

15 Errors, Omissions and/or Unsubstantiated Claims in the Hawaii Department of Health Radio Frequency and 5G Report

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The Hawaii Department of Health (DOH) released a report in October, 2019 titled: *What You Need to Know About Radiofrequency Energy and 5G cellular networks*. The report is seriously flawed, containing at least fifteen errors, omissions, and/or unsubstantiated claims in a 3-page report.

We count on the Department of Health to provide unbiased, accurate, and up-to-date information when lives are at stake. We call on the Department of Health to retract this botched report immediately and issue a new report that is accurate, unbiased, complete and current. Please address these points:

- 1) Throughout the document (attached below) the term *radiofrequency energy*, or *RF*, is used and in the diagram on page 1 (Diagram 1, Appendix A) radio waves are depicted as being “about the size of buildings”. This is extremely misleading as no commercial cell phones, antennas or towers utilize building-sized wavelengths. Instead, the wavelengths of 3G, 4G and 5G range from approximately 20 inches to less than half an inch.¹ Correct the report by accurately depicting the size of 3G, 4G and 5G radio waves.
- 2) Further, although the report references 3G, 4G and 5G, all of which operate in the microwave frequency range, this specification is missing from the report and the diagram omits household wireless devices. The report states that 5G uses millimeter waves, which are also microwaves. Correct the report by specifying that 3G and 4G frequencies, as well as 5G millimeter waves, are microwaves, and clearly indicate this in the diagram along with household devices. See the attached diagram² (Diagram 2, Appendix A) that accurately depicts commonly used wireless devices.
- 3) On page 1, paragraph 3, under the heading *Is Radiofrequency Energy Dangerous to my Health?* the report states: “A large number of studies performed over the past two decades have not shown a direct health risk from short or long-term exposure to typical amounts of RF energy.” No references are given for this sweeping generalization. The report goes on to say these “large number of studies” showing no health risk include studies on “cancer, cognitive function, memory, headaches, sleep, heart-rate” and “many types of health effects”. These vast, unsubstantiated claims are egregious.

¹ <https://mdsafetech.org/5g-telecommunications-science/>

² <http://www.gencourt.state.nh.us/statstudcomm/committees/1474/reports/5G%20final%20report.pdf>

Correct the report by providing scientific evidence from peer reviewed medical journals to backup each of these claims.

- 4) Contrary to what the report states, hundreds of peer reviewed research studies show biological effects from radio frequency radiation ranging from various tumors and other malignancies, to effects on fertility and DNA damage, to neurological and cognitive effects.^{3 4 5} Correct the report by including this recent and relevant database of research.
- 5) On page 1, last partial paragraph, the report claims that “while a few studies did find a slight connection between health effects and RF energy exposure, particularly cell phone usage, these studies were found to have flawed methods and the results were unable to be repeated”. This is another completely unsubstantiated claim. To correct the report, provide references with peer reviewed evidence of “flawed methods” and lack of repeatability.
- 6) On page 2, first partial paragraph, the report states “there is no evidence to suspect 5G networks will produce different health effects” than 2G, 3G or 4G, despite their use of millimeter wave frequencies; and again on page 2, last full paragraph, the report states that the increased exposure to radiation from the proliferation of 5G small cell antennas “is not expected to cause direct health effects”. These are sweeping generalizations that, again, are unsubstantiated. Correct the report by providing peer reviewed research evidence to support these claims.
- 7) Contrary to what the report states, an emerging body of research on 5G and millimeter waves suggests significant tissue heating which may lead to permanent tissue damage even after short exposures. Evidence of other effects includes damage to the eyes, skin, and sperm, immune system and metabolic disruption, as well as environmental risks such as the collapse of insect and bird populations, and damage to plants and trees.⁶ Research also shows 5G contributes to climate change by using extreme amounts of energy.⁷ Correct the report by including this relevant research.
- 8) On page 2, first full paragraph, the report cites thermal effects testing as evidence of cell phone safety, yet thermal effects testing is badly outdated. It was implemented in 1996, when cell phones were not widely used, and is

³ <https://bioinitiative.org/>

⁴ <https://ehtrust.org/scientific-research-on-5g-and-health/>

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

⁶ <https://mdsafetech.org/5g-telecommunications-science/>

⁷ <https://jsis.washington.edu/news/what-will-5g-mean-for-the-environment/>

done on a plastic liquid filled test-dummy head, a Specific Anthropomorphic Mannequin (SAM), that resembles the head of a six-foot-two, 200 pound elite military recruit. During testing, the phone is placed half an inch away from the plastic head for a maximum of six minutes.⁸ None of us use cell phones in this manner, nor do we resemble SAM, which has been shown to be anatomically incorrect and to significantly underestimate tissue heating.⁹ More recent biologically based modeling of cell phone radiation brain absorption has been done, and it shows penetration of about two inches for adults and much deeper into the brains of children.¹⁰ Correct the report by including this important, current research.

9) Further, a substantial peer reviewed research base shows children are far more susceptible to cell phone radiation, suffering a range of problems from childhood cancer, to obesity and emotional/behavioral difficulties.^{11 12 13} Correct the report by including this relevant research.

10) On page 2, second full paragraph, under the heading *Does Using Cell Phones or Living Near Cell Towers Cause Cancer?* the report states “the current body of scientific evidence does not show an association with cell phone use or living near cell towers and cancer.... large studies do not show an association of heavy cell phone usage and cancer”. This is yet another completely unsubstantiated claim. To what “large studies” is the report referring? Correct the report by providing references to these studies.

11) On the contrary, the largest cell phone study of its time, conducted by the U.S. Department of Health and Human Services National Toxicology Program, which cost \$30 million and took ten years to complete, found “clear evidence” of heart and brain cancers due to cellphone radiation.¹⁴ It was published in 2018, well before the DOH report came out, making their claim completely false. Further, in Italy, the Ramazzini Institute replicated the research in the world’s largest study and found similar results of

⁸ <https://wearenotsam.com/who-is-sam/>

⁹ <https://pubmed.ncbi.nlm.nih.gov/16177519/>

¹⁰ <https://pubmed.ncbi.nlm.nih.gov/21999884/>

¹¹ <https://www.americansforresponsibletech.org/scientific-studies>

¹² <https://ehtrust.org/science/recent-scientific-publications-by-the-ehs-scientific-team/>

¹³ https://www.researchgate.net/publication/332587629_Microwave_Emissions_From_Cell_Phones_Exceed_Safety_Limits_in_Europe_and_the_US_When_Touching_the_Body

¹⁴ <https://pubmed.ncbi.nlm.nih.gov/29530389/>

carcinogenicity.¹⁵ Correct the report by removing the erroneous information and including these two comprehensive, extremely important and directly relevant studies.

- 12) On page 2, third full paragraph, in stating that the IARC designated RF energy as possibly carcinogenic, Group 2B, the report goes on to say: “Other frequently used products in this same category include coffee and talcum powder.” This is false. Talcum powder is not listed at all, and coffee is classified as Group 3 (along with the mineral talc), which means “not classifiable as to its carcinogenicity”. Group 2B includes lead, engine exhaust and diesel fuel.¹⁶ Since the Hawaii Department of Health stated “mission is to protect human health and the environment” why falsely include common household products like coffee and talcum powder and omit legitimate Group 2B items such as lead, car exhaust and diesel fuel which are known to be hazardous, not only to human health, but also to the environment? Correct the report by replacing the false and misleading information with accurate information.
- 13) Contrary to what the report states, there is ample research to substantiate that cell phone radiation causes brain tumors and should be reclassified as a probable human carcinogen Group 2A.¹⁷ This recommendation was made even before the recent and compelling U.S. National Toxicology Program research demonstrating carcinogenesis, and the Ramazzini Institute replication study, both mentioned above (#10). Correct the report by including this relevant research recommending a more severe cancer reclassification.
- 14) On page 2, fourth full paragraph, the report states “there has not been an increase in the rates of brain cancer” in the past two decades. This is false. For example, brain tumors (glioblastomas) nearly tripled in Great Britain in the twenty years 1995 to 2015, swelling from 983 to 2531 cases.¹⁸
- 15) On page 3, the report lists resources for further information, however, most of the agencies listed have been shown to be industry loyal and seriously compromised.¹⁹ The FCC, documented by the Harvard ethics committee as a

¹⁵ <https://ehtrust.org/worlds-largest-animal-study-on-cell-tower-radiation-confirms-cancer-link/>

¹⁶ <https://monographs.iarc.fr/list-of-classifications>

¹⁷ <https://pubmed.ncbi.nlm.nih.gov/25738972/>

¹⁸ <https://www.hindawi.com/journals/jep/2018/7910754/>

¹⁹ <https://washingtonspectator.org/wireless-hazards/>

captured agency,²⁰ currently has multiple lawsuits filed against it^{21 22} for not updating its radio frequency safety guidelines which are based on science from the 1980s.²³ Further, the WHO Core Group in charge of studying radio frequency fields and health had five of its six members affiliated with the ICNIRP, a well known industry loyal nongovernmental organization also listed as a resource in the report.²⁴ Correct the report by removing the FCC from the list until the lawsuits against it are settled, and permanently remove the industry loyal ICNIRP, and the conflict of interest WHO from the list. Instead, include the state of New Hampshire legislatively mandated commission report on evolving 5G technology,²⁵ which includes 15 recommendations and 300+ pages of references. Also include the Environmental Health Trust, a think tank dedicated to a healthier environment through research, education and policy;²⁶ and the BioInitiative 2012 Report,²⁷ a compilation of 1800+ research studies on non-ionizing radiation compiled by 29 authors from ten countries, including 10 MDs and 21 PhDs, and is updated on an ongoing basis.

Making these corrections will help ensure that the people of Hawaii are given accurate, unbiased and up-to-date information on relevant research into radio frequencies and emerging 5G technology, enabling informed choices to protect our health and the environment so as not to become a burden to the state.

²⁰ https://ethics.harvard.edu/files/center-for-ethics/files/capturedagency_alster.pdf

²¹ <https://ehtrust.org/eh-takes-the-fcc-to-court/>

²² <https://childrenshealthdefense.org/news/robert-kennedy-jr-assembles-legal-team-to-sue-fcc-over-wireless-health-guidelines/>

²³ <https://ehtrust.org/policy/fcc-safety-standards/>

²⁴ <https://www.spandidos-publications.com/10.3892/ijo.2017.4046/abstract>

²⁵ <http://www.gencourt.state.nh.us/statstudcomm/committees/1474/reports/5G%20final%20report.pdf>

²⁶ <https://ehtrust.org/>

²⁷ <https://bioinitiative.org/>



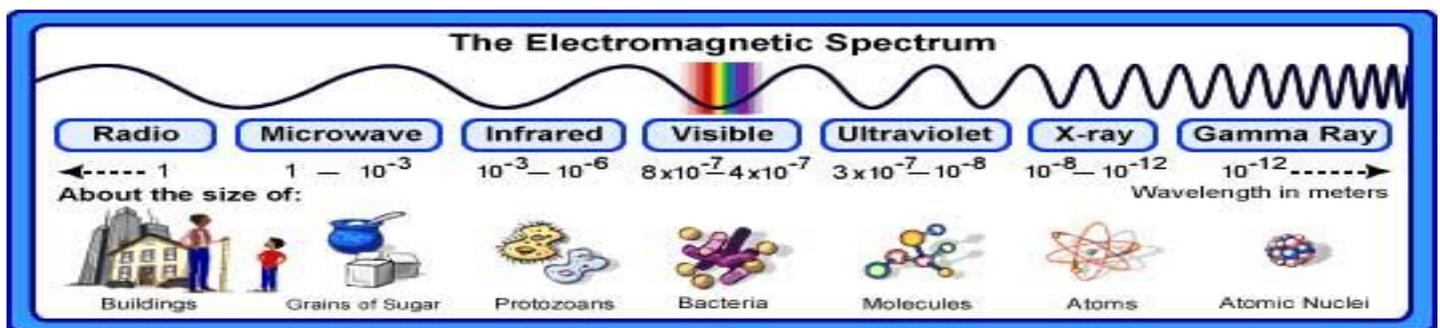
The **Hazard Evaluation and Emergency Response (HEER) Office and the Indoor and Radiological Health Branch (IRHB)** are part of the Hawai'i Department of Health's Environmental Health Administration whose mission is to protect human health and the environment.

What You Need to Know About Radiofrequency Energy and 5G cellular networks

This fact sheet provides an overview of radiofrequency (RF) energy and 5G cellular networks. Additionally, this fact sheet discusses issues surrounding exposure to radiofrequency energy, what's different about 5G cellular networks, potential human health concerns, and resources for further information.

What is Radiofrequency Energy?

RF energy is a form of non-ionizing electromagnetic radiation used in telecommunications such as radio, cell phones, television, satellite communications, microwaves, radar, and medical devices such as pacemakers. RF energy uses wavelengths that are longer than ionizing radiation such as x-rays and gamma rays. The longer wavelengths of RF energy lead to less impacts on the human body than the shorter wavelengths of ionizing radiation. RF energy decreases rapidly as you move away from the source. Because of the close proximity, the amount of RF energy people are exposed to from their cell phones is much higher than the exposure from living or working near a cell tower.



Is Radiofrequency Energy Dangerous to my Health?

For many years, there has been concern about health effects from RF energy related to cell phones, cell towers, and other environmental sources of RF energy. A large number of studies performed over the past two decades have not shown a direct health risk from short or long-term exposure to typical amounts of RF energy.

These studies looked at many types of health effects including cancer, cognitive function, memory, headaches, sleep, heart-rate, and other effects. While a few epidemiology studies did find a slight connection between



health effects and RF energy exposure, particularly cell phone usage, these studies were found to have flawed methods and the results were unable to be repeated.

Research to date has been done on 2G, 3G, and 4G cellular technologies, and while there is no evidence to suspect 5G networks will produce different health effects, more research is needed.

RF energy at very high levels can cause biological effects that result from heating of tissue (often referred to as “thermal” effects). In general, studies have shown that environmental levels of RF energy routinely encountered by the general public are typically far below levels necessary to produce significant heating and increased body temperature. However, there may be situations, particularly workplace environments near high-powered RF sources, where recommended limits for safe exposure of human beings to RF energy could be exceeded. In such cases, restrictive measures or actions may be necessary to ensure the safe use of RF energy.

Does Using Cell Phones or Living Near Cell Towers Cause Cancer?

The current body of scientific evidence does not show an association with cell phone use or living near cell towers and cancer. While studies specifically about living near towers are few, RF energy exposure from your personal cell phone is significantly higher than from living in close proximity to a cell tower and large studies do not show an association of heavy cell phone usage and cancer.

In 2011, the International Agency for Research on Cancer (IARC) designated RF energy as “2B-possibly cancer causing.” Other frequently used products in this same 2B category include coffee and talcum powder. More research is needed to further clarify this issue.

The strongest evidence that cell phone usage does not cause brain cancer is that cell phones have been very popular for two decades and there has not been an increase in the rates of brain cancer during that time.

How are 5G Networks Different from Current Cellular Networks?

5G networks use a higher frequency than 3G or 4G networks and are planned to be much faster and more reliable. The higher frequency uses shorter RF energy waves called millimeter waves. These millimeter waves are weaker than 3G or 4G at traveling long distances and cannot easily move through walls, buildings, and other physical obstacles. Because of this, to complete the 5G network and keep cell service strong and fast, many small antennae are required to provide adequate cellular coverage in an area. These antennae will likely be placed on homes, buildings, and other structures. It is expected that the addition of these 5G antennae will increase the environmental exposure to RF energy. However, these increased exposures are likely to be less than from your personal cell phone and RF energy levels are projected to generally stay below limits set by the Federal Communications Commission (FCC). This increased exposure to RF energy from 5G networks is not expected to cause direct health effects. More research is needed to further our understanding of the effects of 5G networks.



3G cellular tower



5G cellular antenna on a street light.



How are Cellular Networks and Cell Phones Regulated?

In the U.S., responsibility for regulating cellular networks and cell phones is shared by the Federal Communications Commission (FCC) and the U.S Food and Drug Administration (FDA). The FCC certifies wireless devices and sets limits on the amount of RF energy that a cell phone can emit. The FCC also regulates cell phone base stations (cell towers) and provides exposure guidelines that must be met. The FDA has the authority to take action if cell phones are shown to emit RF energy at levels considered hazardous to users.

What can I do if I remain worried about exposure to RF energy and 5G networks?

Stay informed by following updates and developments from trusted sources. Research into these issues is ongoing and more information will become available in the future. There are things you can do to reduce your exposure to RF energy including reducing the amount of time spent on your cell phone and using a hands-free device such as a headset or speaker-mode. Studies of specialized cell phone accessories claiming to shield the head from RF energy have not shown them to be any better at reducing RF energy exposure than hands-free devices.

Further Information

For questions related to radiofrequency radiation and 5G networks contact:

Hawai'i Department of Health
Indoor and Radiological Health Branch
99-945 Halawa Valley Street
Aiea, Hawai'i 96701

Telephone: (808) 586-4700
Website: <http://health.hawaii.gov/irhb/>

For questions related to environmental health:

Hawai'i Department of Health
Hazard Evaluation and Emergency Response Office
2385 Waimano Home Road
Pearl City, Hawai'i 96782

Telephone: (808) 586-4249
Website: <http://health.hawaii.gov/heer>

Other resources for information about radiofrequency radiation and 5G networks:

Federal Communications Commission (FCC) RF Safety Program: email: rfsafety@fcc.gov phone: (888) 225-5322

www.fcc.gov/engineering-technology/electromagnetic-compatibility-division/radio-frequency-safety/faq/rf-safety#Q5

World Health Organization (WHO): www.who.int/en/news-room/fact-sheets/detail/electromagnetic-fields-and-public-health-mobile-phones

National Institute of Environmental Health Sciences (NIEHS): www.niehs.nih.gov/health/topics/agents/cellphones/index.cfm

U.S. Food & Drug Administration (FDA): www.fda.gov/radiation-emitting-products/cell-phones/health-issues

National Cancer Institute (NCI): www.cancer.gov/about-cancer/causes-prevention/risk/radiation/electromagnetic-fields-fact-sheet?redirect=true

American Cancer Society (ACS): www.cancer.org/cancer/cancer-causes/radiation-exposure/cellular-phone-towers.html

International Agency for Research on Cancer (IARC): www.iarc.fr/wp-content/uploads/2018/07/pr208_E.pdf

International Commission on Non-ionizing Radiation Protection (ICNIRP): www.icnirp.org/en/frequencies/high-frequency/index.html

Health Canada: www.canada.ca/en/health-canada/services/environmental-workplace-health/radiation/consumer-radiation/radiofrequency-fields.html

