.0 milliwatts per square centimeter MPE above 1.5 GHz. My understanding is that the typical maximum power output for a single antenna on a small cell installation is 30 watts (W) Effective Radiated Power (ERP), and a typical small cell installation would include four 30 W antennas at 120 W ERP total. Assuming maximum power from small cell installations 30 feet above the ground at various frequencies, typical small cell deployment would yield exposure levels hundreds of times below the FCC regulations.⁷ At a lower power level, such as 5 watts, the exposures are even lower. The chart below illustrates the point.

¹ FCC, Second Memorandum Opinion and Order and Notice of Proposed Rulemaking, 12 FCC RCD 13494 at ¶32 (August 25, 1997).

² FCC, First Report and Order Further Notice of Proposed Rule Making and Notice of Inquiry. FCC 13-39, at 7 n.20 (2013).

³ FCC, “A Local Government Official’s Guide to Transmitting Antenna RF Emission Safety; Rules, Procedures, and Practical Guidance” at 1 (June 2, 2000) (FCC Local Government Guide).

⁴ <https://www.fcc.gov/consumers/guides/wireless-devices-and-health-concerns>

⁵ FCC Local Government Guide at 1.

⁶ <https://www.fcc.gov/engineering-technology/electromagnetic-compatibility-division/radio-frequency-safety/faq/rf-safety#Q15>.

⁷ Note, wireless carriers seldom operate facilities at full power. For illustrative purposes, however, I used full power outputs in my calculations. Further, it is likely that small cell facilities will be deployed above 30’. I used 30’ because any antenna deployed above 32.8’ is categorically excluded under the FCC’s regulations based on height. FCC Local Government Guide, Appendix A.

Frequency	Power Level	Height	Maximum Human Exposure	FCC Maximum Permissible Exposure (MPE)	Times Below FCC MPE
800 MHz	30 W ERP	30 feet	0.00052 mW/cm ²	0.533 mW/cm ²	1,024
800 MHz	120 W ERP	30 feet	0.0021 mW/cm ²	0.533 mW/cm ²	256
1.9 GHz	30 W ERP	30 feet	0.00052mW/cm ²	1 mW/cm ²	1,922
1.9 GHz	120 W ERP	30 feet	0.0021 mW/cm ²	1 mW/cm ²	480
28 to 39 GHz	30 W ERP	30 feet	0.00052mW/cm ²	1 mW/cm ²	1,922
28 to 39 GHz	120 W ERP	30 feet	0.0021 mW/cm ²	1 mW/cm ²	480

Example Exposures from Small Cell Installations. (mW/cm² is milliwatts per square centimeter)

What this chart illustrates is that small cell facilities will expose the general public to RF at levels far below the allowed limit under the FCC guidelines, which themselves are set far below the threshold level at which there are known potential health effects from RF. Again, the FCC standards are science-based recommendations from expert standard setting organizations that constantly monitor the science. The FCC and FDA work with these organizations “to assure that safety standards continue to adequately protect the public.”⁸

⁸ <https://www.fda.gov/Radiation-EmittingProducts/RadiationEmittingProductsandProcedures/HomeBusinessandEntertainment/CellPhones/ucm116335.htm>



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March 11, 2019

Re: Health Effects of 5G Telecommunication Infrastructure

I have been asked by the CTIA to address any concerns over possible health effects related to 5G telecommunication infrastructure.

My name is Eric Swanson. I am a professor of theoretical physics at the University of Pittsburgh. I have published more than 100 papers on biophysics, nuclear physics, and condensed matter physics and given approximately 250 academic talks in 25 countries over a thirty year career. I am the founder of the American Physical Society Topical Group on Hadronic Physics and an elected Fellow of the American Physical Society. I am also the author of *Science and Society* (Springer), *Applied Computational Physics* (Oxford University Press), and many newspaper and magazine op-eds and articles.

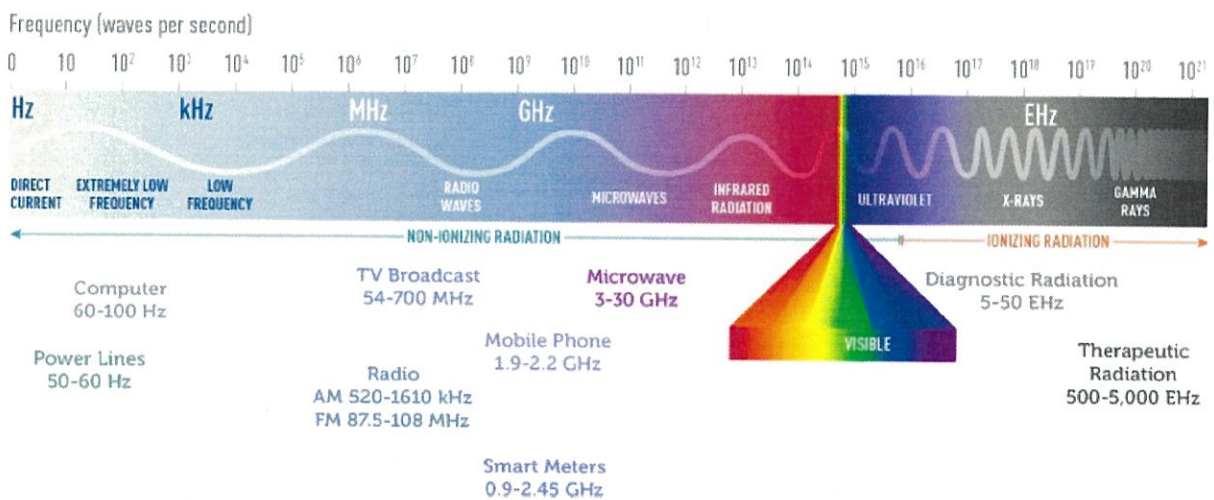
Because this report will be addressing issues concerning electromagnetic fields I would like say a few words about what this is. Electromagnetic fields are waves that are created by moving charges (usually electrons) that traverse space at the speed of light. These waves are the *simplest phenomena known in the universe* and the physics related to them is well established. Waves only have three basic characteristics: frequency (how many times the wave oscillates per second), amplitude (the “height” of the wave), and polarization (we are most familiar with this via polaroid sunglasses). The figure below shows the “electromagnetic spectrum”, which is just a representation of the names that we apply to different frequencies of radiation. Notice that visible light is part of the spectrum. Other familiar parts are UV radiation at slightly higher frequency than visible light, x-rays at even higher frequency, and microwaves and radio waves at lower frequency.

When it comes to human health concerns there is an important distinction between different parts of the spectrum. While I could explain this in terms of physical concepts, it is probably more useful to appeal to things we all know. UV radiation can be harmful because it can cause sunburns and skin cancer. X-rays and the higher frequency gamma rays can be even more harmful (at sufficient doses X-rays can cause cancer and gamma rays can kill people outright). Alternatively, we can happily spend days or months under indoor lighting with no chance of getting sunburn or skin cancer. The reason for this is that visible light is *below* the threshold frequency for causing damage to molecules in our cells. This threshold is referred to as the ionization threshold: electromagnetic waves that can break DNA bonds are called *ionizing* and

electromagnetic waves that cannot break bonds are called *nonionizing*. The electromagnetic fields emitted by a cell phone and wireless infrastructure are nonionizing radiofrequency (RF) fields.

The frequencies used by 4G cellphones are around 2 GHz (this means two billion oscillations per second). These frequencies are about one million times lower than UV frequencies, which places them well on the safe side of the ionization threshold. 5G cellphones and infrastructure operate at RF frequencies that are approximately 30000 times below the ionizing threshold.

ELECTROMAGNETIC SPECTRUM



In the USA, 5G wireless infrastructure and 5G-capable cellphones are regulated by the Federal Communications Commission. All new equipment is tested and must comply with safety limits that have been set by the FCC. The FCC adopted the RF emission regulations based on standards recommended by international standards setting bodies such as the National Council on Radiation Protection and the Institute of Electrical and Electronics Engineers. It did so after consulting with federal health and safety organizations such as the FDA, Environmental Protection Agency, Occupational Safety and Health Administration, and National Institute for Occupational Safety and Health to develop “consensus” regulations. Together, these bodies have assessed thousands of scientific studies concerning possible health effects of nonionizing radiation. Animal tests and other studies indicate that thermal effects start to be felt at an energy deposition rate of approximately 100W/kg (this is called the *specific absorption rate*, or SAR)¹. The FCC mandates that the general public be exposed to no SARs greater than 1.6 W/kg. In fact, according to the FCC, typical exposures near cellphone towers are hundreds or thousands of times lower than this figure. The FCC also mandates that *maximum permissible*

¹ For comparison, the heating pad I use to warm my arthritic knees is rated at 50W. I estimate it warms about 1 lb of my body, so this rather pleasant heating corresponds to a SAR of 100W/kg.

exposure (called MPE, this is a measurement of the energy deposition rate by area) be lower than approximately 1 mW/cm².²

The consensus of the world-wide health and government health and safety organizations is that non-ionizing fields at the levels allowed by the FCC regulations are safe. For example, federal agencies responsible for regulating the safety of cell phones and wireless infrastructure and leading cancer and health research institutions in the United States have not found any link between electromagnetic fields allowed by the FCC regulations and cancer or other adverse health effects:

The Federal Communications Commission (FCC): “As discussed above, radiofrequency emissions from antennas used for cellular and PCS transmissions result in exposure levels on the ground that are typically thousands of times below safety limits. These safety limits were adopted by the FCC based on the recommendations of expert organizations and endorsed by agencies of the Federal Government responsible for health and safety. Therefore, there is no reason to believe that such towers could constitute a potential health hazard to nearby residents or students.”³

The Food and Drug Administration (FDA): “Based on our ongoing evaluation of this issue, the totality of the available scientific evidence continues to not support adverse health effects in humans caused by exposures at or under the current radiofrequency energy exposure limits.”⁴

National Cancer Institute: “... although many studies have examined the potential health effects of non-ionizing radiation from radar, microwave ovens, cell phones, and other sources, there is currently no consistent evidence that non-ionizing radiation increases cancer risk in humans.”⁵

American Cancer Society: “At ground level near typical cellular base stations, the amount of RF energy is thousands of times less than the limits for safe exposure set by the US Federal Communication Commission (FCC) and other regulatory authorities ... Some people have expressed concern that living, working, or going to school near a cell phone tower might increase the risk of cancer or other health problems. At this time, there is very little evidence to support this idea.”⁶

Other worldwide health and safety organizations are in accord:

² FCC 13-39 (March 2013), Appendix A.

³ FCC RF Safety FAQ <https://www.fcc.gov/engineering-technology/electromagnetic-compatibility-division/radio-frequency-safety/faq/rf-safety#Q15> (last accessed March 11, 2019).

⁴ FDA Statement, Statement from Jeffrey Shuren, M.D., J.D., Director of the FDA's Center for Devices and Radiological Health on the National Toxicology Program's report on radiofrequency energy exposure, Nov. 1, 2018, <https://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm624809.htm>.

⁵ National Cancer Institute, “Cell Phones and Cancer Risk” Factsheet (2019), <https://www.cancer.gov/about-cancer/causes-prevention/risk/radiation/cell-phones-fact-sheet> (last accessed March 11, 2019).

⁶ American Cancer Society, “Cellular Phone Towers”, <https://www.cancer.org/cancer/cancer-causes/radiation-exposure/cellular-phone-towers.html> (2018) (last accessed March 11, 2019).

European Commission, Scientific Committee on Emerging and Newly Identified Health Risks (SCENIHR) (2015): “Overall, the epidemiological studies on mobile phone RF EMF exposure do not show an increased risk of brain tumours. Furthermore, they do not indicate an increased risk for other cancers of the head and neck region.”⁷

World Health Organization (2006): “Recent surveys have indicated that RF exposures from base stations and wireless technologies in publicly accessible areas (including schools and hospitals) are normally thousands of times below international standards . . . From all evidence accumulated so far, no adverse short- or long-term health effects have been shown to occur from the RF signals produced by base stations.”⁸

Health Canada (2014): “The Panel has concluded that the balance of evidence at this time does not indicate negative health effects from exposure to RF energy below the limits recommended in the Safety Code.”⁹

United Kingdom Health Protection Agency Independent Advisory Group on Non-Ionizing Radiation (HPA) (2012): “In summary, although a substantial amount of research has been conducted in this area, there is no convincing evidence that RF field exposure below guideline levels causes health effects in adults or children.”¹⁰

Swedish Council for Working Life and Social Research (2012): “Extensive research for more than a decade has not detected anything new regarding interaction mechanisms between radiofrequency fields and the human body and has found no evidence for health risks below current exposure guidelines.”¹¹

Norwegian Institute for Public Health (2012): “The studies have been performed on cells and tissues, and in animals and humans. The effects that have been studied apply to changes in organ systems, functions and other effects. There are also a large number of population studies with an emphasis on studies of cancer risk. The large total number of studies provides no evidence that exposure to weak RF fields causes adverse health effects.”¹²

Similarly, the **Institute of Electrical and Electronics Engineers’ International Committee on Electromagnetic Safety (IEEE/ICES)**, which is one of the expert organizations that the FCC

⁷ European Commission, Scientific Committee on Emerging and Newly Identified Health Risks, Opinion, “Health Effects of Exposure to EMF,” (2015) (available at https://ec.europa.eu/health/scientific_committees/emerging/docs/scenihr_o_041.pdf).

⁸ World Health Organization, “Electromagnetic fields and public health: base stations”, (2006), <https://www.who.int/peh-emf/publications/facts/fs304/en/> (last accessed March 11, 2019).

⁹ Health Canada, “A Review of Safety Code 6 (2013): Health Canada’s Safety Limits for Exposure to Radiofrequency Fields,” (2014) (available at https://rsc-src.ca/sites/default/files/SC6_Report_Formatted_1.pdf).

¹⁰ Health Protection Agency, “Health Effects from Radiofrequency Electromagnetic Fields, Report of the Independent Advisory Group on Non-Ionising Radiation,” (2012) (available at <https://www.ncbi.nlm.nih.gov/nlmcatalog/101602435>).

¹¹ Ahlbom A., *et al.*, Swedish Council for Working Life and Social Research, “Radiofrequency Electromagnetic Fields and Risk of Disease and Ill Health: Research during the last ten years,” (2012) (available at <http://www.fas.se/pagefiles/5303/10-y-rf-report.pdf>).

¹² Norwegian Institute of Public Health, Report 2012:3, “Low-level radiofrequency electromagnetic fields, an assessment of health risks and evaluation of regulatory practice, (2012) (available at <http://www.fhi.no/dokumenter/545eea7147.pdf>).

relies on in setting its RF emission standard, analyzed 52 years of studies and concluded that “the weight of scientific evidence supports the conclusion that there is no measurable risk associated with RF exposures”¹³ even at levels five times higher than that permitted by the FCC. In short, *the consensus of the scientific community is that the scientific evidence does not support any link between exposure to regulated RF and adverse health effects.*

5G telecommunication technology seeks to increase data rates by a factor of 100 over 4G networks (to 1Gbps or higher), decrease latency (time wasted in establishing communication) by a factor of 50 or more, and increase user density drastically (up to one mobile device per 10 square feet). These capabilities will enable smart city technology, the “internet of things”, mobile service on airplanes, remote medicine, and the machine-to-machine communication required for the robotic cars of the future. It will achieve these things by placing low power small cell wireless infrastructure close together and by employing more of the electromagnetic spectrum (specifically, the spectrum near 30 GHz). Because 30 GHz radiation is nonionizing and the emissions from cell phones and small cell wireless infrastructure are regulated by the FCC’s exposure standards that have withstood the test of time, there is no reason to believe there is a risk of adverse health effects. In addition, one can estimate MPE levels by using published data concerning the size of 5G small cell wireless infrastructure and their power ratings (these are also regulated by the FCC). The result is an MPE that is approximately 500 times below the FCC limit. Thus 5G technology presents no substantial risk to the general public, and certainly does not present risk that current regulations cannot manage.

Sincerely,



E.S. Swanson
Professor of Physics
University of Pittsburgh

¹³ Institute of Electrical and Electronics Engineers, International Committee on Electromagnetic Safety (SCC39), “IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3kHz to 300 GHz,” (2006).

Protecting Health and Safety

The health and safety of consumers is a top priority for the wireless industry. Here's what you should know about radiofrequency (RF) energy and wireless devices.

Organizations that say wireless devices pose no known health risk:

- World Health Organization
- American Cancer Society
- National Institutes of Health – National Cancer Institute
- Federal Communications Commission (FCC)
- Food and Drug Administration

What is RF Energy?

Many devices we use every day—baby monitors, Wi-Fi routers, and garage door openers—transmit information using radio waves. These radio waves emit energy commonly referred to as RF energy.

Experts agree that wireless devices have not been shown to pose a public health risk.

The weight of scientific evidence shows no known health risk to humans from RF energy emitted by wireless devices, including smart phones. This evidence includes numerous, independent and peer-reviewed studies conducted over several decades by national and international organizations.

Federal government statistics show the number of brain tumors have decreased since mobile phones were widely introduced in the 1980s while the number of mobile phones and sites has increased significantly, by a factor of 325 and 140, respectively.

Cell phone towers operate within safety limits.

RF energy from antennas result in exposure levels well below FCC safety limits. These limits are based on recommendations from the scientific community and expert non-government organizations. The widely accepted scientific consensus is that towers and base stations pose no known hazard to nearby residents—and as the FCC notes, “the possibility that a member of the general public could be exposed to RF levels in excess of the FCC guidelines is extremely remote.”

FCC regulations protect health and safety.

All wireless devices sold in the U.S. must go through a rigorous approval process to ensure they meet the science-based guidelines set by the FCC. These guidelines—based on internationally-recognized scientific organizations—set limits for the maximum amount of RF exposure from wireless devices and include a significant margin of safety. (Christopher C. Davis Testimony, 2018) Wireless devices and antennas operate well under FCC thresholds. (Christopher C. Davis Testimony, 2018)

New 5G networks emit less RF energy.

Next-generation 5G devices operate on millimeter wave spectrum which, after decades of studies, is subject to the same FCC regulatory regime described above. (Letter from Dr. Kenneth R. Foster to Shreveport City Council, April 28, 2018) Because of the nature of millimeter wave spectrum, 5G devices operate at the same or lower RF levels than today's 4G networks. (Andrew H. Thatcher, Common Radiofrequency Emissions, 2016)

Typical exposure to 5G infrastructure—such as small cells attached to phone poles or the sides of buildings—is comparable to Bluetooth devices and baby monitors. (Christopher C. Davis, Typical Far-Field RF Exposures Compared to FCC Maximum (MPE), 2018) Any hazards “would require exposure to RF energy at levels far above anything that would be possible with ordinary cellular telephone equipment.” (Foster letter, 2018)

Expert voices

“Based on our ongoing evaluation of this issue and taking into account all available scientific evidence we have received, **we have not found sufficient evidence that there are adverse health effects** in humans caused by exposures at or under the current radiofrequency energy exposure limits. Even with frequent daily use by the vast majority of adults, we have not seen an increase in events like brain tumors.”

– *Director of the FDA's Center for Devices and Radiological Health (2018)*

“[T]he RF waves given off by **cell phones don't have enough energy to damage DNA directly or to heat body tissues**. Because of this, it's not clear how cell phones might be able to cause cancer.”

– *American Cancer Society (2018)*

“We have relied on decades of research and hundreds of studies to have the most complete evaluation of radiofrequency energy exposure. This information has informed the FDA's assessment of this important public health issue, and given us the confidence that the **current safety limits for cell phone radiofrequency energy exposure remain acceptable for protecting the public health**. ... [T]he totality of the available scientific evidence continues to not support adverse health effects in humans caused by exposures at or under the current radiofrequency energy exposure limits.”

– *Director of the FDA's Center for Devices and Radiological Health (2018)*

More information is available at cellphonehealthfacts.com.

Agencies and organizations that shape U.S. regulations:

- Institute of Electrical and Electronics Engineers (IEEE)
- National Council on Radiation Protection and Measurements
- International Commission on Nonionizing Radiation Protection

HCR-197

Submitted on: 3/19/2019 2:54:15 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Bowen Dickinson	Individual	Support	No

Comments:

I support studying the effects caused by 5G radiation and hopefully we will be able to stop the installation of 5G technology in Hawaii. It must not be allowed due to its known serious harmful effects on people.

A growing list of cities including New York, Boston, Seattle and Portland are filing lawsuits against the FCC for overriding local authority to impose this hazardous technology. Millions of new 5G base stations on Earth and 20,000 new transmitting satellites in space will saturate the planet with wireless radiation. Despite widespread denial, evidence that wireless radiation is harmful to life is already overwhelming. These 5G plans threaten to provoke serious, irreversible effects on humans and permanent damage to all of the Earth's ecosystems.

Respectfully, Bowen Dickinson

HCR-197

Submitted on: 3/19/2019 8:09:49 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Ava Collet	Individual	Support	No

Comments:

No health and safety testing has been done on 5G. In February, 2019, US Senator Richard Blumenthal established that the telecommunications industry had neither done nor intended to do any health and safety studies on 5G technology.

Scientists worldwide are calling for a halt to 5G. Over 200 scientists and doctors issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G. Research shows cancer risk. The World Health Organization's International Agency for Research on Cancer concluded in 2011 that RF radiation of frequencies 30kHz – 300 GHz are possibly carcinogenic to humans (Group 2B).

HCR-197

Submitted on: 3/19/2019 8:11:48 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Judith E. Levy	Individual	Support	No

Comments:

I am TERRIFIED about the 5G INVASION!! I am a Haiku resident and I'm already VERY EMF

sensitive, getting nauseous and get headaches from the current technology. WE MUST NOT

go forward with this motion that puts ALL OF OUR HEALTH IN JEOPARDY!!

How AWFUL that there will be MORE cell towers, especially near schools and our homes!

There is already too much research that demonstrates the DANGERS of the towers in our

communities. Yes, we appreciate the convenience of our precious smart phones, but STOP HERE!! Messages move fast enough and it's NOT WORTH DAMAGING THE HEALTH of

millions of us so the tech industry can go to town upping the ante and build MORE!!

Thousands of Doctors and scientific researchers have already shown the potential danger.

YOU MUST LISTEN TO THE PEOPLE!! WE DON'T WANT THIS & WE ARE WATCHING YOU

TO DO THE RIGHT THING FOR THE HEALTH OF US ALL!! DONT YOU HAVE CHILDREN??

HCR-197

Submitted on: 3/19/2019 8:24:36 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Barbara Barry	Individual	Support	No

Comments:

Aloha lawmakers,

Mahalo for presenting this very important Resolution. I strongly support a researched examination of this technology on Biological Life. We live in a precious ecosystem that cannot tolerate any more ill affects of untested technology on all life in the Hawaiian Islands. This has long term, dangerous health effects that NO one will be able to escape. I personally know individulas who are extremely sensitinve to EMF's. I ask for detailed research, not funded by the cell phone industry.

Please read this article from Salon Magazine about the Health risks associated with 5 g cell phone technology

Why public health experts are worried about 5G, the next generation of cell network

As next-gen cell networks get closer to reality, public health watchdogs stage a final stand.

DECEMBER 4, 2018 12:00AM (UTC)

Mobile giant Samsung and telecom company Verizon made a joint announcement on Monday that was supposed to be unequivocally exciting news: the blazing-fast fifth generation wireless cellular network — known as 5G — is slated to be more accessible in the United States in the first half of next year.

Yet public health experts, professors, and watchdog groups are increasingly concerned about the untested aspects that this next-gen cell network requires — including more cell towers and a constant chorus of higher-energy photons streaming through human bodies and dwellings.

It's a bit of a David and Goliath battle, as Big Telecom's PR and marketing teams have been busy hyping the possibilities of 5G, while watchdog groups struggle to get funding for even meager studies into potential health effects.

“5G will usher in a new era of mobile connectivity, allowing people to connect to data, experiences and other people in ways never thought possible,” Brian Higgins, vice president of wireless device and product marketing at Verizon, said in a [statement](#). “Together, Samsung and Verizon have made huge gains in bringing 5G commercial services to consumers in several cities. Now, we’re partnering to create a smartphone to put the power of 5G in the palm of your hand.”

According to [CNET](#), the benefits of 5G extend beyond cellular technology. The networks will form the foundation of remote surgery, Internet of Things accessories, improved drone capabilities and more.

Meanwhile, some experts believe the effects of widespread use of mobile 5G need to be better-studied before 5G goes mainstream.

“Even though the radiation associated with 5G technologies hasn’t been investigated as extensively as that associated with current cell phone technologies, there is a substantial body of literature and evidence to indicate a significant impact of exposure on human health and development,” Dr. Jerry Phillips, a professor at the Department of Chemistry and Biochemistry at the University of Colorado, told Salon in an email. “Of concern here are not just the potential effects of 5G-associated radiation, but what might result from the combined impact of 5G-radiation with other sources of non-ionizing radiation in our environment. Certainly, a more careful and thorough assessment of the risks to human and environmental health are warranted.”

As 5G wireless becomes more popular, more towers to emit the signals will be built to supplement existing cell towers. This is because 5G needs a different hardware to deliver such signals. However, 5G requires far more of these towers than previous generations of networks — reportedly, as near as 500 feet apart in many neighborhoods — due to having a higher frequency that decays faster in the atmosphere. The close proximity of said towers is also a cause for concern, according to Sabine El Gemayel, the producer and director of watchdog group Generation Zapped.

“I’m very concerned about 5G because 5G’s infrastructure requires cell towers to be much closer to each other, thus creating an emitting grid of 24/7 wireless radiations near our homes,” she told Salon in an email. “Radio frequencies from wireless radiations have been classified a class 2b carcinogen by the World Health Organization (WHO). It is not only a concern because it’s hazardous to our health but it is also raises concerns about privacy and cyber security with IOT (Internet of Things).”

In 2011, WHO/International Agency for Research on Cancer (IARC) classified radiofrequency electromagnetic fields as “possibly carcinogenic to humans.” This classification, according to the original announcement, was based on “an increased risk for glioma, a malignant type of brain cancer, associated with wireless phone use.”

However, the [Centers for Disease Control and Prevention](#) states there is “no scientific evidence that provides a definite answer to that question.

“We don’t know for sure if RF radiation from cell phones can cause health problems years later,” the website states.

[inRead invented by Teads](#)

Some [studies](#) have found there is [not an increased risk](#) of cell phone usage with certain types of cancer, but other [studies](#) have shown cell phones are associated increase cancer rates. [Vox](#) has a helpful guide to the messy research on the subject and why it’s difficult to have a definitive conclusion, partly because many of the studies rely on observational data.

Some local cities are taking it upon themselves to keep 5G cell towers out of their communities. City council members of the city of Mill Valley in Northern California passed an ordinance in September to keep 5G transmitters from being deployed in residential areas. Meanwhile, the [The Federal Communications Commission](#) has made it easier for operators to deploy infrastructure.

NICOLE KARLIS

Nicole Karlis is a news writer at Salon. She covers health, science, tech and gender politics. Tweet her [@nicolekarlis](#).

HCR-197

Submitted on: 3/19/2019 8:30:56 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Jon Woodhouse	Individual	Support	No

Comments:

Why Hawaii needs to study the impact of 5G

Do we really need hundreds, maybe thousands of small cell antennas on every flag and telephone pole, street sign, building etc blighting neighborhoods?

With so many antennas blanketing neighborhoods we the public will be a walking/living experiment in how much electromagnetic radiation a body can absorb.

Every carrier will use different spectrum so you won't be able to use a 5G phone on different networks. And everyone who wants 5G will have to buy a new phone and pay more for the service.

Signals are easy to block so even a Stop sign will block a signal.

The health impact of 5G has not been tested! Dr. Joel Moskowitz, director of community health studies at the University of California, has warned "precaution is warranted before 5G is unleashed on the world."

Retired U.S. Government physicist Dr. Ron Powell has reported 5G "would irradiate everyone, including the most vulnerable to harm from radiofrequency radiation: pregnant women, unborn children, young children...the elderly, the disabled, and the chronically ill... It would set a goal of irradiating all environments."

Finally, Dr. Martin L. Pall, Professor Emeritus of Biochemistry and Basic Medical Sciences at Washington State University, has warned "Putting in tens of millions of 5G antennae without a single biological test of safety has got to be about the stupidest idea anyone has had in the history of the world."

Hawaii needs to protect its citizens from 5G. We have enough EMF radiation already!

Jon Woodhouse, M.Ed.

HCR-197

Submitted on: 3/19/2019 8:38:45 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
ane takaha	Individual	Support	No

Comments:

Sirs:

No health and safety testing has been done on 5G. In February, 2019, US Senator Richard Blumenthal established that the telecommunications industry had neither done nor intended to do any health and safety studies on 5G technology.

Research shows health harm. The US National Institutes of Health (NIH) National Toxicology Program studies found “clear evidence of cancer”, increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy.

Thank you for your support

Ane Takaha

Maui Meadows

HCR-197

Submitted on: 3/19/2019 9:12:22 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
David Gardener	Individual	Support	No

Comments:

Health hazard in the extreme. Should not be allowed to be pushed through without proper studies.

HCR-197

Submitted on: 3/19/2019 9:13:06 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
A. russell	Individual	Support	No

Comments:

Radiation emitted by 5G small cells will be 10 to 100s of times greater than what exists today. Wireless antennas emit millimeter and microwaves – non-ionizing radiation - and essentially function as cell towers. Each 5G installation will have up to or more than a thousand antennas transmitting simultaneously.

- Multiple installations within the public right of way create hazards on many levels. These include traffic and pedestrian safety hazards; damage to the health of trees and may require their complete elimination; implications for public health and property values; visual blights and potential safety concerns from excessive size, weight, noise and unaesthetic aspects of wireless facilities including the associated pedestals, meters, equipment and power generators that negatively impact the quality, character and culture of Hawaii.

5G will vastly increase energy consumption and is incompatible with Hawaii’s energy goals. Wireless energy consumption is growing at an unsustainable rate, approaching 5-10% of world electricity supply, with the biggest culprits being data centers and, most significantly, wireless access networks.

Scientists worldwide are calling for a halt to 5G. Over 200 scientists and doctors issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G.

Research shows health harm. The US National Institutes of Health (NIH) National Toxicology Program studies found “clear evidence of cancer”, increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy.

HCR-197

Submitted on: 3/19/2019 9:14:45 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Eliei Starbright	Individual	Support	No

Comments:

No health and safety testing has been done on 5G. In February, 2019, US Senator Richard Blumenthal established that the telecommunications industry had neither done nor intended to do any health and safety studies on 5G technology.

- 5G is categorically different than anything that has ever existed in the history of the planet. 5G includes the higher millimeter wave (MMW) frequencies never before used for Internet or cell phones. 5G wireless technology relies on millions more new antennas clustered lower to the ground and closer to homes and schools. 5G small cell towers will be placed every 2-10 houses because millimeter waves are poorly transmitted through objects.

- Radiation emitted by 5G small cells will be ten to hundreds of times greater than what exists today. Wireless antennas emit millimeter and microwaves – non-ionizing radiation - and essentially function as cell towers. Each 5G installation will have up to or more than a thousand antennas transmitting simultaneously.

HCR-197

Submitted on: 3/19/2019 9:30:02 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Fred Spanjaard	Individual	Support	No

Comments:

- 5G is categorically different than anything that has ever existed in the history of the planet. 5G includes the higher millimeter wave (MMW) frequencies never before used for Internet or cell phones. 5G wireless technology relies on millions more new antennas clustered lower to the ground and closer to homes and schools. 5G small cell towers will be placed every 2-10 houses because millimeter waves are poorly transmitted through objects.

- Radiation emitted by 5G small cells will be ten to hundreds of times greater than what exists today. Wireless antennas emit millimeter and microwaves – non-ionizing radiation - and essentially function as cell towers. Each 5G installation will have up to or more than a thousand antennas transmitting simultaneously.

- Residential neighborhoods will be saturated with small cell towers. The Federal Communications Commission has given permission for millions of wireless transmitters to be built in public rights-of-way in close proximity to homes and apartments. This will have grave implications for the health of all residents and negatively affect property values

HCR-197

Submitted on: 3/19/2019 9:30:07 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Michael Shooltz	Individual	Support	No

Comments:

The 5G technology is a threat to life on this planet. There has been no effort to prove it is safe because they know it isn't. Please do not succumb to the pressures being applied to you to implement this deadly agenda. STOP 5G!!!!!!

Mahalo for doing the right thing for yourself, your family, your oommunity and all of life.

HCR-197

Submitted on: 3/19/2019 9:46:23 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Barbara Best	Individual	Support	No

Comments:

No health safety testing has been done on 5G. This new technology will be ten to hundreds of times more than current wireless technology, saturating humans and all creatures with hazardous frequencies. Please stop to consider that we shouldn't take risks with our health and be guinea pigs for the sake of commerce. Once implemented it would be impossible to reverse.

HCR-197

Submitted on: 3/19/2019 10:00:29 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Lani Orr	Individual	Support	No

Comments:

- Radiation emitted by 5G small cells will be ten to hundreds of times greater than what exists today. Wireless antennas emit millimeter and microwaves – non-ionizing radiation - and essentially function as cell towers. Each 5G installation will have up to or more than a thousand antennas transmitting simultaneously.

- Scientists worldwide are calling for a halt to 5G. Over 200 scientists and doctors issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G.

5G will vastly increase energy consumption and is incompatible with Hawaii’s energy goals. Wireless energy consumption is growing at an unsustainable rate, approaching 5-10% of world electricity supply, with the biggest culprits being data centers and, most significantly, wireless access networks.

Respectfully, Lani Orr

- Research shows health harm. The US National Institutes of Health (NIH) National Toxicology Program studies found “clear evidence of cancer”, increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy.

HCR-197

Submitted on: 3/19/2019 10:00:49 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
David	Individual	Support	No

Comments:

Please support HCR 197

- 5G is not really about faster data. 5G refers to 5th generation wireless technology intended to provide higher capacity transmissions to carry the massive data load generated by the Internet of Things (IoT), robotics, “smart” cities, artificial intelligence, driverless cars and other machine-to-machine connections.
- No health and safety testing has been done on 5G. In February, 2019, US Senator Richard Blumenthal established that the telecommunications industry had neither done nor intended to do any health and safety studies on 5G technology.
- 5G is categorically different than anything that has ever existed in the history of the planet. 5G includes the higher millimeter wave (MMW) frequencies never before used for Internet or cell phones. 5G wireless technology relies on millions more new antennas clustered lower to the ground and closer to homes and schools. 5G small cell towers will be placed every 2-10 houses because millimeter waves are poorly transmitted through objects.
- Radiation emitted by 5G small cells will be ten to hundreds of times greater than what exists today. Wireless antennas emit millimeter and microwaves – non-ionizing radiation - and essentially function as cell towers. Each 5G installation will have up to or more than a thousand antennas transmitting simultaneously.
- Residential neighborhoods will be saturated with small cell towers. The Federal Communications Commission has given permission for millions of wireless transmitters to be built in public rights-of-way in close proximity to homes and apartments. This will have grave implications for the health of all residents and negatively affect property values.

Mahalo for your support,

David O'Quinn

County of Kauai

HCR-197

Submitted on: 3/19/2019 10:02:06 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Susan Strom	Individual	Support	No

Comments:

My family & I are in support of this legislation. We are devoutly against the rollout of 5G technology and the many layers of unintended consequences it brings along with it, including dire public health & welfare concerns.

There needs to be thoroughly detailed, independent studies locally & globally factored, which are already yielding very dangerous reports from all corners of the globe. It would be reckless and irresponsible to allow for any form of 5G implementation here in Hawai'i, or anywhere else, for that matter. We are in support of this HCR197 measure.

Mahalo

HCR-197

Submitted on: 3/19/2019 10:04:24 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Holly Schunk	Individual	Support	No

Comments:

Aloha and mahalo for listening to my testimony

This industry is not safe for ourselves, our children, unborn children, Kapuna and especially those with compromised immune systems. I am very concerned about the health of myself and everyone on the planet including our animals and the planet itself. It can cause a myriad of health problems including cancer. As someone with a compromised immune system, this technology is frightening.

No health and safety testing has been done on 5G. In February, 2019, US Senator Richard Blumenthal established that the telecommunications industry had neither done nor intended to do any health and safety studies on 5G technology.

Scientists worldwide are calling for a halt to 5G. Over 200 scientists and doctors issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G.

- Research shows health harm. The US National Institutes of Health (NIH) National Toxicology Program studies found “clear evidence of cancer”, increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy.

Research shows cancer risk. The World Health Organization’s International Agency for Research on Cancer concluded in 2011 that RF radiation of frequencies 30kHz – 300 GHz are possibly carcinogenic to humans (Group 2B).

- Cumulative daily radiation. Peer reviewed, published science indicates that exposure to wireless radiation can increase cancer risks, alter brain development and damage sperm. Wireless technology was never tested for long-term safety. Children are more vulnerable and cumulative exposure shows harm.

5G includes 20,000 new satellites in space. Deployment has already started. Eventually no person, no animal, no insect and no plant on Earth will be able to avoid exposure, 24/7/365, to levels of 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.

Please support this bill and be a hero for all life here in Hawaii as well as on this planet. Mahalo and Aloha, Holly Schunk

HCR-197

Submitted on: 3/19/2019 10:17:17 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Marion McHenry	Individual	Support	No

Comments:

I am writing from Kauai. If money were no object I would fly to Oahu to testify in person on this subject. I feel strongly that there must be a study done before this 5G technology is brought to Hawaii.

Scientists worldwide are calling for a halt to 5G. Over 200 scientists and doctors issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G.

Research shows health harm. The US National Institutes of Health (NIH) National Toxicology Program studies found "clear evidence of cancer", increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy.

Lastly, 5G will vastly increase energy consumption and is incompatible with Hawaii's energy goals. Wireless energy consumption is growing at an unsustainable rate, approaching 5-10% of world electricity supply, with the biggest culprits being data centers and, most significantly, wireless access networks.

The public depends on our lawmakers to protect the welfare of every citizen of our state. Please pass the requirement that proper studies be done first.

Sincerely,

Marion Mchenry

Princeville, HI

HCR-197

Submitted on: 3/19/2019 10:20:05 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Susan Douglas	Individual	Support	No

Comments:

Research shows health harm. The US National Institutes of Health (NIH) National Toxicology Program studies found “clear evidence of cancer”, increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy.

Research shows cancer risk. The World Health Organization’s International Agency for Research on Cancer concluded in 2011 that RF radiation of frequencies 30kHz – 300 GHz are possibly carcinogenic to humans (Group 2B).

Cumulative daily radiation. Peer reviewed, published science indicates that exposure to wireless radiation can increase cancer risks, alter brain development and damage sperm. Wireless technology was never tested for long-term safety. Children are more vulnerable and cumulative exposure shows harm.

5G will vastly increase energy consumption and is incompatible with Hawaii’s energy goals. Wireless energy consumption is growing at an unsustainable rate, approaching 5-10% of world electricity supply, with the biggest culprits being data centers and, most significantly, wireless access networks.

Scientists worldwide are calling for a halt to 5G. Over 200 scientists and doctors issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G.

HCR-197

Submitted on: 3/19/2019 10:21:35 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Maria Maitino	Individual	Support	No

Comments:

Dear Legislatures,

No health and safety testing has been done on 5G. In February, 2019, US Senator Richard Blumenthal established that the telecommunications industry had neither done nor intended to do any health and safety studies on 5G technology.

Radiation emitted by 5G small cells will be ten to hundreds of times greater than what exists today. Wireless antennas emit millimeter and microwaves – non-ionizing radiation - and essentially function as cell towers. Each 5G installation will have up to or more than a thousand antennas transmitting simultaneously.

- Residential neighborhoods will be saturated with small cell towers. The Federal Communications Commission has given permission for millions of wireless transmitters to be built in public rights-of-way in close proximity to homes and apartments. This will have grave implications for the health of all residents and negatively affect property values.

This is an outrage. Humans should not be acting as guinea pigs for the industry to test out the safety/harm of 5G. That should be established PRIOR to implementation of 5G all over Hawaii.

Please support HCR197.

Thank you,

Maria Maitino, Kilauea, HI

HCR-197

Submitted on: 3/19/2019 10:38:50 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Daniel Kanahele	Individual	Support	No

Comments:

I strongly support HCR197 under the precautionary principle.

HCR-197

Submitted on: 3/19/2019 10:49:31 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Elsa Flores	Individual	Support	No

Comments:

KEEP HAWAIIAN CITIZENS AND VISITORS SAFE - KEEP OUE ISLAND CHAIN CLEAN AND UNPOLLUTED BY UNTESTED TECHNOLOGY. SHAME ON YOU REMOVING AVENUES FOR PUBLIC HEALTH AND SAFETY STUDIES. PROTECT US!!!

These 5G plans threaten to provoke serious, *irreversible effects on humans and permanent damage to all of the Earth's ecosystems.*

No health and safety testing has been done on 5G. In February, 2019, US Senator Richard Blumenthal established that the telecommunications industry had neither done nor intended to do any health and safety studies on 5G technology. Community authority is overruled. Communities have been stripped of their right to make decisions about this new technology. ***Public notice and public hearings have been eliminated.*** Counter-arguments have been disregarded.

Residential neighborhoods will be saturated with small cell towers. The Federal Communications Commission has given permission for millions of wireless transmitters to be built in public rights-of-way in close proximity to homes and apartments. ***This will have grave implications for the health of all residents and negatively affect property values.***

Research shows health harm. The US National Institutes of Health (NIH) National Toxicology Program studies found "clear evidence of cancer", increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy. Research shows cancer risk. The World Health Organization's International Agency for Research on Cancer concluded in 2011 that RF radiation of frequencies 30kHz – 300 GHz are possibly carcinogenic to humans.

PLEASE PROTECT US AND DO NOT ALLOW THESE UNSTUDIED TECHNOLOGIES TO RAIN DOWN UPON OUR PRISTINE ISLAND. MAHALO

HCR-197

Submitted on: 3/19/2019 10:55:05 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Maha Conyers	Individual	Support	No

Comments:

- Scientists and medical doctors worldwide are calling for a halt to 5G. Over 200 scientists and doctors issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G.

- Research shows health harm. The US National Institutes of Health (NIH) National Toxicology Program studies found "clear evidence of cancer", increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy. G5 destroys cellular health in humans, plants and animals. It must not be allowed to be implemented.

HCR-197

Submitted on: 3/19/2019 11:28:10 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Don V. Lax	Individual	Support	No

Comments:

It is vitally important for the health and welfare of humans and the environment that the implementation of 5G wireless technology on Maui be stopped. Thankyou and aloha.

Don V Lax

HCR-197

Submitted on: 3/19/2019 11:41:59 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
denise woods	Individual	Support	No

Comments:

Aloha, Please support this important measure. Just like how Monsanto is just now being held accountable for the health consequences caused by Roundup, one day the cell companies will be held accountable- but by then many people will have suffered and died. Please lets be cautious. An ounce of prevention is worth a pound of cure.

- Scientists worldwide are calling for a halt to 5G. Over 200 scientists and doctors issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G.

- Research shows health harm. The US National Institutes of Health (NIH) National Toxicology Program studies found “clear evidence of cancer”, increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy.

Research shows cancer risk. The World Health Organization’s International Agency for Research on Cancer concluded in 2011 that RF radiation of frequencies 30kHz – 300 GHz are possibly carcinogenic to humans (Group 2B).

- Cumulative daily radiation. Peer reviewed, published science indicates that exposure to wireless radiation can increase cancer risks, alter brain development and damage sperm. Wireless technology was never tested for long-term safety. Children are more vulnerable and cumulative exposure shows harm.

HCR-197

Submitted on: 3/20/2019 2:37:55 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Linda Trageser	Individual	Support	No

Comments:

We don't need 5G in Hawaii. 5G is incompatible with Hawaii's energy goals. 5G won't improve internet speed or improve life for people, only for robots, of which we have no need in our state.

5G is NOT safe for humans, plants, or animals. 5G satellites radiating oceans throughout the planet will be the death of the planet. I hold you responsible.

HCR-197

Submitted on: 3/20/2019 5:45:10 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
James Tolley	Individual	Support	No

Comments:

Hawaii is on the fast track to harm. June 21, 2018, Governor Ige signed into law legislation that clears the way for rapid implementation of 5G in Hawaii by standardizing the process of 5G small cell deployments.

- 5G is not really about faster data. 5G refers to 5th generation wireless technology intended to provide higher capacity transmissions to carry the massive data load generated by the Internet of Things (IoT), robotics, “smart” cities, artificial intelligence, driverless cars and other machine-to-machine connections.

- Multiple installations within the public right of way create hazards on many levels. These include traffic and pedestrian safety hazards; damage to the health of trees and may require their complete elimination; implications for public health and property values; visual blights and potential safety concerns from excessive size, weight, noise and unaesthetic aspects of wireless facilities including the associated pedestals, meters, equipment and power generators that negatively impact the quality, character and culture of Hawaii.

- 5G will add to – not replace – current wireless technology. 5G will not only utilize current 3G or 4G (LTE) wireless frequencies already in use but will also add higher frequency – submillimeter and millimeter waves– in order to transmit data at faster speeds.

HCR-197

Submitted on: 3/20/2019 6:08:21 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Katherine Fleischman	Individual	Support	No

Comments:

No health and safety testing has been done on 5G. Please don't make guinea pigs of us and our children. I want to see that it's safe before I allow it in my home.

HCR-197

Submitted on: 3/20/2019 6:15:26 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Carol Hart	Individual	Support	No

Comments:

Aloha, my name is Carol Hart and I am a health care practitioner and have lived in Hawaii since 1981. I strongly support HCR197.

There are many potential health concerns about 5G technology, as well as social, cultural and aesthetic impacts to our communities and planet. Please do the right thing and at the very least require a comprehensive study of the impacts of allowing this to continue.

Mahalo

HCR-197

Submitted on: 3/20/2019 6:49:15 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Robert B. Smith	Individual	Support	No

Comments:

I would most certainly like to support this bill.

It has already been established that cell phone radiation can cause brain tumors.

Why would the State of Hawaii open itself up to all sorts of litigation by allowing an untested technology to be used on it's citizens. I for one, do not worship at

the altar of technology. I believe our internet speeds are fast enough. I do not want an

Internet of Things where my refrigerator orders milk form Amazon on it's own. Let

us first have a study and let other states experiment on their citizens and see the results after 5 to

10 years. What is this rush all about? It seems the tech lobbyists are forcint this technology

down the throats of Americans and made it illegal to opt out. It is un American. I respectfully

you to support this bill and heed the results of a study.

Robert B. Smith

HCR-197

Submitted on: 3/20/2019 6:55:38 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Suzanna Kennedy	Individual	Support	No

Comments:

Please SUPPORT HCR197

- Radiation emitted by 5G small cells will be ten to hundreds of times greater than what exists today. Wireless antennas emit millimeter and microwaves – non-ionizing radiation - and essentially function as cell towers. Each 5G installation will have up to or more than a thousand antennas transmitting simultaneously.

- Scientists worldwide are calling for a halt to 5G. Over 200 scientists and doctors issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G.

- Research shows health harm. The US National Institutes of Health (NIH) National Toxicology Program studies found “clear evidence of cancer”, increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy.

HCR-197

Submitted on: 3/20/2019 7:00:07 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
marta greenleaf	Individual	Support	No

Comments:

-5G is categorically different than anything that has ever existed in the history of the planet. 5G includes the higher millimeter wave (MMW) frequencies never before used for Internet or cell phones. 5G wireless technology relies on millions more new antennas clustered lower to the ground and closer to homes and schools. 5G small cell towers will be placed every 2-10 houses because millimeter waves are poorly transmitted through objects.

- Radiation emitted by 5G small cells will be ten to hundreds of times greater than what exists today. Wireless antennas emit millimeter and microwaves – non-ionizing radiation - and essentially function as cell towers. Each 5G installation will have up to or more than a thousand antennas transmitting simultaneously.

- Residential neighborhoods will be saturated with small cell towers. The Federal Communications Commission has given permission for millions of wireless transmitters to be built in public rights-of-way in close proximity to homes and apartments. This will have grave implications for the health of all residents and negatively affect property values.

- 5G is not really about faster data. 5G refers to 5th generation wireless technology intended to provide higher capacity transmissions to carry the massive data load generated by the Internet of Things (IoT), robotics, “smart” cities, artificial intelligence, driverless cars and other machine-to-machine connections.

Sincerely,

Marta Greenleaf

310 Hoopalua Dr

Makawao, HI 96768

HCR-197

Submitted on: 3/20/2019 7:00:18 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Marion Haskins	Individual	Support	No

Comments:

No health and safety testing has been done on 5G. In February, 2019, US Senator Richard Blumenthal established that the telecommunications industry had neither done nor intended to do any health and safety studies on 5G technology.

5G will add to – not replace – current wireless technology. 5G will not only utilize current 3G or 4G (LTE) wireless frequencies already in use but will also add higher frequency – submillimeter and millimeter waves– in order to transmit data at faster speeds.

Research shows health harm. The US National Institutes of Health (NIH) National Toxicology Program studies found “clear evidence of cancer,” increased brain tumors, and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy.

HCR-197

Submitted on: 3/20/2019 7:10:48 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Kimba	Individual	Support	No

Comments:

I and everyone I know who cares about life on this planet strongly opposed 5G technology.

HCR-197

Submitted on: 3/20/2019 7:15:51 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
John Gelert	Individual	Support	No

Comments:

There is no safety study being done on the harms of 5G radiation. There is no informed consent. 5G would expose us to 100 times the radiation of current cellular technology.

Research shows health harm. The US National Institutes of Health (NIH) National Toxicology Program studies found “clear evidence of cancer”, increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy.

Scientists worldwide are calling for a halt to 5G. Over 200 scientists and doctors issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G.

HCR-197

Submitted on: 3/20/2019 7:21:14 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Catherine Velasquez	Individual	Support	No

Comments:

- No health and safety testing has been done on 5G. In February, 2019, US Senator Richard Blumenthal established that the telecommunications industry had neither done nor intended to do any health and safety studies on 5G technology.

- 5G is categorically different than anything that has ever existed in the history of the planet. 5G includes the higher millimeter wave (MMW) frequencies never before used for Internet or cell phones. 5G wireless technology relies on millions more new antennas clustered lower to the ground and closer to homes and schools. 5G small cell towers will be placed every 2-10 houses because millimeter waves are poorly transmitted through objects.

- Radiation emitted by 5G small cells will be ten to hundreds of times greater than what exists today. Wireless antennas emit millimeter and microwaves – non-ionizing radiation - and essentially function as cell towers. Each 5G installation will have up to or more than a thousand antennas transmitting simultaneously.

- Residential neighborhoods will be saturated with small cell towers. The Federal Communications Commission has given permission for millions of wireless transmitters to be built in public rights-of-way in close proximity to homes and apartments. This will have grave implications for the health of all residents and negatively affect property values.

HCR-197

Submitted on: 3/20/2019 7:49:10 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Jennifer Noelani Ahia	Individual	Support	No

Comments:

We have no idea what the long term or even short term impacts of 5G will be on our health and the health of the environment. Please pass this.

HCR-197

Submitted on: 3/20/2019 7:50:11 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Neal Chantara	Individual	Support	No

Comments:

It is imperative that we study this before installing any further wireless technology. My son and I have measured the pulsed microwave radiation of many homes with smart meters and have shown people the EMFs from cell phones, wifi, and cordless phones with our measuring equipment. We have met many people extremely sensitive to wireless technology and have seen the effects leading to debilitating illnesses.

I would say Stop the 5G now, but since you don't seem convinced you owe it to yourselves and the people of Hawaii to study the biological effects with Real studies before further action.

Many thanks,
Neal

HCR-197

Submitted on: 3/20/2019 7:57:00 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
martin	Individual	Support	No

Comments:

As a physician, I have very serious concerns about the fast track deployment of 5G without any independent, significant studies showing the safety of this addition of radiation to the environment, especially so close to homes, schools etc In fact, everything and everyone will be saturated with 5G, 24/7 and without proper Informed Consent. Research already shows health harm. The US National Institutes of Health (NIH) National Toxicology Program studies found "clear evidence of cancer", increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy.

Please support HCR 197

Martin E. Manrique, DOM

Pukalani,HI

HCR-197

Submitted on: 3/20/2019 7:59:38 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Craig Hockmeyer	Individual	Support	No

Comments:

Please support this bill. This technology is not needed. It has very dangerous health implications. Please delay roll out until a full, thorough health study can be conducted. Thank you.

HCR-197

Submitted on: 3/20/2019 8:17:19 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Linda Ikeda	Individual	Support	No

Comments:

June 2018, Governor Ige signed into law legislation that clears the way for implementation of 5G in Hawaii. He does not realize the current independent research that the wireless industry often successfully hides.

Scientists worldwide are calling for a halt to 5G.

Current research on wireless shows harm to health. The US National Institutes of Health (NIH) National Toxicology Program studies found "clear evidence of cancer," increased brain tumors and heart damage in lab animals exposed to wireless. Our children, and anything living is at risk. Wireless has been another reason that bee populations have diminished. 5G uses the same frequencies as military weapons that cause pain.

5G will multiply this radiation as millions of new antennas will be clustered lower to the ground and closer to homes and schools. 5G small cell towers will be placed every 2-10 houses apart.

This study is necessary to see what is going on before 5G is deployed. Better safe than sorry.

HCR-197

Submitted on: 3/20/2019 8:28:22 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
laurie	Individual	Support	No

Comments:

As a person w cancer any involuntary exposure to elements / radiation (by a for profit corporation at that!) that WILL harm my DNA is unacceptable AND inhumane.

Just look to the recent rulings on the cancer causing and promoting compounds in RoundUp - probably used all over the Hawaiian Islands by Monsanto/Bayer stronghold corporation. Be prepared for the state to pay out massive monies in lawsuits that are on the horizon - knowingly submitting residents, involuntarily, to mutating their DNA ! Radiation is known to mutate cells - no difference!!

I've sat in the medical infusion rooms here in Hawaii - people are sick. Years of spraying the cane fields and burning the pvc pipes and inhaling toxic plumes of chemicals. Do not add another known cancer causing element to the peoples of Hawaii.

- No health and safety testing has been done on 5G. In February, 2019, US Senator Richard Blumenthal established that the telecommunications industry had neither done nor intended to do any health and safety studies on 5G technology.

- Multiple installations within the public right of way create hazards on many levels. These include traffic and pedestrian safety hazards; damage to the health of trees and may require their complete elimination; implications for public health and property values; visual blights and potential safety concerns from excessive size, weight, noise and unaesthetic aspects of wireless facilities including the associated pedestals, meters, equipment and power generators that negatively impact the quality, character and culture of Hawaii.

- Community authority is overruled. Communities have been stripped of their right to make decisions about this new technology. Public notice and public hearings have been eliminated. Counter-arguments have been disregarded.

Research shows health harm. The US National Institutes of Health (NIH) National Toxicology Program studies found "clear evidence of cancer", increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy.

Cumulative daily radiation. Peer reviewed, published science indicates that exposure to wireless radiation can increase cancer risks, alter brain development and damage sperm. Wireless technology was never tested for long-term safety. Children are more vulnerable and cumulative exposure shows harm.

-Hawaii is and has been progressive - making decisions that protect their people.
Please please PLEASE continue to make choices for the PEOPLE not corporations.

HCR-197

Submitted on: 3/20/2019 8:44:03 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Jordan patterson	Individual	Support	No

Comments:

There has not been enough research on possible long term effects of 5g exposure!

Financial gain and power is not worth sacrificing the health of the population.

Please please please take the time to delay this implimentation and conclude a proper study.

Mahalo- Jordan Patterson

Strongly support HCR197
5G Health Study
3/20/19

Dear committee members-
I strongly urge you to
support measure **HCR197**
for everyone's safety. 5G is
a whole different animal
when it comes to emfs. I
demand independent
studies before this is rolled
out.

Different people have
greatly variant levels of
sensitivity. Some are aware
of emfs & others not. For
instance, I can use WiFi but
immediately if I turn on blue
tooth in a car I get a
headache & can't think
straight so I don't use that
technology but I happen to

be very sensitive & notice that. I can control whether I turn blue tooth or WiFi on in my car or home. 5G will be all pervasive. We don't know long term affects to our bodily systems.

Technologies like 5G are being fast tracked for profit but our health is invaluable. Children, elderly, those with compromised immune systems, vets with PTSD & head injuries, & all peoples as well as the environment deserve the basic due diligence of research & compassionate action on this issue.

I appreciate your kokua. This is such an important issue. Please do right by

your families, Hawaii at large & the future generations.

Mahalo,
Courtney Bruch
Kula, Maui

No health and safety testing has been done on 5G. In February, 2019, US Senator Richard Blumenthal established that the telecommunications industry had neither done nor intended to do any health and safety studies on 5G technology.

- 5G is categorically different than anything that has ever existed in the history of the planet. 5G includes the higher

millimeter wave (MMW) frequencies never before used for Internet or cell phones. 5G wireless technology relies on millions more new antennas clustered lower to the ground and closer to homes and schools. 5G small cell towers will be placed every 2-10 houses because millimeter waves are poorly transmitted through objects.

- Radiation emitted by 5G small cells will be ten to hundreds of times greater than what exists today.

Wireless antennas emit millimeter and microwaves – non-ionizing radiation – and essentially function as cell towers. Each 5G installation will have up to or more than

a thousand antennas
transmitting simultaneously.

HCR-197

Submitted on: 3/20/2019 9:07:16 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Kecia Joy	Individual	Support	No

Comments:

Aloha,

As a very concerned citizen who has seen the negative effects of wireless technologies/ EMF's on the quality of peoples lives in a profound way, I am deeply opposed to the 5G technology that has had no official scientific health and safety testing studies on how this will impact the entire planet. I ask that much more research and testing be conducted on this 5G technology immediately and that nothing is agreed to until this happens and results are broadcast and made very public.

5G is VERY different than anything that has ever existed in the history of the planet. 5G includes the higher millimeter wave (MMW) frequencies never before used for Internet or cell phones. 5G wireless technology relies on millions more new antennas clustered lower to the ground and closer to homes and schools. 5G small cell towers will be placed every 2-10 houses because millimeter waves are poorly transmitted through objects.

Radiation emitted by 5G small cells will be ten to hundreds of times greater than what exists today. Wireless antennas emit millimeter and microwaves – non-ionizing radiation - and essentially function as cell towers. Each 5G installation will have up to or more than a thousand antennas transmitting simultaneously.

Multiple installations within the public right of way create hazards on many levels. These include traffic and pedestrian safety hazards; damage to the health of trees and may require their complete elimination; implications for public health and property values; visual blights and potential safety concerns from excessive size, weight, noise and unaesthetic aspects of wireless facilities including the associated pedestals, meters, equipment and power generators that negatively impact the quality, character and culture of Hawaii.

5G will vastly increase energy consumption and is INCOMPATIBLE with Hawaii's ENERGY GOALS. Wireless energy consumption is growing at an unsustainable rate, approaching 5-10% of world electricity supply, with the biggest culprits being data centers and, most significantly, wireless access networks.

Scientists worldwide are calling for a halt to 5G. Over 200 scientists and doctors

issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G.

Research shows health harm. The US National Institutes of Health (NIH) National Toxicology Program studies found “clear evidence of cancer”, increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy. Research shows cancer risk. The World Health Organization’s International Agency for Research on Cancer concluded in 2011 that RF radiation of frequencies 30kHz – 300 GHz are possibly carcinogenic to humans (Group 2B).

Cumulative daily radiation. Peer reviewed, published science indicates that exposure to wireless radiation can increase cancer risks, alter brain development and damage sperm. Wireless technology was never tested for long-term safety. Children are more vulnerable and cumulative exposure shows harm.

5G includes 20,000 new satellites in space. Deployment has already started. Eventually no person, no animal, no insect and no plant on Earth will be able to avoid exposure, 24/7/365, to levels of 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. Can you seriously live with this and knowing that your decision could effect the entire planet?

Lastly, can you please tell me why the Community authority seems to be overruled? Why Communities have been stripped of their right to make decisions about THIS new technology. Why Public notice and public hearings have been eliminated? AND why counter-arguments have been disregarded? Please listen to the people. We are speaking for the greater good of all- not just a few select who stand to make big profits.

Mahalo Nui for doing what is most Pono.

Kecia Joy

HCR-197

Submitted on: 3/20/2019 9:22:58 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Diane Koerner	Individual	Support	No

Comments:

Please support HCR 197. As someone who is very sensitive to Electro-Magnetic Frequencies (I get chronic migraines from exposure), I am very concerned about 5G wireless technology. And so are many other people, for the following reasons:

- Scientists worldwide have issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G.

- Research shows health harm. The US National Institutes of Health (NIH) National Toxicology Program studies found “clear evidence of cancer”, increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy.

- Cumulative daily radiation. Peer reviewed, published science indicates that exposure to wireless radiation can increase cancer risks, alter brain development and damage sperm. Wireless technology was never tested for long-term safety. Children are more vulnerable and cumulative exposure shows harm.

Mahalo,

Diane Koerner, 420 Molo St., Kapaa, HI 96746

HCR-197

Submitted on: 3/20/2019 9:26:02 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Deborah Davis	Individual	Support	No

Comments:

Aloha!

Please SUPPORT HCR197!

There are many reasons to slow down 5G and take a longer consideration of this technology:

- No health and safety testing has been done on 5G. In February, 2019, US Senator Richard Blumenthal established that the telecommunications industry had neither done nor intended to do any health and safety studies on 5G technology.

- Radiation emitted by 5G small cells will be ten to hundreds of times greater than what exists today. Wireless antennas emit millimeter and microwaves – non-ionizing radiation - and essentially function as cell towers. Each 5G installation will have up to or more than a thousand antennas transmitting simultaneously. This is my definition of insanity!

- Scientists worldwide are calling for a halt to 5G. Over 200 scientists and doctors issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G.

Please Support this Bill.

Mahalo and much appreciation,

Deborah Davis

HCR-197

Submitted on: 3/20/2019 9:53:31 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Sophia	Individual	Support	No

Comments:

LET US ALL KEEP HAWAII NATURAL & PRISTINE. THIS 5G is NOT IN KEEPING WITH THE TENANTS OF ALOHA & RESPECT TO THE AINA.

Mill Valley and Marin County have successfully decided no to 5G baking in radio waves. Let Hawaii continue to be a place of Peace, Tranquility, Health, Beauty and Respect of the Aina.

Mahalo Sophia

Scientists worldwide are calling for a halt to 5G. Over 200 scientists and doctors issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G.

HCR-197

Submitted on: 3/20/2019 10:09:20 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Steven Forman	Individual	Support	No

Comments:

- No health and safety testing has been done on 5G. In February, 2019, US Senator Richard Blumenthal established that the telecommunications industry had neither done nor intended to do any health and safety studies on 5G technology.

- Residential neighborhoods will be saturated with small cell towers. The Federal Communications Commission has given permission for millions of wireless transmitters to be built in public rights-of-way in close proximity to homes and apartments. This will have grave implications for the health of all residents and negatively affect property values.

HCR-197

Submitted on: 3/20/2019 10:12:08 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Bruce W Moore	Individual	Support	No

Comments:

Radiation emitted by 5G small cells will be ten to hundreds of times greater than what exists today. Wireless antennas emit millimeter and microwaves – non-ionizing radiation - and essentially function as cell towers. Each 5G installation will have up to or more than a thousand antennas transmitting simultaneously.

Residential neighborhoods will be saturated with small cell towers. The Federal Communications Commission has given permission for millions of wireless transmitters to be built in public rights-of-way in close proximity to homes and apartments. This will have grave implications for the health of all residents and negatively affect property values.

HCR-197

Submitted on: 3/20/2019 10:25:46 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Ano Hanamana	Individual	Support	No

Comments:

- 5G is categorically different than anything that has ever existed in the history of the planet. 5G includes the higher millimeter wave (MMW) frequencies never before used for Internet or cell phones. 5G wireless technology relies on millions more new antennas clustered lower to the ground and closer to homes and schools. 5G small cell towers will be placed every 2-10 houses because millimeter waves are poorly transmitted through objects.

- Radiation emitted by 5G small cells will be ten to hundreds of times greater than what exists today. Wireless antennas emit millimeter and microwaves – non-ionizing radiation - and essentially function as cell towers. Each 5G installation will have up to or more than a thousand antennas transmitting simultaneously.

- Residential neighborhoods will be saturated with small cell towers. The Federal Communications Commission has given permission for millions of wireless transmitters to be built in public rights-of-way in close proximity to homes and apartments. This will have grave implications for the health of all residents and negatively affect property values.

From: John Calvert <jcalvert@crystal3.com>

Subject: Strong Support for HCR197

Aloha Members of the Committee

Please do everything in your power to **stop 5G deployment** in Hawaii and beyond.

Here's why:

- **Cancer Risk:**– The NIH Toxicology Program studies found "clear evidence of cancer", increased brain tumors and heart damage in lab animals exposed, and confirmed by research in Italy. The WHO Agency for Research on Cancer concluded in 2011 that RF radiation of frequencies 30kHz – 300 GHz are possibly carcinogenic to humans (Group 2B).
- No real-world health and safety testing has been done on 5G. Scientists worldwide are calling for a halt, citing human health effects and impacts to wildlife.
- Published science indicates cumulative exposure to wireless radiation can increase cancer risks and alter brain development. Children are more vulnerable.
- 5G requires huge numbers of new antennas to be installed, bringing dangerous EMF radiation close to homes and schools
- Allowing this system means caving in to the greed of the companies promoting it
- 5G does not serve human needs – it is used for machine-to-machine systems, such as driverless cars
- 5G strips communities of their rights
- 5G involves 20,000 new satellites orbiting Earth, exposing all to EMF radiation that is tens to hundreds of times greater than what exists today.

Thank you for your consideration,

Mahalo,

John Calvert

small farmer, lower Puna district, Big Island

Testimony HCR 197

Hawaii must lead the way in protecting ourselves from such harmful technologies as 5G. Here are just a few of many reasons:

5G will vastly increase energy consumption and is incompatible with Hawaii's energy goals. Wireless energy consumption is growing at an unsustainable rate, approaching 5-10% of world electricity supply, with the biggest culprits being data centers and, most significantly, wireless access networks.

Research shows health harm. The US National Institutes of Health (NIH) National Toxicology Program studies found "clear evidence of cancer", increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy.

5G includes 20,000 new satellites in space. Deployment has already started. Eventually no person, no animal, no insect and no plant on Earth will be able to avoid exposure, 24/7/365, to levels of 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.

Sincerely,

Tim Hailey
Resident of Maui and planet earth

Alana Ross
Box 964
Hana, HI 96713
808-280-5630

My name is Alana Ross and I implore you to SUPPORT HCR197.

I am a 14th year resident of Hana. My primary income is from planning weddings for guests that visit Hana, Maui. The most common reason the couples I do business with choose to be married in Hana is because they can literally “get away from it all” they can leave everything behind and escape to where low tech “old Hawaii” is still a way of life. As beautiful of a statement that is, its getting harder and harder to live up to.

If you SUPPORT HCR 197 you will **create a “Niche” market for Maui** that will not be easy to find anywhere else in the entire world. You will create **the healthiest environment for people to visit**. You will make a haven for travelers that care about their health, and for defectors that want to live a truly natural life without being poisoned by Microwave technology.

Before being a wedding planner I was a Technology Systems Analyst for 13 years. I have a background in technology. When they were going to install more cell phone towers in Hana, I did all the research I could to learn more about the technology that they were rolling out. The more research I did, the more frightening I became with what I found out.

5G is different than anything that has ever existed in the history of the planet and **NO government supported testing has ever been done on the health and safety of 5G**, however 100's of independent studies completed by scientists, doctors, and noble prize winners now paint a much better picture of that actual damage this non-ionizing radiation does to cells. Around the world, **doctors and scientists are gravely alarmed about the biological and physiological effects of that technology**. 5G tower waves are being linked to cancer, immune system compromises, and numerous other health issues.

Professor of public health of the University of California Berkeley, Dr. Joel Moscovitz says that “MMW’s could pose a very real danger, that the deployment of 5G cellular technology is **a massive experiment on all health of all species**. “

The International Agency for Research on Cancer has stated that “**non-ionizing radiation” could cause cancer in humans**. Evidence in medical science continues to mount that radiation from devices such as cell phones, cordless phones, and WiFi produces dangerous and damaging health effects. The World Health Organization (WHO) has designated Cell Phone and Cell Tower Radiation as a **possible human carcinogen**.

Scientists have further concluded that specifically the younger children are more vulnerable because their skulls are smaller and thinner so the radiation absorption is higher. They also have a higher rate of cell division so they are more susceptible to genetic damage. **Do you have any children or grandchildren you want to protect?** Then please SUPPORT HCR 197.

To allow 5G to roll out will mean installing vast amounts of 5G cell towers. This means the air around us will be filled with 5G waves at all times, and would require close proximity to where people live and work and travel. There will be no escaping it.

This is a **direct negligence for the safety of the citizens, animals, plants, and pollinators** such as bees and butterflies and birds and aquatic life. Is this a risk you are willing to take? Would you be willing to put our lives and the island at risk to roll out an untested and dangerous technology without an environmental impact study at the very least?

With all of the new studies concluding health and environmental dangers; to support 5G, I believe would be reckless and irresponsible. If you do your research you will find that Doctors and Scientists have been trying to warn us but again, because of the al mighty dollar and the fast paced societies need for convenience the lobbyist are pushing, bribing and doing their best not to expose to the public the detrimental effect this could have on the community.

Bees have magnetite in their brains which ables them to find their way back to their hives. When these cell towers are switched on the bees can't find their way back to their hives and according to some studies a reason for the colony collapse disorder killing billions of bees world wide. Without bees, we have no pollination. Without pollination, we have little hope for food and flowers. **If these 5G towers threaten our children, our bees, animals, and citizens why would you approve such a device to be installed?** In all cases, money has been the priority over health. Lets switch that this time!

Numerous studies have linked long-term EMR exposure to increased risk for many, many conditions. This is extremely frightening and should be of high concern. The laundry list of medical issues in every single category is simply, unbelievable. Here's a few...

Potential Health Risks:

- Different Cancers
- Reproductive Problems; Infertility
- Suppressed Immune System Function
- Neurological Problems
- Headaches/Migraines
- Effects on Eyes, Heart, Lungs, Head – Essentially your entire body is affected
- Single & Double DNA Strand Breaks
- Oxidative Damage
- Stress of Proteins

- Disruption to Brain for Glucose Metabolism
- Reduces Melatonin in the Brain
- Brain Barrier Permeability (Could result in brain bleeds; Stroke)
- Cell Metabolism Disruption
- Alzheimer's disease ⁽¹⁵⁾
- Autism ⁽¹⁶⁾
- Parkinson's disease ⁽¹⁷⁾
- Heart disease ⁽¹⁸⁾
- Miscarriage ⁽¹⁹⁾
- Brain tumors ⁽²⁰⁾
- Leukemia ⁽²¹⁾
- Fatigue ⁽²²⁾
- Depression ⁽²³⁾
- Immune system disorders ⁽²⁴⁾
- Learning disabilities ⁽²⁵⁾
- Memory loss ⁽²⁶⁾
- Sleep disorders and insomnia ⁽²⁷⁾
- Headaches and migraines ⁽²⁸⁾
- Loss of concentration ⁽²⁹⁾
- Lowered sperm counts ⁽³⁰⁾
- Increased blood pressure ⁽³¹⁾
- DNA damage ⁽³²⁰⁾

And here are a few of Our Environmental risks

- Affected Cell Growth Rates
- Makes Things Bacteria Resistant
- Plant Health Decline
- Effects on Atmospheric
- Depletion of Fossil Fuels
- Ozone Layer Effects
- Disruption of Ecosystem

Tumors can take 15 to 20 years to develop and by then it's often too late to treat. We must ask ourselves if we want our children to participate in this giant experiment. Certainly, **protection, prevention and limiting exposure is a must until science can confirm the danger or confer safety** on these products over the convenience. But where will we hide if you roll this out?

Meanwhile places like Mill Valley and San Rafael California are banning 5G. This is our Tech Capital of the world and they don't want it!? This is because they know the dangers and don't want to take the risk. I think we should take a hard look at why and also places like in Gateshead Council (where residents were complaining of increased illness and Cancer in the affected area), won in the first landmark court case to have the technology rollout halted. **There was enough evidence to conclude the new smart 5G arrays on the top of new LED lampposts emit Class 1 Radiation frequencies and should be treated as a danger to the Public.** We know that Gateshead isn't the only Council who

is misleading the public on the 5G rollout and it's seemingly been going on for a few years. Please don't mislead us. **Please do your research** and learn about the dangers of this technology which is being forced upon us all over the world with little to NO Health Testing.

In reality, scientific evidence is mounting across the planet that EMF, RF, 3G, 4G, 5G, WiFi and WiGIG is causing Cancer, killing bees, driving out wildlife and lowering peoples quality of life.

All because big business says it's good for the people, and they're continuing to mislead us all of the dangers of continuous use in close proximity and on the skin, let alone what 5G really is, which is an effective battlefield weapon.

But luckily In Hawaii we have our own constitution and if needed, I am calling upon you to exercise your right as our leaders to SUPPORT HCR 197 based on the Environmental Rights in Article 6 section 9. Which states that "each person has the right to a clean and healthful environment, as defined by laws relating the environmental quality, including control of pollution and conservation, protection and enhancement of natural resources."

Thank you for your SUPPORT of HCR 197 the future of our island depends on it.

Mahalo Nui,
Alana

p.s. This is a quick letter outlining my biggest concerns because of the small window of time (4 hours) we had to learn of your hearing. However if desired, I am open to take more time to site all of my references and paint a larger picture of the dangers of 5G and the Scientists and Nobel Prize winners that believe it to be a detriment to our society.

HCR-197

Submitted on: 3/20/2019 12:25:19 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Nicole Lesh	Individual	Support	No

Comments:

5G is categorically different than anything that has ever existed in the history of the planet. 5G includes the higher millimeter wave (MMW) frequencies never before used for Internet or cell phones. 5G wireless technology relies on millions more new antennas clustered lower to the ground and closer to homes and schools. 5G small cell towers will be placed every 2-10 houses because millimeter waves are poorly transmitted through objects.

- Radiation emitted by 5G small cells will be ten to hundreds of times greater than what exists today. Wireless antennas emit millimeter and microwaves – non-ionizing radiation - and essentially function as cell towers. Each 5G installation will have up to or more than a thousand antennas transmitting simultaneously.

- Residential neighborhoods will be saturated with small cell towers. The Federal Communications Commission has given permission for millions of wireless transmitters to be built in public rights-of-way in close proximity to homes and apartments. This will have grave implications for the health of all residents and negatively affect property values.

The risk of conventional microwave and radio frequency technology, such as emitted by your cell phone and wireless router, is well documented as being toxic to cells and specifically the mitochondria and the genome. The US National Institutes of Health (NIH) National Toxicology Program studies found “clear evidence of cancer”, increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy. The World Health Organization’s International Agency for Research on Cancer concluded in 2011 that RF radiation of frequencies 30kHz – 300 GHz are possibly carcinogenic to humans (Group 2B). Peer reviewed, published science indicates that exposure to wireless radiation can increase cancer risks, alter brain development and damage sperm. Wireless technology was never tested for long-term safety. Children are more vulnerable and cumulative exposure shows harm

HCR-197

Submitted on: 3/20/2019 12:47:07 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Lorraine Newman	Individual	Support	No

Comments:

Aloha,

I beg you to support this bill. Counties, states and countries all over the world are reconsidering the use of 5G technology even as the tech industry is promoting its use. The reason? Because there is much in the way of concern regarding the effects of this finer electromagnetic radiation on the human body, particularly as it is transmitted directly into the brain through the use of cell phones.

Please support this bill and let's take some time to explore this new technology. There is plenty of time to consider it at a future date.

Mahalo,

Lorraine Newman

HCR-197

Submitted on: 3/20/2019 12:04:17 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Ann Rothstein	Individual	Support	No

Comments:

To Whom it May Concern,

I first heard of the potential health concerns connected with 5-G from one of my doctors. As a cancer patient I am deeply concerned of the run-away enthusiam of 5-G with out any real exploration of the health implications.

Please view the following blog;

http://treeoflifecenterus.com/5g-a-toxic-assault-on-the-planetary-web-of-life/?mc_cid=89974299e9&mc_eid=e08ab2e1e6

Scientists worldwide are calling for a halt to 5G. Over 200 scientists and doctors issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G.

Research shows health harm. The US National Institutes of Health (NIH) National Toxicology Program studies found "clear evidence of cancer", increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy.

Thank You for your consideration,

Aloha, Ann

HCR-197

Submitted on: 3/20/2019 12:21:27 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Mr. & Mrs. O'Neill	Individual	Support	No

Comments:

Please stop the 5G Network. It has not been proven safe for humans. A test was just done in the Netherlands and when it was turned on all the birds in the sky were killed. This speaks for itself. Please stop this harmful and unnecessary network.

Regards, Steve and Linda O'Neill

HCR-197

Submitted on: 3/19/2019 7:11:37 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
elizabeth crow	Individual	Support	No

Comments:

HCR-197

Submitted on: 3/19/2019 10:02:35 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
elizabeth	Individual	Support	No

Comments:

HCR-197

Submitted on: 3/19/2019 10:34:21 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Ken Stover	Individual	Support	No

Comments:

HCR-197

Submitted on: 3/20/2019 5:23:26 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Lois Crozer	Individual	Support	No

Comments:

HCR-197

Submitted on: 3/20/2019 7:21:19 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Brian Murphy	Individual	Support	No

Comments:

HCR-197

Submitted on: 3/20/2019 7:24:00 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Mary Whispering Wind	Individual	Support	No

Comments:

HCR-197

Submitted on: 3/20/2019 8:36:27 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Keith Ranney	Individual	Support	No

Comments:

HCR-197

Submitted on: 3/20/2019 10:41:22 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Isabel	Individual	Support	No

Comments:

HCR-197

Submitted on: 3/20/2019 9:37:10 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Alexandria Siwecki	Individual	Oppose	No

Comments:

Hawaii is on the fast track to harm. June 21, 2018, Governor Ige signed into law legislation that clears the way for rapid implementation of 5G in Hawaii by standardizing the process of 5G small cell deployments.

- No health and safety testing has been done on 5G. In February, 2019, US Senator Richard Blumenthal established that the telecommunications industry had neither done nor intended to do any health and safety studies on 5G technology.

HCR-197

Submitted on: 3/20/2019 9:56:48 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Ron Schranz	Individual	Oppose	No

Comments:

5G will KILL Me !!

Please do NOT allow this radiation anywhere in or around our homes or on our islands. I am currently suffering BADLY from all the cell towers that are near my home or anywhere around our island. My home is unlivable. I am suffering severe headaches, eye aches, constant ticking in my ears and wailing in my brain for all the current microwave poisoning that is here now.

If you allow 5G I will have to move out of Hawaii and find some remote place to try to stay alive. This is NOT just me as there are thousands of people already suffering from current levels of microwave pollution. Cancer is rampant. My life has been destroyed ever since I moved into Kihei Maui 14 years ago & began having debilitating headaches. There are already 52 transmitters within 1/2 mile of my home. When first attacked by these microwaves I lost a year of my life. I could not sleep or work. I could not even remember my own phone number. I have spent thousands of dollars on doctors, treatments & trying to shield my home but to no avail as Verizon has just added 12 more transmitters near me and I now have to abandon my home.

5G will kill us ALL and remember YOU & YOUR families are NOT immune and will begin suffering just as us EHS people are now.

Please do not do this to yourselves, your families and all of us in Hawaii.

Please reject 5G and protect our way of life here. There are hundreds of scientific studies and PROOF that shows microwaves are dangerous. There has been NO studies to prove the safety of 5G as the industry relies on the 1996 ACT by Senator John McCain that bars us from suing them from any harm to humans & our environment. McCain himself has died for brain cancer.

Will you doom all of us here in Hawaii to this fate.

Please STOP 5 G completely before it is too late. We do not need or want it. It is just another sales gimmick from the cell industry to charge more money at the expense of ALL our health's.

Please HELP us all

Sincerely

Ron Schranz Maui resident for over 45 years.

HCR-197

Submitted on: 3/20/2019 11:07:31 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Anne Rossetti	Individual	Support	No

Comments:

Radiation emitted by 5G small cells will be ten to hundreds of times greater than what exists today. Wireless antennas emit millimeter and microwaves – non-ionizing radiation - and essentially function as cell towers. Each 5G installation will have up to or more than a thousand antennas transmitting simultaneously. - Residential neighborhoods will be saturated with small cell towers. The Federal Communications Commission has given permission for millions of wireless transmitters to be built in public rights-of-way in close proximity to homes and apartments. This will have grave implications for the health of all residents and negatively affect property values.

HCR-197

Submitted on: 3/20/2019 11:21:41 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Terry Robinson	Individual	Oppose	No

Comments:

Scientists worldwide are calling for a halt to 5G. Over 200 scientists and doctors issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G. Research shows health harm. The US National Institutes of Health (NIH) National Toxicology Program studies found "clear evidence of cancer", increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy. Research shows cancer risk. The World Health Organization's (WHO) International Agency for Research on Cancer concluded in 2011 that RF radiation of frequencies 30kHz – 300 GHz are possibly carcinogenic to humans (Group 2B). Cumulative daily radiation. Peer reviewed, published science indicates that exposure to wireless radiation can increase cancer risks, alter brain development and damage sperm. Wireless technology was never tested for long-term safety. Children are more vulnerable and cumulative exposure shows harm. The rollout of 5G in Hawaii will do irreputable damage to Hawaii's tourism industry. Please stop this madness. Do not let 5G come to Hawaii. We will all pay the price with increased cancer rates and a decrease in quality of life for everyone concerned.

HCR-197

Submitted on: 3/20/2019 11:24:26 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Meredith Cross	Individual	Support	No

Comments:

I, Meredith Cross of Kapa'a, **support HCR197** as an individual citizen of Hawai'i and as a parent of a 1 year old daughter. Below are just a few reasons why:

- Scientists worldwide are calling for a halt to 5G. Over 200 scientists and doctors issued an appeal requiring a moratorium on the increase of 5G cell antennas citing **human health effects and impacts to wildlife** and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G.

- Research shows health harm. The US National Institutes of Health (NIH) National Toxicology Program studies found “**clear evidence of cancer**”, **increased brain tumors and heart damage** in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy.

-**Research shows cancer risk.** The World Health Organization’s International Agency for Research on Cancer concluded in 2011 that RF radiation of frequencies 30kHz – 300 GHz are possibly carcinogenic to humans (Group 2B).

- Cumulative daily radiation. Peer reviewed, published science indicates that exposure to wireless radiation can **increase cancer risks, alter brain development and damage sperm**. Wireless technology was never tested for long-term safety. **Children are more vulnerable and cumulative exposure shows harm.**

Thank you for your attention to this testimony.

Meredith Cross

Kapa'a, HI

HCR-197

Submitted on: 3/20/2019 11:24:43 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
ralph wheelock	Individual	Support	No

Comments:

Please letsg be cautious and scientific about implementing such a complex, pervasive, and expensive infrastructure as 5g

Is it really needed? What are the costs? How about health and safety? Maybe wait until more data is in from established venues and see how it is unfolding.

Lets not go to quickly down the billion dollar rabbit hole and then realize we can't turn back!

HCR-197

Submitted on: 3/20/2019 11:28:09 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Tracy E Mills	Individual	Support	No

Comments:

HCR-197

Submitted on: 3/20/2019 11:39:13 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Shosannah Chantara	Individual	Support	No

Comments:

It is imperative that health and safety studies be done on 5G technology before deploying it. In February, 2019, US Senator Richard Blumenthal established that the telecommunications industry had neither done nor intended to do any health and safety studies on 5G technology.

In February, 2019, US Senator Richard Blumenthal established that the telecommunications industry had neither done nor intended to do any health and safety studies on 5G technology.

HCR-197

Submitted on: 3/20/2019 11:49:02 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Mary Lacques	Individual	Support	No

Comments:

Testimony in strong support of HRC197

Mahalo for introducing this sensible resolution.

The wireless industry is in a race to roll out 5G service which requires the installation of new equipment across the U.S. Thankfully many municipalities are slowing or halting the deployment of this next generation technology.

5G cell towers are more dangerous than other cell towers. Compared to earlier versions, 5G is ultra high frequency and ultra high intensity. 1G, 2G, 3G and 4G use between 1 to 5 gigahertz frequency. 5G uses between 24 to 90 gigahertz frequency. Within the RF Radiation portion of the electromagnetic spectrum, the higher the frequency the more dangerous it is to living organisms.

Second, the shorter length millimeter waves (MMV) used in 5G do not travel as far or through objects which means our current cell towers signals will not be reliable. SO MANY more mini cell towers must be installed. It is estimated that they will need a mini cell tower every 2 to 8 houses, greatly increasing our exposure.

Here is a 5G Moratorium from scientists and medical professionals:

<http://www.iemfa.org/.../2017-09-13-Scientist-Appeal-5G...>

This article contains many links regarding 5G concerns:

<https://mdsafetech.org/problems/5g/> Again, mahalo for protecting the citizens, visitors, and Hawaii's precious environment.

Mary Lacques

Hale'iwa

HCR-197

Submitted on: 3/20/2019 11:49:36 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Diane Lewis	Individual	Support	No

Comments:

Multiple installations within the public right of way create hazards on many levels. These include traffic and pedestrian safety hazards; damage to the health of trees and may require their complete elimination; implications for public health and property values; visual blights and potential safety concerns from excessive size, weight, noise and unaesthetic aspects of wireless facilities including the associated pedestals, meters, equipment and power generators that negatively impact the quality, character and culture of Hawaii.

Radiation emitted by 5G small cells will be ten to hundreds of times greater than what exists today. Wireless antennas emit millimeter and microwaves – non-ionizing radiation - and essentially function as cell towers. Each 5G installation will have up to or more than a thousand antennas transmitting simultaneously.

HCR-197

Submitted on: 3/20/2019 11:50:55 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Kathy Dorn	Individual	Comments	No

Comments:

There is already overwhelming evidence that 5G is dangerous to all biological life. I have studied this. Residential and business areas will be saturated with small cell towers, increasing cancers and other diseases and disabilities. Look carefully and objectively at all evidence. No formal objective studies have been done/published by gov't. agencies or by those expected to profit from this technology. Other independent scientists and organizations have studies this threat. 4G us plenty. 5G will vastly increase energy consumption and is incompatible with Hawaii's energy efficient goals. Please help stop 5G destruction and protect all life in Hawaii.

HCR-197

Submitted on: 3/20/2019 12:21:47 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
John NAYLOR	Individual	Support	No

Comments:

Aloha,

I'm concerned that there has been little or NO research on the short & long term effects of 5 G and other technologies such as smart meters and Wifi. Let's consider the cumulative effect of all of these combined aswell. HCR197 is just a start....

Mahalo,

JN

HCR-197

Submitted on: 3/20/2019 1:26:28 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Daniel Moe	Individual	Oppose	No

Comments:

The risk of conventional microwave and radio frequency technology, such as emitted by your cell phone and wireless router, is well documented as being toxic to cells and specifically the mitochondria and the genome. The US National Institutes of Health (NIH) National Toxicology Program studies found “clear evidence of cancer”, increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy. The World Health Organization’s International Agency for Research on Cancer concluded in 2011 that RF radiation of frequencies 30kHz – 300 GHz are possibly carcinogenic to humans (Group 2B). Peer reviewed, published science indicates that exposure to wireless radiation can increase cancer risks, alter brain development and damage sperm. Wireless technology was never tested for long-term safety. Children are more vulnerable and cumulative exposure shows harm.

Despite the known hazards of wireless EMF, the telecommunications industry had neither done nor intended to do any health and safety studies on 5G technology!

As a result, scientists worldwide are calling for a halt to 5G. Over 200 scientists and doctors issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G.

We need more studies to document the hazards of this technology before it is unwittingly rolled out to expose the general public!

HCR-197

Submitted on: 3/20/2019 1:30:25 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Kristine Cocke	Individual	Support	No

Comments:

Please Take this Very SERIOUSLY to YOUR Health and your families.

- This WILL effect your CELL life, IMMUNE System, and every biological flow in your body.

Our bodies are electric, The magnitude of emf rays damage are critical especially to your children and grandchildren.

Could be a possible major Public Health problem and increased risk of just another Cancer.

The World Health Organization stated it as dangerous and Carcinogenic. Scientific research is proving this .

It reeks havoc internally.

- This will effect EVERYBODY

- Please Google THERMAGRAM 5G CELLULAR to see the results before its too late

This is not for faster computers, its for ROBOTS ,A.I. , Driverless Cars -REALLY ???

Please don't buy into "What everybody else is doing, and be AKAMA! about this damaging issue.

The Fcc regulation is outdated of over 20 years?

This is Hawaii Nei, we CARE

PLEASE Research it yourself ,EMF Radiation - for YOURSELF and your people.

Mahalo,

Robert and Kristine Cooke

Kaua'i

GOOD NEWS ! - LETS use FIBER OPTICS - MUCH SAFER !!

HCR-197

Submitted on: 3/20/2019 1:43:02 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Tyler Lewis	Individual	Support	No

Comments:

Please let us know how 5G affects human health before installing the system on the island.

Thank you!

Tyler Lewis

HCR-197

Submitted on: 3/20/2019 2:25:01 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
john kochiss	Individual	Support	No

Comments:

I am a concerned citizen of Hawaii and I understand that 5G wireless technology is coming to our islands soon. I am concerned because adequate studies have not been carried out/ published regarding the impacts on people and animals on the possible effects of this technology, which emits powerful radiation. My fervent hope/wish is that the powers that be slow down this forward push and allow more studies on the impacts of this potent technology, thank you, Mahalo for taking the time to read this, Aloha!

HCR-197

Submitted on: 3/20/2019 2:36:25 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Robert Anacreon	Individual	Support	No

Comments:

Testimony in Support of HCR197, A BILL REQUESTING A STUDY THAT SUMMARIZES THE PUBLISHED REPORTS AND STUDIES ON THE EFFECTS OF 5G WIRELESS TECHNOLOGY ON BIOLOGICAL LIFE

These comments submitted 3/20/19 at 2:30 pm

I support HCR197 for the following reasons:

1. No health and safety testing has been done on 5G. In February, 2019, US Senator Richard Blumenthal established that the telecommunications industry had neither done nor intended to do any health and safety studies on 5G technology. This is extremely concerning to me, as I know that hundreds of peer reviewed scientific studies (independent of the telecom industry) show verifiable biological effects from Radio Frequency emissions in the range of frequencies already used, and also not tested by the FCC or FDA, for 3G, 4G etc. I've included a summary of some of these studies in attached document, or you can view at this link:

<https://www.bioinitiative.org/wp-content/uploads/pdfs/BioInitiativeReport-RF-Color-Charts.pdf>

Among the documented effects are: Memory and learning deficits, reproduction/fertility affects, sleep disruption, cellular stress proteins, immune function degradation, cancer, and others. Right now, it is possible for people concerned or directly affected (EHS or "Electro Hypersensitivity Syndrome" individuals) by these effects to seek living locations that minimize RF radiation. Personally I choose to live in a minimally RF radiated area, and I use no WiFi at home, and minimize cell phone usage. If 5G comes to be rolled out, there will be no refuge! Furthermore, the extremely high frequency bands considered for 5G will not be able to be measured for radiation exposure, by anyone but a well equipped technician with prohibitively expensive equipment—there will be no way for a sensitized EHS individual to measure his environment for 5G radiation, in order to try and adequately protect him/herself. This is an experiment on humans of astronomical and dire proportions! 5G takes an already serious problem and amps it up on steroids. It is known that cancer effects can take 10 years or longer to manifest. Right now, we are just starting to cross this time threshold, since the advent of widespread cell phone use by the population. We haven't begun to fully understand the

consequences of existing RF radiation and cell phone usage, relative to cancer. Caution must prevail at this juncture of 5G consideration, if we as a civilization wish to protect our health and well being.

2. The recently completed decade long NTP (National Toxicology Program) study on cell phone radiation has shown “The NTP found what it calls “clear evidence” that two different types of cell phone signals, GSM and CDMA, increased the incidence of malignant tumors in the hearts of male rats over the course of the two-year study. Higher incidences of brain and adrenal tumors were also seen, but those associations were judged to be somewhat weaker.” Source:

<https://microwavenews.com/news-center/ntp-final-rf-report>

The ubiquitous nature of 5G may have even more profound effects, and deserves careful study before rolling out.

3. Here is a link that gives references concerning serious fertility affects of cell phone radiation:

<https://www.electricsense.com/13315/cell-phones-female-infertility/>

Japan, an early adopter country of cell phones, is presently experiencing alarmingly decreased fertility. The country, for the first time, is considering allowing foreign workers to enter the country to fill jobs that are going unfilled because of population decline.

4. Children are particularly vulnerable to RF radiation. It is already seen in Sweden that the rollout of WiFi in schools has had deleterious effects:

<https://www.emfacts.com/2014/03/is-wireless-technology-in-swedish-schools-adversely-affecting-the-kids/>

5. I am concerned with the minimal advance notice of this hearing on HCR197, and don't think it's fair to ram the rollout of 5G through before health studies are adequately done, and the public is adequately informed.

HCR-197

Submitted on: 3/20/2019 2:43:44 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
sherri carden	Individual	Support	No

Comments:

HCR-197

Submitted on: 3/20/2019 2:45:15 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Donn DeShayne	Individual	Support	No

Comments:

Radiation emitted by 5G small cells will be ten to hundreds of times greater than what exists today. Wireless antennas emit millimeter and microwaves – non-ionizing radiation - and essentially function as cell towers. Each 5G installation will have up to or more than a thousand antennas transmitting simultaneously.

Scientists worldwide are calling for a halt to 5G. Over 200 scientists and doctors issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G.

Residential neighborhoods will be saturated with small cell towers. The Federal Communications Commission has given permission for millions of wireless transmitters to be built in public rights-of-way in close proximity to homes and apartments. This will have grave implications for the health of all residents.

HCR-197

Submitted on: 3/20/2019 2:52:17 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Breanna	Individual	Support	No

Comments:

HCR-197

Submitted on: 3/20/2019 2:58:51 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Erika Kuhr	Individual	Support	No

Comments:

No health and safety testing has been done on 5G. In February, 2019, US Senator Richard Blumenthal established that the telecommunications industry had neither done nor intended to do any health and safety studies on 5G technology. Residential neighborhoods will be saturated with small cell towers. The Federal Communications Commission has given permission for millions of wireless transmitters to be built in public rights-of-way in close proximity to homes and apartments. This will have grave implications for the health of all residents and negatively affect property values.

HCR-197

Submitted on: 3/20/2019 3:50:13 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
natalie	Individual	Support	No

Comments:

HCR-197

Submitted on: 3/20/2019 3:58:28 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Cynthia Mattox	Individual	Support	No

Comments:

As a retired physician who moved to Maui for the peace and beauty of the aina, the last thing I had hoped for was the fast rollout of 5G technology in my neighborhood; essentially the installation of thousands of cell towers right outside my home. I am very concerned about the health side effects of this technology- which has not been fully studied. This bill would mandate that the community gets to know what exactly has been learned or needs to be learned to make an informed choice about whether we want to subject our families to this unnecessary radiation risk. I understand that 5G includes the higher millimeter wave frequencies never before used for Internet or cell phones. 5G will add to – not replace – current wireless technology. Shouldn't we know if this causes harm to people, animals, and plants?

I'm already concerned about current technologies as I understand that countries such as Sweden and Canada have begun to curtail wifi in schools due to documented health effects of this similar type of radiation. The NIH's National Toxicology Program studies found "clear evidence of cancer", increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy. This should be very concerning to all of us.

I also find it incredibly disturbing to know that so many unsightly boxes will be required on poles throughout the islands in order for this technology to work. 5G wireless technology relies on millions more new antennas clustered lower to the ground and closer to homes and schools. In order to work, 5G small cell towers will be placed every 2-10 houses because millimeter waves are poorly transmitted through objects but will be transmitted into our homes, cars, and along our streets.

Let's slow down, work with experts, and understand the risks, and allow the public to weigh in, before we proceed. I support this bill that will do just that. Thank you for accepting my testimony.

C. Mattox, M.D.

HCR-197

Submitted on: 3/20/2019 4:02:32 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Melina Castro	Individual	Support	No

Comments:

5G is categorically different than anything that has ever existed in the history of the planet. 5G includes the higher millimeter wave (MMW) frequencies never before used for Internet or cell phones. 5G wireless technology relies on millions more new antennas clustered lower to the ground and closer to homes and schools. 5G small cell towers will be placed every 2-10 houses because millimeter waves are poorly transmitted through objects.

- Radiation emitted by 5G small cells will be ten to hundreds of times greater than what exists today. Wireless antennas emit millimeter and microwaves – non-ionizing radiation - and essentially function as cell towers. Each 5G installation will have up to or more than a thousand antennas transmitting simultaneously.

- Residential neighborhoods will be saturated with small cell towers. The Federal Communications Commission has given permission for millions of wireless transmitters to be built in public rights-of-way in close proximity to homes and apartments. This will have grave implications for the health of all residents and negatively affect property values.

Despite the known hazards of wireless EMF, the telecommunications industry had neither done nor intended to do any health and safety studies on 5G technology!

We need more studies to document the hazards of this technology before it is unwittingly rolled out to expose the general public!

LATE

HCR-197

Submitted on: 3/20/2019 4:30:57 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Anne Allison	Individual	Support	No

Comments:

60 minutes just did a piece on brain damage, aired March 17, 2019, caused by probable microwave technology in Cuba and China. Diplomats and trade officials and their families were targeted with a technology that "left no trace" yet caused brain damage and disabilities. And now you want to deploy similar wave technology against your own citizens????!!!!!! These wave frequencies have never been proven safe no matter who you pay to get the results you want!!!! We are energy beings; there are EKGs that show heart rhythm waves and EEGs that show brain wave frequencies. Hello, blanketing people and animals with high frequency waves can only be disruptive!!!!!!

Research shows health harm. The US National Institutes of Health (NIH) National Toxicology Program studies found "clear evidence of cancer", increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy.

Scientists worldwide are calling for a halt to 5G. Over 200 scientists and doctors issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G.

Please support Bill HCR197 and protect the people, animals, tourists and plants of Hawaii!

Sincerely,

Anne Allison, former RN

LATE

HCR-197

Submitted on: 3/20/2019 4:59:25 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Joanna Weber	Individual	Support	No

Comments:

ALOHA,

Hawaii is on the fast track to harm. June 21, 2018, Governor Ige signed into law legislation that clears the way for rapid implementation of 5G in Hawaii by standardizing the process of 5G small cell deployments.

- No health and safety testing has been done on 5G. In February, 2019, US Senator Richard Blumenthal established that the telecommunications industry had neither done nor intended to do any health and safety studies on 5G technology.

- 5G is categorically different than anything that has ever existed in the history of the planet. 5G includes the higher millimeter wave (MMW) frequencies never before used for Internet or cell phones. 5G wireless technology relies on millions more new antennas clustered lower to the ground and closer to homes and schools. 5G small cell towers will be placed every 2-10 houses because millimeter waves are poorly transmitted through objects.

- Radiation emitted by 5G small cells will be ten to hundreds of times greater than what exists today. Wireless antennas emit millimeter and microwaves – non-ionizing radiation - and essentially function as cell towers. Each 5G installation will have up to or more than a thousand antennas transmitting simultaneously.

- Residential neighborhoods will be saturated with small cell towers. The Federal Communications Commission has given permission for millions of wireless transmitters to be built in public rights-of-way in close proximity to homes and apartments. This will have grave implications for the health of all residents and negatively affect property values.

- 5G is not really about faster data. 5G refers to 5th generation wireless technology intended to provide higher capacity transmissions to carry the massive data load generated by the Internet of Things (IoT), robotics, "smart" cities, artificial intelligence, driverless cars and other machine-to-machine connections.

- Multiple installations within the public right of way create hazards on many levels. These include traffic and pedestrian safety hazards; damage to the health of trees and may require their complete elimination; implications for public health and property values; visual blights and potential safety concerns from excessive size, weight, noise and unaesthetic aspects of wireless facilities including the associated pedestals, meters, equipment and power generators that negatively impact the quality, character and culture of Hawaii.

- 5G will add to – not replace – current wireless technology. 5G will not only utilize current 3G or 4G (LTE) wireless frequencies already in use but will also add higher frequency – submillimeter and millimeter waves– in order to transmit data at faster speeds.

- 5G will vastly increase energy consumption and is incompatible with Hawaii's energy goals. Wireless energy consumption is growing at an unsustainable rate, approaching 5-10% of world electricity supply, with the biggest culprits being data centers and, most significantly, wireless access networks.

- Community authority is overruled. Communities have been stripped of their right to make decisions about this new technology. Public notice and public hearings have been eliminated. Counter-arguments have been disregarded.

- Scientists worldwide are calling for a halt to 5G. Over 200 scientists and doctors issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G.

- Research shows health harm. The US National Institutes of Health (NIH) National Toxicology Program studies found "clear evidence of cancer", increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy.

Research shows cancer risk. The World Health Organization's International Agency for Research on Cancer concluded in 2011 that RF radiation of frequencies 30kHz – 300 GHz are possibly carcinogenic to humans (Group 2B).

- Cumulative daily radiation. Peer reviewed, published science indicates that exposure to wireless radiation can increase cancer risks, alter brain development and damage sperm. Wireless technology was never tested for long-term safety. Children are more vulnerable and cumulative exposure shows harm.

- 5G includes 20,000 new satellites in space. Deployment has already started. Eventually no person, no animal, no insect and no plant on Earth will be able to avoid exposure, 24/7/365, to levels of 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.

MAHALO, JOANNA WEBER

LATE

HCR-197

Submitted on: 3/20/2019 5:37:38 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
DONNIE BECKER	Individual	Support	Yes

Comments:

5G is categorically different than anything that has ever existed in the history of the planet. 5G includes the higher millimeter wave (MMW) frequencies never before used for Internet or cell phones. 5G wireless technology relies on millions more new antennas clustered lower to the ground and closer to homes and schools. 5G small cell towers will be placed every 2-10 houses because millimeter waves are poorly transmitted through objects.

- Radiation emitted by 5G small cells will be ten to hundreds of times greater than what exists today. Wireless antennas emit millimeter and microwaves – non-ionizing radiation - and essentially function as cell towers. Each 5G installation will have up to or more than a thousand antennas transmitting simultaneously.

- Residential neighborhoods will be saturated with small cell towers. The Federal Communications Commission has given permission for millions of wireless transmitters to be built in public rights-of-way in close proximity to homes and apartments. This will have grave implications for the health of all residents and negatively affect property values.

- 5G is not really about faster data. 5G refers to 5th generation wireless technology intended to provide higher capacity transmissions to carry the massive data load generated by the Internet of Things (IoT), robotics, “smart” cities, artificial intelligence, driverless cars and other machine-to-machine connections.

- Multiple installations within the public right of way create hazards on many levels. These include traffic and pedestrian safety hazards; damage to the health of trees and may require their complete elimination; implications for public health and property values; visual blights and potential safety concerns from excessive size, weight, noise and unaesthetic aspects of wireless facilities including the associated pedestals, meters, equipment and power generators that negatively impact the quality, character and culture of Hawaii.

- 5G will add to – not replace – current wireless technology. 5G will not only utilize current 3G or 4G (LTE) wireless frequencies already in use but will also add higher frequency – submillimeter and millimeter waves– in order to transmit data at faster speeds.

- 5G will vastly increase energy consumption and is incompatible with Hawaii's energy goals. Wireless energy consumption is growing at an unsustainable rate, approaching 5-10% of world electricity supply, with the biggest culprits being data centers and, most significantly, wireless access networks.

- Community authority is overruled. Communities have been stripped of their right to make decisions about this new technology. Public notice and public hearings have been eliminated. Counter-arguments have been disregarded.

- Scientists worldwide are calling for a halt to 5G. Over 200 scientists and doctors issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G.

- Research shows health harm. The US National Institutes of Health (NIH) National Toxicology Program studies found "clear evidence of cancer", increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy.

Research shows cancer risk. The World Health Organization's International Agency for Research on Cancer concluded in 2011 that RF radiation of frequencies 30kHz – 300 GHz are possibly carcinogenic to humans (Group 2B).

- Cumulative daily radiation. Peer reviewed, published science indicates that exposure to wireless radiation can increase cancer risks, alter brain development and damage sperm. Wireless technology was never tested for long-term safety. Children are more vulnerable and cumulative exposure shows harm.

- 5G includes 20,000 new satellites in space. Deployment has already started. Eventually no person, no animal, no insect and no plant on Earth will be able to avoid exposure, 24/7/365, to levels of 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.

THANK YOU!

LATE

HCR-197

Submitted on: 3/20/2019 7:09:33 PM
Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Margaret Dexter Waldbauer	Individual	Support	No

Comments:

I am a Naturopathic Doctor practicing family medicine for 10 years on the Big Island in Captain Cook. I am very concerned that 5G technology is being rushed into our neighborhoods without safety research and believe that Hawaii is on the fast track to harm if this happens.

June 21, 2018, Governor Ige signed into law legislation that clears the way for rapid implementation of 5G in Hawaii by standardizing the process of 5G small cell deployments.

- Radiation emitted by 5G small cells will be ten to hundreds of times greater than what exists today. Wireless antennas emit millimeter and microwaves – non-ionizing radiation - and essentially function as cell towers. Each 5G installation will have up to or more than a thousand antennas transmitting simultaneously.

- 5G is categorically different than anything that has ever existed in the history of the planet. 5G includes the higher millimeter wave (MMW) frequencies never before used for Internet or cell phones. 5G wireless technology relies on millions more new antennas clustered lower to the ground and closer to homes and schools. 5G small cell towers will be placed every 2-10 houses because millimeter waves are poorly transmitted through objects.

- Radiation emitted by 5G small cells will be ten to hundreds of times greater than what exists today. Wireless antennas emit millimeter and microwaves – non-ionizing radiation - and essentially function as cell towers. Each 5G installation will have up to or more than a thousand antennas transmitting simultaneously.

- 5G includes 20,000 new satellites in space. Deployment has already started. Eventually no person, no animal, no insect and no plant on Earth will be able to avoid exposure, 24/7/365, to levels of 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.

Please! Before installing 5g technology, published reports and studies must be done proving that it will not cause harm to biological life.

Margaret Dexter Waldbauer, ND

LATE

HCR-197

Submitted on: 3/20/2019 7:53:52 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Franz Weber	Individual	Support	No

Comments:

LATE

HCR-197

Submitted on: 3/20/2019 8:00:20 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Marcella Alohalani Boido	Individual	Support	No

Comments:

The request for more information, researched and well-organized by the Legislative Reference Bureau, and then made available to the public, seems reasonable to me. Accordingly, I respectfully request that this Committee pass HCR 197. Thank you.

Marcella Alohalani Boido, M.A.

LATE

HCR-197

Submitted on: 3/20/2019 8:29:41 PM
Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Carrie Rogers	Individual	Support	No

Comments:

I would like to Provide the following comments

1. Worldwide there are scientists calling for a halt to 5G. Over 200 scientists and doctors issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G.
2. There is harmful health concerns backed by research. The US National Institutes of Health (NIH) National Toxicology Program studies found “clear evidence of cancer”, increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy.
3. Research shows cancer risk. The World Health Organization’s International Agency for Research on Cancer concluded in 2011 that RF radiation of frequencies 30kHz – 300 GHz are possibly carcinogenic to humans (Group 2B).

LATE

HCR-197

Submitted on: 3/20/2019 8:48:50 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Martha Stephens	Individual	Support	No

Comments:

- Residential neighborhoods will be saturated with small cell towers. The Federal Communications Commission has given permission for millions of wireless transmitters to be built in public rights-of-way in close proximity to homes and apartments. This will have grave implications for the health of all residents and negatively affect property values.

“I support HCR197. The risk of conventional microwave and radio frequency technology, such as emitted by your cell phone and wireless router, is well documented as being toxic to cells and specifically the mitochondria and the genome. The US National Institutes of Health (NIH) National Toxicology Program studies found “clear evidence of cancer”, increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy. The World Health Organization’s International Agency for Research on Cancer concluded in 2011 that RF radiation of frequencies 30kHz – 300 GHz are possibly carcinogenic to humans (Group 2B). Peer reviewed, published science indicates that exposure to wireless radiation can increase cancer risks, alter brain development and damage sperm. Wireless technology was never tested for long-term safety. Children are more vulnerable and cumulative exposure shows harm.

Despite the known hazards if wireless EMF, the telecommunications industry had neither done nor intended to do any health and safety studies on 5G technology!

As a result, scientists worldwide are calling for a halt to 5G. Over 200 scientists and doctors issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G.

LATE

HCR-197

Submitted on: 3/20/2019 8:49:56 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Emily Karnis	Individual	Support	No

Comments:

- Scientists worldwide are calling for a halt to 5G. Over 200 scientists and doctors issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G.

- Research shows health harm. The US National Institutes of Health (NIH) National Toxicology Program studies found "clear evidence of cancer", increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy.

- 5G includes 20,000 new satellites in space. Deployment has already started. Eventually no person, no animal, no insect and no plant on Earth will be able to avoid exposure, 24/7/365, to levels of 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.

LATE

HCR-197

Submitted on: 3/20/2019 9:07:35 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Dannette Waltze	Individual	Support	No

Comments:

Please submit more data on this before considering passing the bill.

LATE

HCR-197

Submitted on: 3/20/2019 9:09:45 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Nick Manthey	Individual	Support	No

Comments:

I support this bill because the US National Institutes of Health (NIH) National Toxicology Program studies found "clear evidence of cancer" caused by 5G technology, increased brain tumors and heart damage in lab animals exposed to 5G wireless radiation. Therefore, we need more studies to know what the effects of 5G are before we implement it. Thank you!

LATE

HCR-197

Submitted on: 3/20/2019 9:11:07 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
somer radina	Individual	Support	No

Comments:

I support HCR197. The risk of conventional microwave and radio frequency technology, such as emitted by your cell phone and wireless router, is well documented as being toxic to cells and specifically the mitochondria and the genome. The US National Institutes of Health (NIH) National Toxicology Program studies found “clear evidence of cancer”, increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy. The World Health Organization’s International Agency for Research on Cancer concluded in 2011 that RF radiation of frequencies 30kHz – 300 GHz are possibly carcinogenic to humans (Group 2B). Peer reviewed, published science indicates that exposure to wireless radiation can increase cancer risks, alter brain development and damage sperm. Wireless technology was never tested for long-term safety. Children are more vulnerable and cumulative exposure shows harm.

Despite the known hazards of wireless EMF, the telecommunications industry had neither done nor intended to do any health and safety studies on 5G technology!

Thank you for your consideration of the health of humans.

Somer Radina

LATE

HCR-197

Submitted on: 3/20/2019 9:11:49 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Seth Robinson	Individual	Support	No

Comments:

I am concerned about the radiation from the 5g transmitters, and how many are needed for the technology to be functional. I feel that people should be able to choose if they are exposed to radiation from wireless tech. Currently, we can choose to have WiFi, cellphones, etc. but if 5g is set up, there will be no way for people living in populated area to protect themselves from exposure. It is irresponsible to expose everyone to this technology if there is evidence in the scientific community that it is harmful to health.

LATE

HCR-197

Submitted on: 3/20/2019 10:45:46 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
eva roberts	Individual	Support	No

Comments:

- Scientists worldwide are calling for a halt to 5G. Over 200 scientists and doctors issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G. - Research shows health harm. The US National Institutes of Health (NIH) National Toxicology Program studies found "clear evidence of cancer", increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy. Research shows cancer risk. The World Health Organization's International Agency for Research on Cancer concluded in 2011 that RF radiation of frequencies 30kHz – 300 GHz are possibly carcinogenic to humans (Group 2B).

LATE

HCR-197

Submitted on: 3/20/2019 11:07:27 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Erica Scott	Individual	Support	No

Comments:

LATE

HCR-197

Submitted on: 3/21/2019 12:19:58 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Darci Frankel	Individual	Support	No

Comments:

"I support HCR197. The risk of conventional microwave and radio frequency technology, such as emitted by your cell phone and wireless router, is well documented as being toxic to cells and specifically the mitochondria and the genome. The US National Institutes of Health (NIH) National Toxicology Program studies found "clear evidence of cancer", increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy. The World Health Organization's International Agency for Research on Cancer concluded in 2011 that RF radiation of frequencies 30kHz – 300 GHz are possibly carcinogenic to humans (Group 2B). Peer reviewed, published science indicates that exposure to wireless radiation can increase cancer risks, alter brain development and damage sperm. Wireless technology was never tested for long-term safety. Children are more vulnerable and cumulative exposure shows harm.

Despite the known hazards of wireless EMF, the telecommunications industry had neither done nor intended to do any health and safety studies on 5G technology!

As a result, scientists worldwide are calling for a halt to 5G. Over 200 scientists and doctors issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G.

We need more studies to document the hazards of this technology before it is unwittingly rolled out to expose the general public!

HCR197, aims to curb the onslaught of this hazardous technology upon us by calling for a health study on 5G. "

LATE

HCR-197

Submitted on: 3/21/2019 6:01:35 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Eloise Engman	Individual	Support	No

Comments:

LATE

HCR-197

Submitted on: 3/21/2019 6:52:38 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Melissa V.Rizzolo	Individual	Oppose	No

Comments:

- 5G is categorically different than anything that has ever existed in the history of the planet. 5G includes the higher millimeter wave (MMW) frequencies never before used for Internet or cell phones. 5G wireless technology relies on millions more new antennas clustered lower to the ground and closer to homes and schools. 5G small cell towers will be placed every 2-10 houses because millimeter waves are poorly transmitted through objects.

- Community authority is overruled. Communities have been stripped of their right to make decisions about this new technology. Public notice and public hearings have been eliminated. Counter-arguments have been disregarded.

- Scientists worldwide are calling for a halt to 5G. Over 200 scientists and doctors issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G.

- Research shows health harm. The US National Institutes of Health (NIH) National Toxicology Program studies found "clear evidence of cancer", increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research

LATE

HCR-197

Submitted on: 3/21/2019 9:18:56 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Ann Kobsa	Individual	Support	No

Comments:

Mahalo for considering this resolution. I am very concerned that we are rushing into implementation of 5G technology with little knowledge of its effects, and I'm sure we don't need this "upgrade." More information would either convince us of the harms or alleviate our fears, so a study will be productive regardless of the outcome. Aloha

LATE

HCR-197

Submitted on: 3/21/2019 10:29:36 AM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
ken bevis	Individual	Support	No

Comments:

- 5G will vastly increase energy consumption and is incompatible with Hawaii's energy goals. Wireless energy consumption is growing at an unsustainable rate, approaching 5-10% of world electricity supply, with the biggest culprits being data centers and, most significantly, wireless access networks.

- Scientists worldwide are calling for a halt to 5G. Over 200 scientists and doctors issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G.

- 5G includes 20,000 new satellites in space. Deployment has already started. Eventually no person, no animal, no insect and no plant on Earth will be able to avoid exposure, 24/7/365, to levels of 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.

LATE

HCR-197

Submitted on: 3/21/2019 12:59:14 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
patrick sullivan	Individual	Support	No

Comments:

LATE

HCR-197

Submitted on: 3/21/2019 1:23:12 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
L. Osterer	Individual	Support	No

Comments:

5G includes the higher millimeter wave (MMW) frequencies never before used for Internet or cell phones. 5G wireless technology relies on millions more new antennas clustered lower to the ground and closer to homes and schools. 5G small cell towers will be placed every 2-10 houses because millimeter waves are poorly transmitted through objects.

Radiation emitted by 5G small cells will be ten to hundreds of times greater than what exists today. Wireless antennas emit millimeter and microwaves – non-ionizing radiation - and essentially function as cell towers. Each 5G installation will have up to or more than a thousand antennas transmitting simultaneously.

5G will add to – not replace – current wireless technology. 5G will not only utilize current 3G or 4G (LTE) wireless frequencies already in use but will also add higher frequency – submillimeter and millimeter waves– in order to transmit data at faster speeds.

Scientists worldwide are calling for a halt to 5G. Over 200 scientists and doctors issued an appeal requiring a moratorium on the increase of 5G cell antennas citing human health effects and impacts to wildlife and over 48,500 scientists, doctors, organizations and citizens are currently calling for a halt to the rollout of 5G.

Research shows health harm. The US National Institutes of Health (NIH) National Toxicology Program studies found “clear evidence of cancer”, increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy.

Research shows cancer risk. The World Health Organization’s International Agency for Research on Cancer concluded in 2011 that RF radiation of frequencies 30kHz – 300 GHz are possibly carcinogenic to humans (Group 2B).

Cumulative daily radiation. Peer reviewed, published science indicates that exposure to wireless radiation can increase cancer risks, alter brain development and damage sperm. . Children are more vulnerable and cumulative exposure shows harm.

Wireless technology was never tested for long-term safety. There is enough evidence to indicate that 5G exposure should be tested before it is widely implemented throughout

the public domain. There could be irreversible effects on humans and permanent damage to all of the Earth's ecosystems. Safety protocols can be developed with independent testing first.

Lorraine Osterer, Hawaii resident and registered voter.

HCR-197

Submitted on: 3/20/2019 12:38:35 PM

Testimony for EEP on 3/21/2019 11:45:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Jonathan Spencer	Individual	Support	No

Comments:

5G is categorically different than anything that has ever existed in the history of the planet. 5G includes the higher millimeter wave (MMW) frequencies never before used for Internet or cell phones. 5G wireless technology relies on millions more new antennas clustered lower to the ground and closer to homes and schools. 5G small cell towers will be placed every 2-10 houses because millimeter waves are poorly transmitted through objects.

- Radiation emitted by 5G small cells will be ten to hundreds of times greater than what exists today. Wireless antennas emit millimeter and microwaves – non-ionizing radiation - and essentially function as cell towers. Each 5G installation will have up to or more than a thousand antennas transmitting simultaneously.

- Residential neighborhoods will be saturated with small cell towers. The Federal Communications Commission has given permission for millions of wireless transmitters to be built in public rights-of-way in close proximity to homes and apartments. This will have grave implications for the health of all residents and negatively affect property values.

The risk of conventional microwave and radio frequency technology, such as emitted by your cell phone and wireless router, is well documented as being toxic to cells and specifically the mitochondria and the genome. The US National Institutes of Health (NIH) National Toxicology Program studies found “clear evidence of cancer”, increased brain tumors and heart damage in lab animals exposed to wireless radiation. This research has been confirmed by recent research in Italy. The World Health Organization’s International Agency for Research on Cancer concluded in 2011 that RF radiation of frequencies 30kHz – 300 GHz are possibly carcinogenic to humans (Group 2B). Peer reviewed, published science indicates that exposure to wireless radiation can increase cancer risks, alter brain development and damage sperm. Wireless technology was never tested for long-term safety. Children are more vulnerable and cumulative exposure shows harm.

Despite the known hazards of wireless EMF, the telecommunications industry had neither done nor intended to do any health and safety studies on 5G technology!