



DAVID Y. IGE  
GOVERNOR

MIKE MCCARTNEY  
DIRECTOR

## DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

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Statement of  
**MIKE MCCARTNEY**  
Director  
Department of Business, Economic Development, and Tourism  
before the  
**HOUSE COMMITTEE ON ECONOMIC DEVELOPMENT & BUSINESS**  
**AND**  
**HOUSE COMMITTEE ON INTRASTATE COMMERCE**

Wednesday, February 5, 2019  
9:00 a.m.  
State Capitol, Conference Room 309

In consideration of  
**HB 2596**  
**RELATING TO BROADBAND SERVICE INFRASTRUCTURE.**

Chairs McKelvey and Ohno, Vice Chairs Kitagawa and Kobayashi and members of the Committee. The Department of Business, Economic Development and Tourism (DBEDT) provides **comments** on HB2596 which establishes the broadband service infrastructure grant program to award grants to applicants to extend deployment of facilities used to provide broadband service to unserved and underserved areas of the State. We have the following comments:

1. To create a level playing field, the restriction on an applicant receiving funds from other federal or state grant or loan programs should be removed. There are many federal rural grant programs that seek matching state funding. This program could help augment those federal programs.
2. DBEDT also needs to assess the resources to create the policies, rules, procedures and reports necessary to successfully implement this program.
3. DBEDT appreciates the intent of the bill provided it does not replace priorities included in the Executive Budget.
4. DBEDT notes, the recent FCC's Rural Digital Opportunity Fund (RDOF) may potentially limit or exclude areas that receive state broadband deployment subsidies from RDOF consideration.

Thank you for the opportunity to testify on this measure.



DAVID Y. IGE  
GOVERNOR

JOSH GREEN  
LT. GOVERNOR

**STATE OF HAWAII  
OFFICE OF THE DIRECTOR  
DEPARTMENT OF COMMERCE AND CONSUMER AFFAIRS**

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P.O. BOX 541  
HONOLULU, HAWAII 96809  
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cca.hawaii.gov

CATHERINE P. AWAKUNI COLÓN  
DIRECTOR

JO ANN M. UCHIDA TAKEUCHI  
DEPUTY DIRECTOR

**Testimony of the Department of Commerce and Consumer Affairs**

**Before the  
House Committee on Economic Development and Business  
and  
House Committee on Intrastate Commerce  
Wednesday, February 5, 2020  
9:00 a.m.  
State Capitol, Conference Room 309**

**On the following measure:  
H.B. 2596, RELATING TO BROADBAND SERVICE INFRASTRUCTURE**

Chair McKelvey, Chair Ohno, and Members of the Committees:

My name is Ji Sook “Lisa” Kim, and I am the Cable Administrator of the Department of Commerce and Consumer Affairs’ (Department) Cable Television Division. The Department offers comments on this bill.

The purpose of this bill is to establish a broadband infrastructure grant program administered by the Department of Business, Economic Development, and Tourism to award grants to extend infrastructure used to provide broadband service to unserved and underserved areas of the State.

Access to affordable broadband services is essential in today’s world to participate fully in our economy and society. At the federal level, broadband expansion programs, including the Federal Communications Commission’s (FCC) Connect America Fund (CAF) program, have awarded significant funding to extend access to fully unserved census blocks. However, given the restrictions of those programs,

certain residents remain without access to any wired internet service or to service even near speed thresholds currently used to define “broadband-level” service.

The Department thus recognizes that a state-level grant program could provide funding to expand broadband service to those residents in locations that may not qualify for or receive federal funding in the foreseeable future. Such a program, especially if crafted to be provider- and technology-neutral to better address Hawaii’s unique geographical challenges, could help to bridge the State’s broadband gap and allow all residents to benefit from the services and opportunities afforded by access to broadband no matter where they live. The Department notes, however, that it is currently tracking very recent FCC actions taken regarding the federal Rural Digital Opportunity Fund (RDOF), which as a successor to the CAF program, would provide \$20.4 billion in nationwide broadband deployment funding. These changes may potentially limit or exclude areas that receive state broadband deployment subsidies from RDOF consideration.

Thank you for the opportunity to testify on this bill.

# OFFICE OF INFORMATION PRACTICES

STATE OF HAWAII  
NO. 1 CAPITOL DISTRICT BUILDING  
250 SOUTH HOTEL STREET, SUITE 107  
HONOLULU, HAWAII 96813  
TELEPHONE: 808-586-1400 FAX: 808-586-1412  
EMAIL: oip@hawaii.gov

To: House Committees on Economic Development and Business and on  
Intrastate Commerce

From: Cheryl Kakazu Park, Director

Date: February 5, 2020, 9:00 a.m.  
State Capitol, Conference Room 309

Re: Testimony on H.B. No. 2596  
Relating to Broadband Service Infrastructure

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Thank you for the opportunity to submit testimony on this bill, which would establish a Broadband Service Infrastructure Grant program. The Office of Information Practices (OIP) takes no position on the substance of this bill, but has concerns about an overly broad confidentiality provision on bill page 8.

Proposed §\_\_-5(c), HRS, would require the Department of Business, Economic Development, and Tourism (DBEDT) to treat “non-public” information in a grant application as “confidential and exempt from disclosure” whenever an applicant requests “confidential treatment.” The only limitation on what information an applicant may designate as confidential is that the application must contain enough public information to identify the geographic location of a proposed project area; other than that, the applicant’s request is the only thing needed to make information “confidential and exempt from disclosure.” The predictable consequence will be that applicants designate everything in the application apart

from the geographic location as confidential, thus automatically making it exempt from disclosure by law.

Giving applicants the unilateral authority to declare the information in a grant application as confidential is an overly broad approach and is inconsistent with the disclosure standards applicable to other grant applications under chapter 92F, HRS, the Uniform Information Practices Act (UIPA). A better and more consistent approach would be to require DBEDT to treat as confidential any information falling within an exception to the UIPA, which would include confidential business information falling within the UIPA's exception for information whose disclosure would frustrate a legitimate government function. **OIP would therefore recommend that this Committee replace the proposed § \_\_-5(c) with the following language:**

**An eligible applicant may request confidential treatment for information submitted by the applicant. The department shall treat such information as confidential to the extent that it falls within one or more of the exceptions to public disclosure under section 92F-13, and shall not disclose it unless required by law to do so.**

Thank you for considering OIP's comments and recommendation.

**HB-2596**

Submitted on: 2/3/2020 11:14:07 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
myko zee	Moku of Keanae, Maui	Oppose	No

Comments:

IN STRONG OPPOSITION TO:

**HB2596 - A Bill for Broadband (5G) Service Infrastructure - OPPOSE**

We oppose HB2596. We do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

[Oppose HB2596](#)

[www.KeepYourPower.org](http://www.KeepYourPower.org)    Join us on FaceBook: [5G Free Hawaii](#)

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[1215 S. Kihei Rd.](#)  
[Kihei Hawaii 96753](#)  
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**HB-2596**

Submitted on: 2/3/2020 11:39:54 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Debra	KeepYourPower.org	Oppose	No

Comments:

Please watch this 10 minute video of former MicroSoft Canada President Frank Clegg, who has nothing to gain by opposing his own industry, but has now dedicated his life to warning people about the dangers of wireless radiation, especially 5G: <https://www.youtube.com/watch?v=DIV39-KOzh0>

We oppose HB2596. We do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

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**HB-2596**

Submitted on: 2/3/2020 12:25:41 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
A Kathleen Lee	No Kohala CERT, Teens X2 Social, Temple of Healing & Education	Oppose	No

Comments:

Aloha Honorable Representatives,

We urge you to oppose HB2596. We do not approve of grants being given to fund more harmful cell towers and antennas. The empirical evidence is in and wireless radiation is a known health hazard.

Is 5G Dangerous? What The Science Says

Posted by Lloyd Burrell on June 25, 2019 under 5G radiation, EMFs in your life.

post Lois Cadwallader shares how 5G will impact our bodies, our brains, and our planet. Not to mention the privacy issues. Learn how to protect yourself, mind, body, and your environment.

Quick Links:

5G Dangers – We Don't Know, What We Don't Know

What's The Difference Between EMFs In Nature And Man-Made EMFs?

How Much Radiation Is Dangerous? Or Too Much?

What Are These EMFs Doing To Our BODIES?

How Much More Dangerous Is 5G?

5G Is Dangerous Because It Limits Your Options

What's This Radiation Doing To Our BRAINS?

What's This Radiation Doing To Our souls?

Is 5G Dangerous For You? Here are some things to consider:

What's It Doing To Our Privacy?

What's This Radiation Doing To Our Planet?

Is 5G Dangerous For The Atmosphere?

A Race For Safer Technology

5G Is Dangerous—What Can We Do About It?

Sources and Bibliography

“Ten Uncommon Secrets for Living a Naturally Healthy Life in our Electromagnetic World”

â€œOvercome EMF problems from cell phones, cordless phones, WiFi, smart meters, and a whole host of devices which make our lives simpler...at a price!

There's a lot of confusion about 5G because it's not a very well-defined term. There are actually many technologies under the “5G Umbrella.” Until there is much more done to remove the harmful radiations, **YOU OUR CAREFUL LEADERS** need to stay on the side of CAUTION~!

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects privacy and protects property values.

With the support of many like myself,

April Lee

Hawi, HI (BP-Honolulu)

**HB-2596**

Submitted on: 2/3/2020 12:55:59 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Patricia L. Gardner	We Are One Ministries-Non-Profit	Oppose	Yes

Comments:

We oppose HB2596. We do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**HB-2596**

Submitted on: 2/3/2020 1:03:17 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Mike Wong	Keep Your Power	Oppose	Yes

Comments:

We oppose HB2596. We do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will put safety first to protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade radiation that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**HB-2596**

Submitted on: 2/3/2020 1:10:18 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Mark Sheehan	Sustainable Action Fund for the Environment (Maui)	Oppose	No

Comments:

**Dear Chair and Representatives,**

**We have been studying 5G for several years and have concluded that it is too dangerous to be deployed without further study.**

We oppose HB2596. We do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**HB-2596**

Submitted on: 2/3/2020 3:15:03 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Mike Wong	Keep Your Power	Oppose	Yes

Comments:

We oppose HB2264. We do not approve of streamlining deployment of more harmful cell towers, antennas and small cell facilities that damage life and property values.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**HB-2596**

Submitted on: 2/3/2020 4:54:57 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Joseph Kohn MD	We Are One, Inc. - www.WeAreOne.cc - WAO	Oppose	No

Comments:

Strongly oppose HB2596. We do not approve of our taxpayer money being used to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

5G is a Danger for Life & Limb!

7 min video - Please Share Widely

[https://youtu.be/s9sUgNP\\_2kM](https://youtu.be/s9sUgNP_2kM)

Militarized High Power Pulsed Microwave Radiation = 5G (Fifth Generation)

(not the same as 5 GHz wifi)

It's more than just pollution.

Genetic Extinction in 3 Generations.

Documented Health Effects of 5G

Over 10,000 scientific studies show genetic damage!

The Full Truth of 5G - <https://www.5gspaceappeal.org/>

1 hr 18 min film

<https://youtu.be/ol3tAxnNccY>

<https://bioinitiative.org/>

www.WeAreOne.cc

**HB-2596**

Submitted on: 2/3/2020 6:11:14 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
JOANN ZAI ZATOON	O N A C M O INC	Oppose	No

Comments:

IN STRONG OPPOSITION TO HB2596:

We oppose HB2596, the bill designed to use tax dollars to fund grants to private telecom companies to bring wireless technology to rural and sparsely populated areas. It potentially means 5G everywhere.

We do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard. There will be no safe haven.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

With rall due respect to the 'aina' and all her inhabitants, we plead that you heed the warning signs now -- before it becomes too late to reverse the damage to ours and other species.

[Oppose HB2596](#)





Charter Communications  
Testimony of Myoung Oh, Director of Government Affairs

**COMMITTEE ON ECONOMIC DEVELOPMENT & BUSINESS**

**COMMITTEE ON INTRASTATE COMMERCE**

Hawai'i State Capitol, Conference Room 309  
Wednesday, February 5, 2020  
9:00 AM

**SUPPORT OF H.B. 2596, RELATING TO BROADBAND SERVICE INFRASTRUCTURE**

Chair McKelvey, Chair Ohno, Vice-Chair Kitagawa, Vice-Chair Kobayashi, and Members of the Joint Committees.

Thank you for the opportunity to provide testimony in support of H.B. 2596, which establishes a broadband service infrastructure grant program. The goal is to provide greater broadband connectivity for residents in unserved and underserved areas of Hawai'i by promoting the extension of broadband-related infrastructure, in primarily rural areas where the buildout costs are prohibitively expensive because of the low density of housing and commercial opportunities and the resulting small number of potential customers.

Charter Communications is a dedicated community partner in Hawai'i. As the largest broadband provider in Hawai'i with services available to over 400,000 homes and businesses in all 4 Counties, including Molokai and Lanai, Charter continues to expand its network. As a result of significant network investments, Charter's base broadband speed is 200/10Mbps and we now offer Spectrum Internet Gig (with download speeds of 940 Mbps) in almost all of Hawai'i. Charter continues

to significantly invest and provide infrastructure improvements, unleashing the power of an advanced, two-way, fully interactive fiber network. By moving to an all-digital network, today's Spectrum customers enjoy more HD channels, more On Demand offerings, more video choices than ever before, and the fastest internet speeds and most consistent performance available.

Charter also offers a low cost broadband service for \$17.99/month to eligible low income families and seniors to help bridge the digital divide. At 30Mbps, Spectrum Internet Assist will have a positive impact on the communities we serve in Hawai'i and help to ensure greater access to broadband technology to bridge the digital divide.

Charter strongly supports increasing access to broadband services for residents across the State where service is not available. A properly structured state broadband grant program as outlined in H.B. 2596 will, for example, help all islands, but may be especially useful in Hawai'i Island, which continues to face the greatest challenge primarily due to the lack of adequate infrastructure. With such a program in place, areas like Hāmākua, Puna, Pahoā, Nā'ālehu, Ka'ū and other remote regions will have a chance at access to broadband that they do not currently enjoy.

Because of Hawai'i's unique geography and terrain and the general prices for goods, labor and materials, the cost of connection is much higher than in some other areas of the mainland United States. By allocating resources to build broadband infrastructure to unserved and underserved areas of Hawai'i, H.B. 2596 will help broaden and enhance opportunities in every aspect of peoples' lives through economic development, education, and health care.

To make sure that the money goes to where it is most needed and to ensure proper administration of the funds, we believe that legislation should incorporate the following key principles, which are also reflected in H.B. 2596:

- State funds should come from general appropriations, not sector specific taxes and fees on current broadband customers. A dedicated source of funding through the General Fund appropriation best reflects the benefit accrued to the entire state from this investment.
- Focus must be on areas which are unserved. The current FCC standard for broadband is 25mbps download and 3Mbps upload. Any public investment should target resources to areas which are not currently served by broadband at these standards developed by the FCC. This requirement will ensure that funds are invested where they are most needed and the benefit to rural communities will be the greatest.
- A grant program must include open and transparent rules to identify where applicants are seeking state subsidies and a robust challenge process. Public investment should not occur where the private sector has already invested in broadband service. To guard against duplication of networks and investment where it is not needed, the state's program should include a transparent process which allows adequate time for existing broadband providers to confirm whether an area is already served or to commit to deploying service within a reasonable time such that state funds could be directed to an area more in need of assistance.

- The application process should be thorough to weed out unqualified applicants, but at the same time simple to avoid burdensome administrative rules that discourage investment; applicants should receive adequate time to complete their investment and the state should provide support to avoid permitting delays that can impede the process.

Many states now have these programs in place and as a result, more unserved areas are getting the funding they need to extend broadband to unserved areas. Charter respectfully requests the continued passage of H.B. 2596 to ensure that a public-private policy framework is built to connect unserved and underserved areas of Hawai'i with essential broadband connectivity.

Mahalo for the opportunity to provide testimony.

**HB-2596**

Submitted on: 2/4/2020 6:58:12 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Swami Om	Swami's Healing Arts	Oppose	No

Comments:

**HB-2596**

Submitted on: 2/3/2020 9:17:59 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Dawn Poiani	Individual	Oppose	No

Comments:

Oppose HB2596

Our communication industry is one of the most powerful and profitable industries in the world. These companies can afford to put the infrastructure in if they wanted to. The state can find other ways to encourage the industry to supply internet access.

**HB-2596**

Submitted on: 2/3/2020 10:33:48 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
karen rowland	Individual	Oppose	No

Comments:

We oppose HB2596. We do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**HB-2596**

Submitted on: 2/3/2020 10:38:39 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Manon Pretre	Individual	Oppose	No

Comments:

I oppose HB2596. I do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage.

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**HB-2596**

Submitted on: 2/3/2020 10:43:24 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Daryl Ann Jones	Individual	Oppose	No

Comments:

We oppose HB2596. We do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

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**HB-2596**

Submitted on: 2/3/2020 10:43:41 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Inika Spence-Whaley	Individual	Oppose	No

Comments:

**HB-2596**

Submitted on: 2/3/2020 10:46:55 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
teri	Individual	Oppose	No

Comments:

I strongly oppose!

**HB-2596**

Submitted on: 2/3/2020 10:48:14 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Jasmine Yim	Individual	Oppose	No

Comments:

No to Bill HB2596. We do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

Please protect our health...including YOURS.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

I don't want to be a guinea pig for this project.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**HB-2596**

Submitted on: 2/3/2020 10:51:01 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Randy Baygood	Individual	Oppose	No

Comments:

**HB-2596**

Submitted on: 2/3/2020 10:54:21 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
C Aronoff	Individual	Oppose	No

Comments:

I oppose HB2596. I do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**HB-2596**

Submitted on: 2/3/2020 10:54:55 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Cassandra Korte	Individual	Oppose	No

Comments:

I oppose HB2596. I do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a KNOWN health hazard. There are no studies or long term testing to support 5G wireless infrastructures to be proven safe to human and environmental health. The FCC has not updated its human RF microwave radioation exposure guidelines since 1996. The Children's Health Defense has sued the FCC in regards to this matter. It is public news that cell towers installed near schools are being removed after several cases of students and teachers develop cancers soon after installment. I URGE a cease and decist in the build-out of more cell towers and antennas until such technologies have been proven safe beyond resonable doubt through independent research, assuring public health and welfare is a priority that can be maintained.

**HB-2596**

Submitted on: 2/3/2020 10:56:23 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Kailani Jabour	Individual	Oppose	No

Comments:



**HB-2596**

Submitted on: 2/3/2020 10:58:33 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Joanna Weber	Individual	Oppose	No

Comments:

We **oppose HB2596**. We do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

Thank you and Aloha, Joanna Weber

**HB-2596**

Submitted on: 2/3/2020 10:58:56 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
P F	Individual	Oppose	No

Comments:

We oppose HB2596. We do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**HB-2596**

Submitted on: 2/3/2020 10:59:01 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Mio Chee	Individual	Oppose	No

Comments:

I strongly oppose HB2596.

This bill is designed to use your tax dollars to fund grants to private telecom companies to bring wireless technology to rural and sparsely populated areas. It potentially means 5G everywhere.

My newly purchased house in Ala Moana is surrounded by numerous cell towers including 5G. I can spot three cell towers from my bedroom where I spend at least 7 hours everyday. From my teen boys' bedroom, I can see at least one. Since we moved into this house, I have developed electrical sensitivity due to the extremely high level of EMF from cell towers. I suffer from severe headaches, inflammation in my entire body, and feeling sick all the time. My memory and vision are also being affected. All of these happened in the span of only 1 year after our moving. Before then, I was a healthy mid 40 age woman who was very active. Now, I carry around my EMF meter with me wherever I go and avoid crowded places.

The only "safe" area in my house was the garage according to the meters (I bought three different types for accuracy). My boys and I started sleeping in the garage about a month ago, and that's when those symptoms finally started to disappear. We are in the middle of shielding the house using high conductive paint, fabric, etc. and the level of EMF has decreased, but it is still very high because the RF emitted from those cells are so powerful. I have spent more than \$10,000 for shielding the house and it is not nearly enough to be considered to be "safe". I am estimating that I will need to spend at least another \$10,000 to complete my project. However, since 5G is so unknown, the shielding products we are using may not even work for the high 5G GHz ranges. There are no items on the market that are being tested and proven to shield 5G signals because it is so new. You may be thinking I may be a rare case, but many of my friends in Hawaii also suffer from various symptoms from EMF exposure from cell towers. Many of my other friends are very concerned about exposures from cell towers especially for those who have young children. Please do not pass this bill and protect the people of Hawaii.

Thank you so much for reading my testimony.

Mio Chee



**HB-2596**

Submitted on: 2/3/2020 11:08:37 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Franz Weber	Individual	Oppose	No

**Comments:**

I oppose HB2596. I do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

With setting up this system, people will no longer have a choice, whether they want to be within the tower's and antenna's reach, or not. This choice will be taken away from the people. This is especially concerning in public areas (beaches, gathering places), which may no longer be accessible for people who are concerned about their health. The current system works fine, there is no immediate need for 5G

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

I don't agree with using tax dollars to fund private companies to bring wireless technology to rural areas.

**HB-2596**

Submitted on: 2/3/2020 11:25:53 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
carole burstein	Individual	Oppose	No

Comments:

I believe this to be a serious health hazard

**HB-2596**

Submitted on: 2/3/2020 11:26:07 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Susan Douglas	Individual	Oppose	No

Comments:

We oppose HB2596. We do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**HB-2596**

Submitted on: 2/3/2020 11:34:00 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
John NAYLOR	Individual	Oppose	No

Comments:

Aloha,

The regulations for these types of technologies is based on old and limited studies. Humans and in fact living things in general have not had time to adapt to the onslot of these electromagnetic fields which now permeate our environments. Until the actual science shows no harm, lets wait as many communities and infact whole countries are doing. "Slow down, this ain't the 'madland' ! " Not yet anyway!



**HB-2596**

Submitted on: 2/3/2020 11:34:49 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Robert B. Smith	Individual	Oppose	No

Comments:

I do not support this bill. It has been established that cell phone radiation can cause tumors.

G5 is a form of microwave radiation. As I understand it the transmitters have to be many and spaced relatively close together. So we would be constantly bombarded with this radiation.

It would be one thing if they did a 5 or 10 year study. But there have been no studies.

Isn't it insane to rush head long into this expensive infrastructure without testing, only to find it is the cause of physical harm and be subject to millions of dollars in law suits. Why not stick with fiber optic which is proven and has no ill health effects and cannot be hacked.

**HB-2596**

Submitted on: 2/3/2020 11:42:45 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Konnie Fox	Individual	Oppose	No

Comments:

**HB-2596**

Submitted on: 2/3/2020 11:44:47 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Carla Keller	Individual	Oppose	No

Comments:

IN STRONG OPPOSITION TO:

**HB2596 - A Bill for Broadband (5G) Service Infrastructure - OPPOSE**

This bill is designed to use your tax dollars to fund grants to private telecom companies to bring wireless technology to rural and sparsely populated areas. It potentially means 5G everywhere. No safe haven. OPPOSE

**Sample testimony:**

We oppose HB2596. We do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**HB-2596**

Submitted on: 2/3/2020 11:46:03 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Nadine NEWLIGHT	Individual	Oppose	No

Comments:

This technology is DANGEROUS and potentially UNCONSTITUTIONAL!!! Strongly oppose because science.

Nai`a Newlight

Haiku

**HB-2596**

Submitted on: 2/3/2020 11:50:55 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Amanda	Individual	Oppose	No

Comments:

I oppose the technology that is used in 5g and updated broadband. Long term safety studies have never been preformed to determine potential health risks. The microwave radiation used is above the safety limit, and we have no idea of the potential damage it could cause our DNA. Plants and wildlife seem to die near those frequencies according to some research. Our duty is to protect the planet and life, not cater to big business. I strongly urge everyone to oppose this bill.

**HB-2596**

Submitted on: 2/3/2020 11:53:00 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Anne Pierce	Individual	Oppose	No

Comments:

Wireless radiation is a known health hazard. The best plan is fiber to the premisis. It is safer, faster, more secure and protects privacy.

**HB-2596**

Submitted on: 2/3/2020 11:58:05 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Lori Nakamura-Higa	Individual	Oppose	No

Comments:

Monday, Feb. 3, 2020

Aloha! Thank you for the opportunity to testify.

**I STRONGLY OPPOSE HB2596**

This would NOT be appropriating our taxpayer's funds wisely and appropriately. Every year we, your constituents, are told how we don't have the monies in the budget to fund bills that protect and provide disclosures to us, the taxpayers and here this bill is asking for our taxpayer's moneies to fund private entities (who have billions of dollars of their own) to further their corporate goals and objectives to maximize their profits. How is this perpetuating righteousness and protecting the aina and the people? There are still legislations being heard regarding further research on 5G. Let these bills pass and let the research be done. Do you know how safe or unsafe this technology is? Have you done research with what other countries are doing and why? Please don't hastily rush this new technology on us. We are already burdened with other such approvals which are proving to be detrimental. Please don't rush.

Mahalo and kind regards.

**HB-2596**

Submitted on: 2/3/2020 12:02:41 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Sharman O'Shea	Individual	Oppose	No

Comments:

[Over 180 scientists](#) and doctors in almost 40 countries are warning the world about 5G health risks. These scientists' response to "Resolution 1815 of the Council of Europe" spells it out quite succinctly:

"We, the undersigned scientists, recommend a moratorium on the roll-out of the fifth generation, 5G, until potential hazards for human health and the environment have been fully investigated by scientists independent from industry. 5G will substantially increase exposure to radio frequency electromagnetic fields (RF-EMF)... and has been proven to be harmful for humans and the environment."

If you're not alarmed about 5G radiation dangers, you should be...

With download speeds up to 20 to 30X faster than 4G, 5G promises a new world, including becoming the foundation for self-driving cars while also causing a long list of potential health risks. "5G Cancer" is actually a thing. The cities of Brussels and Geneva have even blocked trials and banned upgrades to 5G out of this concern.

The difference between 4G and 5G in terms of gigahertz, the unit of alternating current (AC) or electromagnetic (EM) waves that affect the transmission speeds of devices, is significant. 5G technology promises radio millimeter bands in the 30 to 300 GHz range, while 4G tops out at around 6GHz. When applied to video latency, this translates to speeds up to 60 to 120 times faster.

Before 2G, 3G, and 4G, radio frequencies were benign. We never worried whether or not our drive-time radio shows would fry our brains. Sadly, once the concept of wireless "G" technology was initiated, we began exposing the global public to frequencies akin to [microwaves at 1 billion cycles per second](#).

Humans, animals and the environment have all been at risk for years. While 4G was bad enough, 5G takes the game to a whole new level of insanity.

Many scientists understand that the electromagnetic radiation leaking through the doors of our microwave ovens are carcinogenic, and therefore, can cause cancer. Most of these scientists also believe that these waves are mutagenic, meaning they [change the DNA structure of living beings](#).



The launch of 5G will be similar to turning on your microwave, opening its door, and leaving it on for the rest of your life. There's a good reason why hundreds of scientists are taking action against the wireless industry.

Please stop the spread of dangerous microwave technology and keep Hawaii a safe zone from damaging DNA electromagnetic radiation.

**HB-2596**

Submitted on: 2/3/2020 12:15:18 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Vinayak	Individual	Oppose	No

Comments:

I as a natrual health professional oppose HB2596. I do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**HB-2596**

Submitted on: 2/3/2020 12:17:44 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Jacqueline Bosman	Individual	Oppose	No

Comments:

An overreaching !5G! bill that affects all, many who, without their knowledge are being subjected to it is unconstitutional and unheard of. The known adverse health affects should be enough to show how ill thought this implimentation is. Schools, kids, seniors, who are most at risk will have no choice but to be harmfully exposed! And at the community, who will suffer from it's expense, how sick!

Please, stop this!

I oppose HB2596!

**HB-2596**

Submitted on: 2/3/2020 12:21:09 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Myelle	Individual	Oppose	No

Comments:

I as well as my entire family and neighbors strongly oppose HB2596. We do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard, with safety regulations dating from back in the 1980s...long before people were regularly even using cell phones.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**HB-2596**

Submitted on: 2/3/2020 12:21:19 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Jesse Reisch	Individual	Oppose	No

Comments:

I have studied 5G and the health effects for nearly 2 yrs and it's overwhelmingly clear that this technology is dangerous and must be stopped.

**HB-2596**

Submitted on: 2/3/2020 12:25:41 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Denise	Individual	Oppose	No

Comments:

We oppse HB2596 and DONOT approve of grants being given to fund more harmful cell towers and antennas. " Wireless radation is a known health hazard."

We need legislation that will protect people of all ages and all living organisms from hazards of continous exposure to pulsed data modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of tmes lower than currant US radiaton guidelines.

The best plan is Fiber to the premises Fiber is safer, faster, more secure, protects property values and protects privacy. May All Life Be Valued, Respected and Protected!!!

**HB-2596**

Submitted on: 2/3/2020 12:26:18 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
marcy cayton	Individual	Oppose	No

Comments:

Strongly oppose!

**HB-2596**

Submitted on: 2/3/2020 12:30:07 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Barbara Best	Individual	Oppose	No

Comments:

We oppose HB2596. We do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.



**HB-2596**

Submitted on: 2/3/2020 12:30:37 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Karen Crowson	Individual	Oppose	No

Comments:

We should not be forced to be effected by possibly negative health results of 5g everywhere we are.

**HB-2596**

Submitted on: 2/3/2020 12:42:09 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Anne Allison	Individual	Oppose	No

Comments:

**HB2596 - A Bill for Broadband (5G) Service Infrastructure - OPPOSE**

This bill is designed to use your tax dollars to fund grants to private telecom companies to bring wireless technology to rural and sparsely populated areas. It potentially means 5G everywhere. No safe haven. OPPOSE

We oppose HB2596. We do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**HB-2596**

Submitted on: 2/3/2020 12:46:31 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Linda Ikeda	Individual	Oppose	No

Comments:

I Strongly Oppose HB2596. No grants should be given to fund cell towers and antennas. They are proven harmful and now, a known carcinogen. The evidence is conclusive according to the results of the National Toxicology Program's most recent study. There are thousands of peer-reviewed studies done by researchers not funded by the wireless industry, proving harm. There is a short list of effects at [bioinitiative.org/rf-color-charts/](http://bioinitiative.org/rf-color-charts/). This radiation makes people sick, kills bees and have other detrimental effects on the environment. Birds dropped dead where 5G was tested. Bees dropped dead between two 5G towers.

The best plan is fiberoptics to the premises. Fiber is safer, faster, more secure and protects property values and privacy. It gives us a choice that cell towers or mini-cells do not. Where deployed, the grass is dying (England), the bark is separating from the trees. In Geneva, people became sick with headaches, ringing ears, nose bleeds, etc. Quality of life was not enhanced but reduced. The tourist trade will flourish as people look for a place without additional wireless radiation. See SafeG.net.

**HB-2596**

Submitted on: 2/3/2020 12:48:26 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Marie Doctorchik	Individual	Oppose	No

Comments:

Aloha,

To many times in our current society, we jump in with limited information. We expect safety issue to always be obvious. However, we know that detrimental health impacts can take decades to appear. We only need look to leaded gasoline to see that these ideas have already played out in America. Please vote no to 5G for our beautiful islands. Why do we need to be another testing ground for science? Why is the most beautiful place on earth so easily for sale? Why is our safety as citizens always backseat to money? Please vote no

**HB-2596**

Submitted on: 2/3/2020 12:49:49 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
yoav	Individual	Oppose	No

Comments:

We oppose HB2596. We do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**HB-2596**

Submitted on: 2/3/2020 12:55:54 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Steve Bruhjell	Individual	Oppose	No

Comments:

Thank you for hearing my testimony comments.

I have done much reading of studies by competent scientists that extremely, strongly, oppose the installation and use of this toxic technology. The misuse and override of 4G regulations is bad enough already. There are large protests worldwide to stop the use of 5G which would be over the top, unnecessary and could easily be used as silent, tasteless, odorless, asymmetrical weaponry against the population. Potent, poisonous, reckless frequency technology. Yes, it is that powerful.

There is no good reason to install this 5G technology until it is fully studied, proven to be totally nontoxic, and in the hands of people who can be trusted with this powerful substance.

I also object to the political chicanery that tags this issue with another issue that should be passed. 5G should be alone as its own bill

Please vote to kill this bill

Respectfully submitted, S Bruhjell

**HB-2596**

Submitted on: 2/3/2020 12:59:51 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Brexson Kamano	Individual	Oppose	No

Comments:

**HB-2596**

Submitted on: 2/3/2020 1:06:22 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
elena kersting	Individual	Oppose	No

Comments:

I strongly oppose this Bill.



**HB-2596**

Submitted on: 2/3/2020 1:15:47 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Barbara (Bobbi) Cuttance	Individual	Oppose	No

Comments:

I strongly oppose HB2596. We do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

Barbara Cuttance

14-266 Papaya Farms Road, Pahoa, Hi 96778

**HB-2596**

Submitted on: 2/3/2020 1:17:09 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Stasia	Individual	Oppose	No

Comments:

Mahalo for your attention.

My name is Anastasia Estep and I strongly oppose HB 2596 relating to broadband service infrastructure. There is no debate that 5G technologies have not gone through proper safety studies and how it will affect the people near towers. Wireless radiation is a known health hazard. Not only for people, but there also have been no studies on its effect of this intensified microwave radiation on climate, agriculture and food supplies. There have been many communities throughout the states and even countries (Finland, Brussels in Belgium) rejecting this technology until proper studies prove safety, and I for one, believe Hawaii should do the same to protect it's people rather than allow us to be guinea pigs. We have always been late to the game on fads, and I believe it has helped us show caution, keeping our people safe, where others are quick to conform.

There are many scientists who are protesting the installation of 5G around the world, you can learn much about it from [childrenshealthdefense.org](http://childrenshealthdefense.org) in their 5G chapter and also <https://ehtrust.org/> (environmental health trust.org). While this bill is not exclusively about 5G, it does allow for grants to further it, and until it is revised to not include 5G installation, it needs to be stalled or denied.

That and not to mention that the 5G towers, while smaller are much more numerous (every 500 ft) compromise the aesthetics of our beautiful state, creating eyesores and compromising desirability of our neighborhoods. At the very least these technologies should be strictly limited, in particular to proximity to schools and childcare facilities, as well as residential neighborhoods...But honestly should simply be shut down. A better option is fiber optics to the premissis. Fiber is safer, faster, more secure, protects property values and protects privacy.

Mahalo for your time, and please review the mentioned resources before coming to a vote.

Stasia Estep

**HB-2596**

Submitted on: 2/3/2020 1:27:52 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
geneve chong	Individual	Oppose	No

Comments:

I oppose HB2596 and do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a KNOWN health HAZARD. We need legislation that will protect all people and organisms from the continued exposure to radiation.

**HB-2596**

Submitted on: 2/3/2020 1:32:35 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
George W Chyz	Individual	Oppose	No

Comments:

I oppose HB2596. I do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is optical fiber cables to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**HB-2596**

Submitted on: 2/3/2020 1:47:53 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Donn DeShayne	Individual	Oppose	No

Comments:

5G wireless is not been deemed safe for 24hour 24/7 human exposure. In light of many scientific studies throughout the world, it is better to provide fiber for the last mile. It is more reliable and sensitive individuals are not exposed to microwave radiation. Please do not vote for this bill. 10 years from now you will regret not being careful about this issue.

Thank you

Donn Deshayne

**HB-2596**

Submitted on: 2/3/2020 1:57:17 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Sonni Bersamina	Individual	Oppose	No

Comments:

Maui County Opposes HB2596. I do not want to spend my tax dollars on more harmful cell towers and antennas. Wireless radiation is a known health hazard.

Fiber to fiber is the best route.

**HB-2596**

Submitted on: 2/3/2020 2:13:48 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Bethanie Hancock Sidwell	Individual	Oppose	No

Comments:

5G is mass experimentation on the people of this whole country including our islands. We are a small people and it is WRONG to implement something so powerful into our environment without the proper testing which would take years to even do. It is even more wrong to disguise this bill as "Broadband" because now 5G has a bad reputation due to the attention people like me are bringing to this subject. People are becoming aware of the dangers of it and to now subtly change the wording and pull the wool over our people's eyes is SHAMEFUL. If you actually care about the people of Hawaii like you say you do, you will oppose this and make 5G unavailable in Hawaii.

**HB-2596**

Submitted on: 2/3/2020 2:27:19 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Sulara James	Individual	Oppose	No

Comments:



**HB-2596**

Submitted on: 2/3/2020 2:31:13 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Anthony P Sedillo	Individual	Oppose	No

Comments:

We oppose HB2596. We do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**HB-2596**

Submitted on: 2/3/2020 2:33:11 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
dale ann chappell	Individual	Oppose	No

Comments:

STRONG OPPOSITION TO:

**HB2596 - A Bill for Broadband (5G) Service Infrastructure - OPPOSE**

This bill is designed to use our tax dollars to fund grants to private telecom companies to bring wireless technology to rural and sparsely populated areas. It potentially means 5G everywhere. No safe haven. I completely OPPOSE this.

I do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

Thank you.

**HB-2596**

Submitted on: 2/3/2020 2:53:05 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
camille erickson	Individual	Oppose	No

## Comments:

I, and my household, oppose this bill. 5G technology causes health problems and is not safe. We do not need more wireless towers. I do not approve using taxpayer dollars to fund these grants. Please consider using fiber to reach customers in outlying areas. It is safer and more secure and a better option. Thank you for considering the opinions of the public you have been elected to serve.

**HB-2596**

Submitted on: 2/3/2020 2:55:25 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
karen ramos	Individual	Oppose	No

Comments:

We the people want corporate greed to stop. Haven't you allowed enough damage to the health of the people of Kauai (dangerous pesticides next to schools and public parks) The "government did extensive safety studies" on: DDT, Asbestos, PCB, Mercury, Dioxins, Smoking, Agent orange, GMO's, etc. Why should we believe them now? Verizon, Spectrum etc. Stop Corporate greed now, Enough is Enough!

Don't sell our health and kill our birds, bees and our environment again for MONEY.

Thank You,

Karen L. Ramos

**HB-2596**

Submitted on: 2/3/2020 3:03:48 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
linda molter	Individual	Oppose	No

Comments:

I vehemently OPPOSE this bill.

**HB-2596**

Submitted on: 2/3/2020 3:14:43 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
valerie Lasciak	Individual	Oppose	No

Comments:

5G is dangerous to human life and does not have my support

**HB-2596**

Submitted on: 2/3/2020 3:16:21 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
juhl rayne	Individual	Oppose	No

Comments:

i oppose this bill and anything that has to do with 5g....

I oppose HB2596. I do not approve of our taxpayer money being used to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

juhl rayne

**HB-2596**

Submitted on: 2/3/2020 3:17:14 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
John Gelert	Individual	Oppose	No

Comments:

The proposed 5G infrastructure is dangerous to human health, and animal health, and plant health. I oppose all attempts to upgrade wireless infrastructure beyond 4G.



**HB-2596**

Submitted on: 2/3/2020 3:17:49 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Tera Paleka	Individual	Oppose	Yes

Comments:

All electromagnetic currents deeply affect me and my health. Listen to your constituents. No more.

**HB-2596**

Submitted on: 2/3/2020 3:20:34 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Alan Koons	Individual	Oppose	No

**Comments:**

I oppose HB2596. I do not approve of our taxpayer money being used to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**HB-2596**

Submitted on: 2/3/2020 3:27:29 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
John Anselm	Individual	Oppose	No

Comments:

We oppose HB2596. We do not approve of our taxpayer money being used to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**HB-2596**

Submitted on: 2/3/2020 3:55:21 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
DONNIE BECKER	Individual	Oppose	Yes

Comments:

**HB-2596**

Submitted on: 2/3/2020 4:05:47 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
mike fagan	Individual	Oppose	No

Comments:

**HB-2596**

Submitted on: 2/3/2020 4:13:29 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Nina Monasevitch	Individual	Oppose	No

Comments:

I strongly oppose HB2596. I do not approve of streamlining deployment of more harmful cell towers, antennas and small cell facilities that damage life and property values.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**HB-2596**

Submitted on: 2/3/2020 4:15:15 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Marcelle Liana	Individual	Oppose	No

Comments:

We strongly oppose HB2596. We do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, date-modulated, microwave radiation, which is manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

Mahalo for your time

Marcelle Liana

**HB-2596**

Submitted on: 2/3/2020 4:25:38 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
megan	Individual	Oppose	No

Comments:

We oppose HB2596. We do not approve of our taxpayer money being used to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.



**HB-2596**

Submitted on: 2/3/2020 4:27:53 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Chandra Fulton	Individual	Oppose	No

Comments:

I Chandra Fulton oppose HB2596. I do not approve of our taxpayer money being used to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

Chandra Fulton

**HB-2596**

Submitted on: 2/3/2020 4:39:46 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Lauren Paer	Individual	Oppose	No

Comments:

I oppose this bill because it does not specify the type of broadband these government grants would support. 5G is on the top of everyone's mind and I noticed this bill didn't even mention it explicitly- instead it has a very broad definition of "broadband" that apparently clumps 4G in with 5G. That undermines the public's ability to understand what our government is doing and whether we are supporting something that helps rural folks get 4G internet or puts the health of all residents of the state at risk with potentially harmful 5G technology. For this reason, I strongly oppose this bill.

Many reputable doctors have raised concerns about 5G. In an open letter, a large group of them called President Trump to issue a moratorium stating:

“We join with the thousands of doctors, scientists and health care providers worldwide who have recently issued appeals for urgent action on 5G to protect public health and call for a moratorium on 5G and any further wireless antenna densification until potential hazards for human health and the environment have been fully investigated by scientists independent from the wireless industry.”

I do not think at this point in time it makes any sense for the state to be providing any money to get out 5G technology. It's a technology that is unproven and that many argue is very harmful to human and animal health. If the creator of this bill wants more investment in 4G for rural communities, that would be far less controversial imo. A bill should be introduced asking for exactly that. As is it written, I strongly oppose this bill.

**HB-2596**

Submitted on: 2/3/2020 4:44:00 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
contessa pilson	Individual	Oppose	No

Comments:

**HB-2596**

Submitted on: 2/3/2020 4:56:44 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Katharine Morgan	Individual	Oppose	No

Comments:

**HB-2596**

Submitted on: 2/3/2020 5:01:55 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Barbara Barry	Individual	Oppose	No

Comments:

Aloha,

We oppose HB2596. We do not approve of our taxpayer money being used to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.  
mahalo,

**HB-2596**

Submitted on: 2/3/2020 5:15:16 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Dennys Eymard	Individual	Oppose	No

Comments:

**HB-2596**

Submitted on: 2/3/2020 5:26:25 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Bonnie Marsh	Individual	Oppose	No

Comments:

I oppose HB2264. I do not approve of streamlining deployment of more harmful cell towers, antennas and small cell facilities that damage life and property values.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

Mahalo for protecting the Hawaiian citizens from harm,

Dr. Bonnie Marsh

February 3, 2020

Aloha e Rep. Angus L.K. McKelvey, Chair; Rep. Lisa Kitagawa, Vice Chair; and members of the Committee on Economic Development & Business; and Rep. Takashi Ohno, Chair; Rep. Dale T. Kobayashi, Vice Chair; and members of the Committee on Intrastate Commerce:

I am writing to provide **comments** on HB 2596 as it relates to broadband service infrastructure.

In section §5(c), I object to the applicant's ability to simply request "confidential treatment," and the lack of a definition of "non-public information."

Along with §5(d), which says challengers must be able to identify the geographic location of any proposed project area, these clauses suggest that applications would be able to be hidden from public view and comment *except* for the general location of the project.

Because the UIPA, open records rules, and government practice is established and well honed, these existing safeguards should more than suffice for projects ostensibly proposed for the public benefit. I would recommend §5(c), §5(d), and the reference in §6(a) be struck.

Thank you for your consideration.



**HB-2596**

Submitted on: 2/3/2020 5:43:42 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Erin Austin	Individual	Oppose	Yes

Comments:

my tax dollars should not be used to fund grants for private telecom companies to deploy more wireless technology. the studies on 5g and other wireless technology show over and over again it is not safe. please protect the public, not private interests

**HB-2596**

Submitted on: 2/3/2020 6:17:42 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Steven Forman	Individual	Oppose	No

Comments:

I oppose hb2596. I do not approve of my taxpayer money being used to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**HB-2596**

Submitted on: 2/3/2020 6:54:15 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Michael Shooltz	Individual	Oppose	No

Comments:

I oppose HB25961

Please urgently oppose any effort to implement these toxic 5G technologies here in Hawaii. They are harmful to every aspect of our health, freedom and well being. Do your homework and learn the actual threats that this technology actually means for all of life.

Please take a moment to watch this short video produced by the military to educate the troops on the use of 5G technology against we the people. Implementing 5G is like choosing to put a loaded AK47 on every telephone poll in our communities.

<https://healthfreedomidaho.org/5g-military-weapon/>

**HB-2596**

Submitted on: 2/3/2020 7:14:17 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Lani Orr	Individual	Oppose	No

Comments:

**HB-2596**

Submitted on: 2/3/2020 7:56:56 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Brigitte Otto	Individual	Oppose	No

Comments:

I strongly oppose HB2596. It's a known fact that wireless radiation is a serious health hazard. While most people don't feel the effects or don't know what causes their symptoms, there are those who have this awareness. I'm one of them. I'm electro-sensitive. 4G antennae on a neighbor building's roof have been causing me pain for quite some time, which worsened when they were recently replaced by (obviously) worse ones.

I have never heard anybody complain about a lack of connectivity. There was no need for this "upgrade." There had never been a need for any cell-phone antennae on that roof. The so-called increased demand is fabricated by the telecom industry. Customers were able to use their smartphones before the emergence of these antennae, which are now torturing me.

I don't consider the installation of the antennae a service but an assault and a violation of Article 3 of the Universal Declaration of Human Rights. I have never consented to being irradiated.

The passage of this bill would force every lifeform to be exposed to harmful wireless radiation. There would be no escape, no safe haven. Broadband antennae emitting higher frequencies (5G) would even render matters considerably worse. This technology would pose an especially high risk to children and species that are more sensitive than humans. The population of pollinators has already decreased. We don't want to lose them completely.

Please consider fiber to the premises instead. It is even faster and, above all, safer and more secure. It protects property values and privacy, both of which cell-phone antennae, especially those emitting higher frequencies, are jeopardizing. I would not want to buy or move into a home with what is now called a broadband antenna nearby. Nor would many others.

<https://bioinitiative.org>

<https://scientists4wiredtech.com/sebastopol/#death>

<https://mdsafetech.org/featured-page-one/join-mdsafetech-org/>

[https://www.emfacts.com/2019/07/swiss-magazine-reports-first-5g-injuries-in-geneva/?fbclid=IwAR1uB0eCn3H6vSXfzTAcM653YmLRiz8oTgAyIOR9dH25bcZThNvTLuq\\_FCg](https://www.emfacts.com/2019/07/swiss-magazine-reports-first-5g-injuries-in-geneva/?fbclid=IwAR1uB0eCn3H6vSXfzTAcM653YmLRiz8oTgAyIOR9dH25bcZThNvTLuq_FCg)

**HB-2596**

Submitted on: 2/3/2020 7:59:30 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Renee Dieperink	Individual	Oppose	No

Comments:

I am against using taxpayers' money to benefit private companies to install broadband and 5G.

The legislator should demand safety studies that prove no harm to living beings (people, animals, plants) from such technology, and not wrecklessly approve this. Instead of an expansion of broadband they should mandate fiberoptics.

I oppose HB2596!!!!

**HB-2596**

Submitted on: 2/3/2020 8:02:34 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Ken Stover	Individual	Oppose	No

Comments:



**HB-2596**

Submitted on: 2/3/2020 8:06:35 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Naomi Melamed	Individual	Oppose	No

Comments:

I strongly oppose this bill, designed to use our tax dollars to fund grants to private telecom companies to bring wireless technology to rural and sparsely populated areas. It potentially means 5G everywhere. No safe haven. This has the potential to be categorized as assault.

I oppose HB2596. I do not approve of our taxpayer money being used to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

Mahalo for the consideration, Naomi Melamed

**HB-2596**

Submitted on: 2/3/2020 8:09:11 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Michael Silveria	Individual	Oppose	No

Comments:

I am sure that no one in Hawaii Government who is voting on this bill is an expert physicist or any kind of biological health expert trained in the effects of radiation hazards to human health.

So how about hearing and adhering to trained scientists ( and not corporate funded research that says wireless technology MIGHT BE SAFE) to keep our health and our children safe from dangers of radio frequency technologies that interfere with cellular communication within the body. Please stop giving big corporate money a carte blanche to destroy our natural health by forcing us to be exposed to these untested and harmful technologies.

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

Published Scientific Research on 5G, Small Cells Wireless and Health

Published peer reviewed science already indicates that the current wireless technologies of 2G, 3G and 4G – in use today with our cell phones, computers and wearable tech – creates (create) radiofrequency exposures which poses (pose) a serious health risk to humans, animals and the environment. Scientists are cautioning that before rolling out 5G, research on human health effects urgently needs to be done first to ensure the public and environment are protected,

Companies state that [4G](#) and [5G](#) antennas will [increase](#) the wireless radiation levels in the area so much that they are working to loosen several governments' radiation limits in order to roll it out. More than 240 scientists [published](#) an appeal to the United Nations to reduce public exposure and called for a [moratorium on 5G](#) citing “established” adverse biological effects of RF radiation.

**HB-2596**

Submitted on: 2/3/2020 8:17:38 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Latai Soakai	Individual	Oppose	No

Comments:

I oppose this bill. I do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines. The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**HB-2596**

Submitted on: 2/3/2020 8:25:29 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
John Calvert	Individual	Oppose	No

Comments:

Dear Committee Members:

My family opposes HB2264. We do not approve of streamlining deployment of more harmful cell towers, antennas and small cell facilities that damage life and property values.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

SpaceX's gigabit satellite internet is also coming in mid 2020, which will be highly beneficial to rural areas all over the world.

mahalo,  
John Calvert

Lower Puna District, Big Island

**HB-2596**

Submitted on: 2/3/2020 8:27:22 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Heidi Hirsh	Individual	Oppose	No

Comments:

We oppose HB2596. We do not approve of our taxpayer money being used to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**HB-2596**

Submitted on: 2/3/2020 8:27:52 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
L. Osterer	Individual	Oppose	No

Comments:

First, I hope you know that more notice should be given for these hearings. Clearly the public is concerned and deserves the respect to be heard. Also for your careful deliberation is pending litigation over FCC regulations, along with the liability to the public for health risks and litigation by environmental groups and individuals

Wireless radiation is a known health hazard. The hazards of continuous exposure to pulsed, data-modulated, microwave radiation is untested on humans, but animal studies show that biological damage occurs at levels many thousands of times lower than current US radiation exposure guidelines. The standards were formed decades before current research. Those who have researched it, some local governments, cities, and even some countries are halting 5G deployment in public areas because of the liability in health risks. That's not hard to understand. Consumers have the right to demand testing first.

Won't you please take the necessary steps to require testing before accepting various forms of deployment that avoid regulations. Further regulations, not less, are necessary to control the public service telecom industry. Equipment size does not matter. Pervasive radiation everywhere does.

The telecom industries along with many other companies marketing applications from wifi smart baby pacifiers to smart milk cartons, all these companies who are due to profit from 5G, can afford to do the safety research FIRST.

We shouldn't give the telecom companies a free pass with out tax dollars. Moreover, we've already spent our tax dollars to install fiber cables, currently available, safer, faster, more secure, and not risking public harm.

Thanks for looking into this important safety risk first,

L. Osterer, Koloa, Kauai resident and registered voter.

**HB-2596**

Submitted on: 2/3/2020 8:42:41 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Steven Jr. Castillo	Individual	Oppose	No

Comments:

I oppose HB2596. It is well known that wireless radiation is a health hazard.

**HB-2596**

Submitted on: 2/3/2020 8:51:38 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Art	Individual	Oppose	No

Comments:

I oppose my tax dollars and everyone elses tax dollars financing dangerous, additional UNNECESSARY 5G wireless microwaves everywhere we turn be it a homes, hospitols, school grounda, workplacea, shopping centera, and driving in our cars 24/7 is UNACCEPTABLE and I oppose it especessarily since proper legal avenues are not even being legally followed, such as proper health studies showing it is safe. Many many studies have already proclaimed the hazardous health consequences and this microwave technology is simply a lazy ass way to make billions dollars at the publics expense of serious health consequenses.



**HB-2596**

Submitted on: 2/3/2020 9:19:12 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
David Monasevitch	Individual	Oppose	No

Comments:

I oppose HB2596. I do not approve of our taxpayer money being used to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**HB-2596**

Submitted on: 2/3/2020 9:26:53 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
ken bonk	Individual	Oppose	No

Comments:

I adamantly OPPOSE G5 presence on Hawaii Island and throughout the world and ask that you VOTE NO on HB2596!!

G5 is scary and has been shown to disrupt DNA and brain function.. and has been shown to cause many issues that people plants and animals do NOT NEED!

We must do far more research before moving forward with G5!! It is NOT WORTH rushing into something potentially as destructive as G5 with its heavy signal towers and satellites!

Thank you for voting with your conscience and voting NO to HB 2596.. for our current and future generations rather than premature short term profits for certain interest groups today.

We oppose HB2596. We do not approve of our taxpayer money being used to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

Oppose HB2596

**HB-2596**

Submitted on: 2/3/2020 10:14:21 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Merrina Suzuki	Individual	Oppose	No

Comments:

We oppose HB2264. We do not approve of streamlining deployment of more harmful cell towers, antennas and small cell facilities that damage life and property values.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**HB-2596**

Submitted on: 2/3/2020 10:16:34 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Pete Woodring	Individual	Oppose	No

Comments:

We oppose HB2596. We do not approve of our taxpayer money being used to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**HB-2596**

Submitted on: 2/3/2020 10:21:31 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Barbara G Garcia	Individual	Oppose	No

Comments:

I oppose HB2596. I do not approve of our taxpayer money being used to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**HB-2596**

Submitted on: 2/3/2020 10:44:25 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Adria Marin	Individual	Oppose	No

Comments:

**HB-2596**

Submitted on: 2/4/2020 12:16:06 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Daniel Kanahele	Individual	Oppose	No

Comments:

I oppose HB2596. I do not approve of our taxpayer money being used to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.



# Testimony to OPPOSE HB2596, A Bill for an Act Relating to Broadband Service Infrastructure

These comments submitted: Feb. 4, 2020, 12:30AM

I oppose the language in HB2596 defining “Broadband Service” as “using any wireline or fixed wireless technology”. I would like to see the language changed to state “**Wireline/Fiberoptic**” technology, instead. My reasoning follows.

Everywhere I look I see scientists, researchers, and epidemiologists warning about the harmful health effects of wireless cell phone radiation. Even the U.S. government’s own recently completed 10 year long NTP cell phone radiation study shows “Clear Evidence” that 2G/3G cell radiation promotes heart tissue schwannomas (nerve cell cancers) in male rats. Also, it shows other evidence, not as clear but still indicative of a relationship, for cancers in other organs. <https://www.youtube.com/watch?v=nJfK3gbkmMk> . The FCC has the data from the NTP study. They have done nothing with it, Former FCC chairman Tom Wheeler says 5G is a national priority, and “turning innovators loose is far preferable to expecting committees and regulators to define the future”. He wants to rush through this new technology before people realize how unsafe it is. Go to 1:37 here: <https://www.youtube.com/watch?v=nWmYXUMLFpM> . It’s clear to me the FCC has fallen down on its job of updating its “safe exposure limits” to reflect the now well documented NON THERMAL effects of cell phone radiation. It’s also clear the FCC is a captured agency, run by the interests of the telecom companies, the very same companies it’s tasked to regulate.

Therefore, I oppose the language in this bill that lumps together “wired and wireless” solutions for achieving broadband access to underserved areas. This language opens the door for deployment of 5G wireless. Existing cell phone wireless frequencies are already implicated in health issues, as compiled by INDEPENDENT (not industry funded) research from scientists around the world. Even very low levels of cellular (EMF) radiation does affect your body. Biological effects include sleep disturbance, psychological disturbances, cellular stress proteins, DNA damage, infertility, cancer, etc, etc... These studies are listed here, in an easy to read chart: <https://bioinitiative.org/rf-color-charts/> . I’m including the chart at the end of this testimony, as well. 5G is a whole different level of un-researched risk.

Scientists around the world are calling for a moratorium and/or precaution concerning 5G. <https://ehtrust.org/scientific-research-on-5g-and-health/> . In a U.S. Senate hearing with Senator Blumenthal, the telecoms admit they have not done, nor intend to do, any research to show that 5G is safe for human health. <https://www.youtube.com/watch?v=ekNC0J3xx1w> . This is irresponsible.

I urge you to modify this bill to emphasize WIRED/FIBEROPTIC approaches for extending broadband access. Please do not leave it up to the telecom companies to come up with a wireless (5G) approach. Do not give telecoms license to expose us to harmful radiation 24/7, against our will.

**SEE “REPORTED BIOLOGICAL EFFECTS...” studies chart below**

# Reported Biological Effects from Radiofrequency Radiation at Low-Intensity Exposure (Cell Tower, Wi-Fi, Wireless Laptop and 'Smart' Meter RF Intensities)

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

Website home page: <https://bioinitiative.org/>

Power Density (Microwatts/centimeter <sup>2</sup> - uW/cm <sup>2</sup> )		Reference
As low as (10 <sup>-13</sup> ) or 100 femtowatts/cm <sup>2</sup>	Super-low intensity RFR effects at MW resonant frequencies resulted in changes in genes; problems with chromatin conformation (DNA)	Belyaev, 1997
5 picowatts/cm <sup>2</sup> (10 <sup>-12</sup> )	Changed growth rates in yeast cells	Grundler, 1992
0.1 nanowatt/cm <sup>2</sup> (10 <sup>-10</sup> ) or 100 picowatts/cm <sup>2</sup>	Super-low intensity RFR effects at MW resonant frequencies resulted in changes in genes; problems with chromatin condensation (DNA) intensities comparable to base stations	Belyaev, 1997
0.00034 uW/cm <sup>2</sup>	Chronic exposure to mobile phone pulsed RF significantly reduced sperm count,	Behari, 2006
0.0005 uW/cm <sup>2</sup>	RFR decreased cell proliferation at 960 MHz GSM 217 Hz for 30-min exposure	Velizarov, 1999
0.0006 - 0.0128 uW/cm <sup>2</sup>	Fatigue, depressive tendency, sleeping disorders, concentration difficulties, cardio-vascular problems reported with exposure to GSM 900/1800 MHz cell phone signal at base station level exposures.	Oberfeld, 2004
0.003 - 0.02 uW/cm <sup>2</sup>	In children and adolescents (8-17 yrs) short-term exposure caused headache, irritation, concentration difficulties in school.	Heinrich, 2010
0.003 to 0.05 uW/cm <sup>2</sup>	In children and adolescents (8-17 yrs) short-term exposure caused conduct problems in school (behavioral problems)	Thomas, 2010
0.005 uW/cm <sup>2</sup>	In adults (30-60 yrs) chronic exposure caused sleep disturbances, (but not significantly increased across the entire population)	Mohler, 2010
0.005 - 0.04 uW/cm <sup>2</sup>	Adults exposed to short-term cell phone radiation reported headaches, concentration difficulties (differences not significant, but elevated)	Thomas, 2008
0.006 - 0.01 uW/cm <sup>2</sup>	Chronic exposure to base station RF (whole-body) in humans showed increased stress hormones; dopamine levels substantially decreased; higher levels of adrenaline and nor-adrenaline; dose-response seen; produced chronic physiological stress in cells even after 1.5 years.	Buchner, 2012
0.01 - 0.11 uW/cm <sup>2</sup>	RFR from cell towers caused fatigue, headaches, sleeping problems	Navarro, 2003

Stress proteins, HSP, disrupted immune function	Brain tumors and blood-brain barrier
Reproduction/fertility effects	Sleep, neuron firing rate, EEG, memory, learning, behavior
Oxidative damage/ROS/DNA damage/DNA repair failure	Cancer (other than brain), cell proliferation
Disrupted calcium metabolism	Cardiac, heart muscle, blood-pressure, vascular effects

## Reported Biological Effects from Radiofrequency Radiation at Low-Intensity Exposure (Cell Tower, Wi-Fi, Wireless Laptop and 'Smart' Meter RF Intensities)

Power Density (Microwatts/centimeter <sup>2</sup> - uW/cm <sup>2</sup> )		Reference
0.01 - 0.05 uW/cm <sup>2</sup>	Adults (18-91 yrs) with short-term exposure to GSM cell phone radiation reported headache, neurological problems, sleep and concentration problems.	Hutter, 2006
0.005 - 0.04 uW/cm <sup>2</sup>	Adults exposed to short-term cell phone radiation reported headaches, concentration difficulties (differences not significant, but elevated)	Thomas, 2008
0.015 - 0.21 uW/cm <sup>2</sup>	Adults exposed to short-term GSM 900 radiation reported changes in mental state (e.g., calmness) but limitations of study on language descriptors prevented refined word choices (stupified, zoned-out)	Augner, 2009
0.05 - 0.1 uW/cm <sup>2</sup>	RFR linked to adverse neurological, cardio symptoms and cancer risk	Khurana, 2010
0.05 - 0.1 uW/cm <sup>2</sup>	RFR related to headache, concentration and sleeping problems, fatigue	Kundi, 2009
0.07 - 0.1 uW/cm <sup>2</sup>	Sperm head abnormalities in mice exposed for 6-months to base station level RF/MW. Sperm head abnormalities occurred in 39% to 46% exposed mice (only 2% in controls) abnormalities was also found to be dose dependent. The implications of the pin-head and banana-shaped sperm head. The occurrence of sperm head observed increase occurrence of sperm head abnormalities on the reproductive health of humans living in close proximity to GSM base stations were discussed."	Otitolaju, 2010
0.38 uW/cm <sup>2</sup>	RFR affected calcium metabolism in heart cells	Schwartz, 1990
0.8 - 10 uW/cm <sup>2</sup>	RFR caused emotional behavior changes, free-radical damage by super-weak MWs	Akoev, 2002
0.13 uW/cm <sup>2</sup>	RFR from 3G cell towers decreased cognition, well-being	Zwamborn, 2003
0.16 uW/cm <sup>2</sup>	Motor function, memory and attention of school children affected (Latvia)	Kolodynski, 1996
0.168 - 1.053 uW/cm <sup>2</sup>	Irreversible infertility in mice after 5 generations of exposure to RFR from an 'antenna park'	Magras & Zenos, 1997
0.2 - 8 uW/cm <sup>2</sup>	RFR caused a two-fold increase in leukemia in children	Hocking, 1996
0.2 - 8 uW/cm <sup>2</sup>	RFR decreased survival in children with leukemia	Hocking, 2000
0.21 - 1.28 uW/cm <sup>2</sup>	Adolescents and adults exposed only 45 min to UMTS cell phone radiation reported increases In headaches.	Riddervold, 2008

Stress proteins, HSP, disrupted immune function	Brain tumors and blood-brain barrier
Reproduction/fertility effects	Sleep, neuron firing rate, EEG, memory, learning, behavior
Oxidative damage/ROS/DNA damage/DNA repair failure	Cancer (other than brain), cell proliferation
Disrupted calcium metabolism	Cardiac, heart muscle, blood-pressure, vascular effects

## Reported Biological Effects from Radiofrequency Radiation at Low-Intensity Exposure (Cell Tower, Wi-Fi, Wireless Laptop and 'Smart' Meter RF Intensities)

Power Density (Microwatts/centimeter <sup>2</sup> - uW/cm <sup>2</sup> )		Reference
0.5 uW/cm <sup>2</sup>	Significant degeneration of seminiferous epithelium in mice at 2.45 GHz, 30-40 min.	Saunders, 1981
0.5 - 1.0 uW/cm <sup>2</sup>	Wi-Fi level laptop exposure for 4-hr resulted in decrease in sperm viability, DNA fragmentation with sperm samples placed in petri dishes under a laptop connected via WI-FI to the internet.	Avendano, 2012
1.0 uW/cm <sup>2</sup>	RFR induced pathological leakage of the blood-brain barrier	Persson, 1997
1.0 uW/cm <sup>2</sup>	RFR caused significant effect on immune function in mice	Fesenko, 1999
1.0 uW/cm <sup>2</sup>	RFR affected function of the immune system	Novoselova, 1999
1.0 uW/cm <sup>2</sup>	Short-term (50 min) exposure in electrosensitive patients, caused loss of well-being after GSM and especially UMTS cell phone radiation exposure	Eltiti, 2007
1.3 - 5.7 uW/cm <sup>2</sup>	RFR associated with a doubling of leukemia in adults	Dolk, 1997
1.25 uW/cm <sup>2</sup>	RFR exposure affected kidney development in rats (in-utero exposure)	Pyrpasopoulou, 2004
1.5 uW/cm <sup>2</sup>	RFR reduced memory function in rats	Nittby, 2007
2 uW/cm <sup>2</sup>	RFR induced double-strand DNA damage in rat brain cells	Kesari, 2008
2.5 uW/cm <sup>2</sup>	RFR affected calcium concentrations in heart muscle cells	Wolke, 1996
2 - 4 uW/cm <sup>2</sup>	Altered cell membranes; acetylcholine-induced ion channel disruption	D'Inzeo, 1988
4 uW/cm <sup>2</sup>	RFR caused changes in hippocampus (brain memory and learning)	Tattersall, 2001
4 - 15 uW/cm <sup>2</sup>	Memory impairment, slowed motor skills and retarded learning in children	Chiang, 1989
5 uW/cm <sup>2</sup>	RFR caused drop in NK lymphocytes (immune function decreased)	Boscolo, 2001
5.25 uW/cm <sup>2</sup>	20 minutes of RFR at cell tower frequencies induced cell stress response	Kwee, 2001
5 - 10 uW/cm <sup>2</sup>	RFR caused impaired nervous system activity	Dumansky, 1974
6 uW/cm <sup>2</sup>	RFR induced DNA damage in cells	Phillips, 1998

Stress proteins, HSP, disrupted immune function	Brain tumors and blood-brain barrier
Reproduction/fertility effects	Sleep, neuron firing rate, EEG, memory, learning, behavior
Oxidative damage/ROS/DNA damage/DNA repair failure	Cancer (other than brain), cell proliferation
Disrupted calcium metabolism	Cardiac, heart muscle, blood-pressure, vascular effects

## Reported Biological Effects from Radiofrequency Radiation at Low-Intensity Exposure (Cell Tower, Wi-Fi, Wireless Laptop and 'Smart' Meter RF Intensities)

Power Density (Microwatts/centimeter <sup>2</sup> - uW/cm <sup>2</sup> )		Reference
8.75 uW/cm <sup>2</sup>	RFR at 900 MHz for 2-12 hours caused DNA breaks in leukemia cells	Marinelli, 2004
10 uW/cm <sup>2</sup>	Changes in behavior (avoidance) after 0.5 hour exposure to pulsed RFR	Navakatikian, 1994
10 - 100 uW/cm <sup>2</sup>	Increased risk in radar operators of cancer; very short latency period; dose response to exposure level of RFR reported.	Richter, 2000
12.5 uW/cm <sup>2</sup>	RFR caused calcium efflux in cells - can affect many critical cell functions	Dutta, 1989
13.5 uW/cm <sup>2</sup>	RFR affected human lymphocytes - induced stress response in cells	Sarimov, 2004
20 uW/cm <sup>2</sup>	Increase in serum cortisol (a stress hormone)	Mann, 1998
28.2 uW/cm <sup>2</sup>	RFR increased free radical production in rat cells	Yurekli, 2006
37.5 uW/cm <sup>2</sup>	Immune system effects - elevation of PFC count (antibody producing cells)	Veyret, 1991
45 uW/cm <sup>2</sup>	Pulsed RFR affected serum testosterone levels in mice	Forgacs, 2006
50 uW/cm <sup>2</sup>	Cell phone RFR caused a pathological leakage of the blood-brain barrier in 1 hour	Salford, 2003
50 uW/cm <sup>2</sup>	An 18% reduction in REM sleep (important to memory and learning functions)	Mann, 1996
60 uW/cm <sup>2</sup>	RFR caused structural changes in cells of mouse embryos	Somozy, 1991
60 uW/cm <sup>2</sup>	Pulsed RFR affected immune function in white blood cells	Stankiewicz, 2006
60 uW/cm <sup>2</sup>	Cortex of the brain was activated by 15 minutes of 902 MHz cell phone	Lebedeva, 2000
65 uW/cm <sup>2</sup>	RFR affected genes related to cancer	Ivaschuk, 1999
92.5 uW/cm <sup>2</sup>	RFR caused genetic changes in human white blood cells	Belyaev, 2005
100 uW/cm <sup>2</sup>	Changes in immune function	Elekes, 1996
100 uW/cm <sup>2</sup>	A 24.3% drop in testosterone after 6 hours of CW RFR exposure	Navakatikian, 1994
120 uW/cm <sup>2</sup>	A pathological leakage in the blood-brain barrier with 915 MHz cell RF	Salford, 1994

Stress proteins, HSP, disrupted immune function	Brain tumors and blood-brain barrier
Reproduction/fertility effects	Sleep, neuron firing rate, EEG, memory, learning, behavior
Oxidative damage/ROS/DNA damage/DNA repair failure	Cancer (other than brain), cell proliferation
Disrupted calcium metabolism	Cardiac, heart muscle, blood-pressure, vascular effects

## Reported Biological Effects from Radiofrequency Radiation at Low-Intensity Exposure (Cell Tower, Wi-Fi, Wireless Laptop and 'Smart' Meter RF Intensities)

<b>Power Density (Microwatts/centimeter<sup>2</sup> - uW/cm<sup>2</sup>)</b>		<b>Reference</b>
500 uW/cm <sup>2</sup>	Intestinal epithelial cells exposed to 2.45 GHz pulsed at 16 Hz showed changes in intercellular calcium.	Somozy, 1993
500 uW/cm <sup>2</sup>	A 24.6% drop in testosterone and 23.2% drop in insulin after 12 hrs of pulsed RFR exposure.	Navakatikian, 1994
<b>STANDARDS</b>		
530 - 600 uW/cm <sup>2</sup>	Limit for uncontrolled public exposure to 800-900 MHz	ANSI/IEEE and FCC
1000 uW/cm <sup>2</sup>	PCS STANDARD for public exposure (as of September 1,1997)	FCC, 1996
5000 uW/cm <sup>2</sup>	PCS STANDARD for occupational exposure (as of September 1, 1997)	FCC, 1996
<b>BACKGROUND LEVELS</b>		
0.003 uW/cm <sup>2</sup>	Background RF levels in US cities and suburbs in the 1990s	Mantiplay, 1997
0.05 uW/cm <sup>2</sup>	Median ambient power density in cities in Sweden (30-2000 MHz)	Hamnierius, 2000
0.1 - 10 uW/cm <sup>2</sup>	Ambient power density within 100-200' of cell site in US (data from 2000)	Sage, 2000

Stress proteins, HSP, disrupted immune function	Brain tumors and blood-brain barrier
Reproduction/fertility effects	Sleep, neuron firing rate, EEG, memory, learning, behavior
Oxidative damage/ROS/DNA damage/DNA repair failure	Cancer (other than brain), cell proliferation
Disrupted calcium metabolism	Cardiac, heart muscle, blood-pressure, vascular effects

## Reported Biological Effects from Radiofrequency Radiation at Low-Intensity Exposure (Cell Tower, Wi-Fi, Wireless Laptop and 'Smart' Meter RF Intensities)

SAR (Watts/Kilogram)		Reference
0.000064 - 0.000078 W/Kg	Well-being and cognitive function affected in humans exposed to GSM-UMTS cell phone frequencies; RF levels similar near cell sites	TNO Physics and
0.00015 - 0.003 W/Kg	Calcium ion movement in isolated frog heart tissue is increased 18% (P<.01) and by 21% (P<.05) by weak RF field modulated at 16 Hz	Schwartz, 1990
0.000021 - 0.0021 W/Kg	Changes in cell cycle; cell proliferation (960 MHz GSM mobile phone)	Kwee, 1997
0.0003 - 0.06 W/Kg	Neurobehavioral disorders in offspring of pregnant mice exposed in utero to cell phones - dose-response impaired glutamatergic synaptic transmission onto layer V pyramidal neurons of the prefrontal cortex. Hyperactivity and impaired memory function in offspring. Altered brain development.	Aldad, 2012
0.0016 - 0.0044 W/Kg	Very low power 700 MHz CW affects excitability of hippocampus tissue, consistent with reported behavioral changes.	Tattersall, 2001
0.0021 W/Kg	Heat shock protein HSP 70 is activated by very low intensity microwave exposure in human epithelial amnion cells	Kwee, 2001
0.0024 - 0.024 W/Kg	Digital cell phone RFR at very low intensities causes DNA damage in human cells; both DNA damage and impairment of DNA is reported	Phillips, 1998
0.0027 W/Kg	Changes in active avoidance conditioned behavioral effect is seen after one-half hour of pulsed radiofrequency radiation	Navakatikian, 1994
0.0035 W/Kg	900 MHz cell phone signal induces DNA breaks and early activation of p53 gene; short exposure of 2-12 hours leads cells to acquire greater survival chance - linked to tumor aggressiveness.	Marinelli, 2004
0.0095 W/Kg	MW modulated at 7 Hz produces more errors in short-term memory function on complex tasks (can affect cognitive processes such as attention and memory)	Lass, 2002
0.001 W/Kg	750 MHz continuous wave (CW) RFR exposure caused increase in heat shock protein (stress proteins). Equivalent to what would be induced by 3 degree C. heating of tissue (but no heating occurred)	De Pomerai, 2000
0.001 W/Kg	Statistically significant change in intracellular calcium concentration in heart muscle cells exposed to RFR (900 MHz/50 Hz modulation)	Wolke, 1996

Stress proteins, HSP, disrupted immune function	Brain tumors and blood-brain barrier
Reproduction/fertility effects	Sleep, neuron firing rate, EEG, memory, learning, behavior
Oxidative damage/ROS/DNA damage/DNA repair failure	Cancer (other than brain), cell proliferation
Disrupted calcium metabolism	Cardiac, heart muscle, blood-pressure, vascular effects



## Reported Biological Effects from Radiofrequency Radiation at Low-Intensity Exposure (Cell Tower, Wi-Fi, Wireless Laptop and 'Smart' Meter RF Intensities)

SAR (Watts/Kilogram)		Reference
0.0021 W/Kg	A significant change in cell proliferation not attributable to thermal heating. RFR induces non-thermal stress proteins (960 MHz GSM)	Velizarov, 1999
0.004 - 0.008 W/Kg	915 MHz cell phone RFR caused pathological leakage of blood-brain barrier. Worst at lower SAR levels and worse with CW compared to Frequency of pathological changes was 35% in rats exposed to pulsed radiation at 50% to continuous wave RFR. Effects observed at a specific absorption (SA) of > 1.5 joules/Kg in human tissues	Persson, 1997
0.0059 W/Kg	Cell phone RFR induces glioma (brain cancer) cells to significantly increase thymidine uptake, which may be indication of more cell division	Stagg, 1997
0.014 W/Kg	Sperm damage from oxidative stress and lowered melatonin levels resulted from 2-hr per day/45 days exposure to 10 GHz.	Kumar, 2012
0.015 W/Kg	Immune system effects - elevation of PFC count (antibody-producing cells)	Veyret, 1991
0.02 W/Kg	A single, 2-hr exposure to GSM cell phone radiation results in serious neuron damage (brain cell damage) and death in cortex, hippocampus, and basal ganglia of brain- even 50+ days later blood-brain barrier is still leaking albumin (P<.002) following only one cell phone exposure	Salford, 2003
0.026 W/Kg	Activity of c-jun (oncogene or cancer gene) was altered in cells after 20 minutes exposure to cell phone digital TDMA signal	Ivaschuk, 1997
0.0317 W/Kg	Decrease in eating and drinking behavior	Ray, 1990
0.037 W/Kg	Hyperactivity caused by nitric oxide synthase inhibitor is countered by exposure to ultra-wide band pulses (600/sec) for 30 min	Seaman, 1999
0.037 - 0.040 W/Kg	A 1-hr cell phone exposure causes chromatin condensation; impaired DNA repair mechanisms; last 3 days (longer than stress response) the effect reaches saturation in only one hour of exposure; electro- sensitive (ES) people have different response in formation of DNA repair foci, compared to healthy individuals; effects depend on carrier frequency (915 MHz = 0.037 W/Kg but 1947 MHz = 0.040 W/Kg)	Belyaev, 2008
0.05 W/Kg	Significant increase in firing rate of neurons (350%) with pulsed 900 MHz cell phone radiation exposure (but not with CW) in avian brain cells	Beason, 2002

Stress proteins, HSP, disrupted immune function	Brain tumors and blood-brain barrier
Reproduction/fertility effects	Sleep, neuron firing rate, EEG, memory, learning, behavior
Oxidative damage/ROS/DNA damage/DNA repair failure	Cancer (other than brain), cell proliferation
Disrupted calcium metabolism	Cardiac, heart muscle, blood-pressure, vascular effects

## Reported Biological Effects from Radiofrequency Radiation at Low-Intensity Exposure (Cell Tower, Wi-Fi, Wireless Laptop and 'Smart' Meter RF Intensities)

SAR (Watts/Kilogram)		Reference
0.09 W/Kg	900 MHz study of mice for 7 days, 12-hr per day (whole-body) resulted in significant effect on mitochondria and genome stability	Aitken, 2005
0.091 W/Kg	Wireless internet 2400 MHz, 24-hrs per day/20 weeks increased DNA damage and reduced DNA repair; levels below 802.11 g Authors say "findings raise questions about safety of radiofrequency exposure from Wi-Fi internet access devices for growing organisms of reproductive age, with a potential effect on fertility and integrity of germ cells" (male germ cells are the reproductive cells=sperm)	Atasoy, 2012
0.11 W/Kg	Increased cell death (apoptosis) and DNA fragmentation at 2.45 GHz for 35 days exposure (chronic exposure study)	Kesari, 2010
0.121 W/Kg	Cardiovascular system shows significant decrease in arterial blood pressure (hypotension) after exposure to ultra-wide band pulses	Lu, 1999
0.13 - 1.4 W/Kg	Lymphoma cancer rate doubled with two 1/2-hr exposures per day of cell phone radiation for 18 months (pulsed 900 MHz cell signal)	Repacholi, 1997
0.14 W/Kg	Elevation of immune response to RFR exposure	Elekes, 1996
0.141 W/Kg	Structural changes in testes - smaller diameter of seminiferous	Dasdag, 1999
0.15 - 0.4 W/Kg	Statistically significant increase in malignant tumors in rats chronically exposed to RFR	Chou, 1992
0.26 W/Kg	Harmful effects to the eye/certain drugs sensitize the eye to RFR	Kues, 1992
0.28 - 1.33 W/Kg	Significant increase in reported headaches with increasing use of hand-held cell phone use (maximum tested was 60 min per day)	Chia, 2000
0.3 - 0.44 W/Kg	Cell phone use results in changes in cognitive thinking/mental tasks related to memory retrieval	Krause, 2000
0.3 - 0.44 W/Kg	Attention function of brain and brain responses are speeded up	Preece, 1999
0.3 - 0.46 W/Kg	Cell phone RFR doubles pathological leakage of blood-brain barrier permeability at two days (P=.002) and triples permeability at four days (P=.001) at 1800 MHz GSM cell phone radiation	Schirmacher, 2000
0.43 W/Kg	Significant decrease in sperm mobility; drop in sperm concentration; and decrease in seminiferous tubules at 800 MHz, 8-hr/day, 12 weeks, with mobile phone radiation level on STANDBY ONLY (in rabbits)	Salama, 2008

Stress proteins, HSP, disrupted immune function	Brain tumors and blood-brain barrier
Reproduction/fertility effects	Sleep, neuron firing rate, EEG, memory, learning, behavior
Oxidative damage/ROS/DNA damage/DNA repair failure	Cancer (other than brain), cell proliferation
Disrupted calcium metabolism	Cardiac, heart muscle, blood-pressure, vascular effects

## Reported Biological Effects from Radiofrequency Radiation at Low-Intensity Exposure (Cell Tower, Wi-Fi, Wireless Laptop and 'Smart' Meter RF Intensities)

SAR (Watts/Kilogram)		Reference
0.5 W/Kg	900 MHz pulsed RF affects firing rate of neurons ( <i>Lymnea stagnalis</i> ) but continuous wave had no effect	Bolshakov, 1992
0.58 - 0.75 W/Kg	Decrease in brain tumors after chronic exposure to RFR at 836 MHz	Adey, 1999
0.6 - 0.9 W/Kg	Mouse embryos develop fragile cranial bones from in utero 900 MHz The authors say "(O)ur results clearly show that even modest exposure (e.g., 6 min daily for 21 days" is sufficient to interfere with the normal mouse developmental process"	Fragopoulou, 2009
0.6 and 1.2 W/Kg	Increase in DNA single and double-strand DNA breaks in rat brain cells with exposure to 2450 MHz RFR	Lai & Singh, 1996
0.795 W/Kg	GSM 900 MHz, 217 Hz significantly decreases ovarian development and size of ovaries, due to DNA damage and premature cell death of nurse cells and follicles in ovaries (that nourish egg cells)	Panagopoulous, 2012
0.87 W/Kg	Altered human mental performance after exposure to GSM cell phone radiation (900 MHz TDMA digital cell phone signal)	Hamblin, 2004
0.87 W/Kg	Change in human brainwaves; decrease in EEG potential and statistically significant change in alpha (8-13 Hz) and beta (13-22 Hz) brainwave activity in humans at 900 MHz; exposures 6/min per day for 21 days (chronic exposure)	D'Costa, 2003
0.9 W/Kg	Decreased sperm count and more sperm cell death (apoptosis) after 35 days exposure, 2-hr per day	Kesari, 2012
< 1.0 W/Kg	Rats exposed to mobile phone radiation on STANDBY ONLY for 11-hr 45-min plus 15-min TRANSMIT mode; 2 times per day for 21 days showed decreased number of ovarian follicles in pups born to these pregnant rats. The authors conclude "the decreased number of follicles in pups exposed to mobile phone microwaves suggest that intrauterine exposure has toxic effects on ovaries."	Gul, 2009
0.4 - 1.0 W/Kg	One 6-hr exposure to 1800 MHz cell phone radiation in human sperm cells caused a significant dose response and reduced sperm motility and viability; reactive oxygen species levels were significantly increased after exposure to 1.0 W/Kg; study confirms detrimental effects of RF/MW to human sperm. The authors conclude "(T)hese findings have clear implicatiions for the safety of extensive mobile phone use by males of reproductive age, potentially affecting both their fertility and the health and wellbeing of their offspring."	De Iuliis, 2009
1.0 W/Kg	Human semen degraded by exposure to cell phone frequency RF increased free-radical damage.	De Iuliis, 2009

Stress proteins, HSP, disrupted immune function	Brain tumors and blood-brain barrier
Reproduction/fertility effects	Sleep, neuron firing rate, EEG, memory, learning, behavior
Oxidative damage/ROS/DNA damage/DNA repair failure	Cancer (other than brain), cell proliferation
Disrupted calcium metabolism	Cardiac, heart muscle, blood-pressure, vascular effects

## Reported Biological Effects from Radiofrequency Radiation at Low-Intensity Exposure (Cell Tower, Wi-Fi, Wireless Laptop and 'Smart' Meter RF Intensities)

SAR (Watts/Kilogram)		Reference
1.0 W/Kg	Motility, sperm count, sperm morphology, and viability reduced in active cell phone users (human males) in dose-dependent manner.	Agarwal, 2008
1.0 W/Kg	GSM cell phone use modulates brain wave oscillations and sleep EEG	Huber, 2002
1.0 W/Kg	Cell phone RFR during waking hours affects brain wave activity. (EEG patterns) during subsequent sleep	Achermann, 2000
1.0 W/Kg	Cell phone use causes nitric oxide (NO) nasal vasodilation (swelling inside nasal passage) on side of head phone use	Paredi, 2001
1.0 W/Kg	Increase in headache, fatigue and heating behind ear in cell phone users	Sandstrom, 2001
1.0 W/Kg	Significant increase in concentration difficulties using 1800 MHz cell phone compared to 900 MHz cell phone	Santini, 2001
1.0 W/Kg	Sleep patterns and brain wave activity are changed with 900 MHz cell phone radiation exposure during sleep	Borbely, 1999
1.4 W/Kg	GSM cell phone exposure induced heat shock protein HSP 70 by 360% (stress response) and phosphorylation of ELK-1 by 390%	Weisbrot, 2003
1.46 W/Kg	850 MHz cell phone radiation decreases sperm motility, viability is significantly decreased; increased oxidative damage (free-radicals) significantly decreased; increased oxidative damage (free-radicals)	Agarwal, 2009
1.48 W/Kg	A significant decrease in protein kinase C activity at 112 MHz with 2-hr per day for 35 days; hippocampus is site, consistent with reports that RFR negatively affects learning and memory functions	Paulraj, 2004
1.0 - 2.0 W/Kg	Significant elevation in micronuclei in peripheral blood cells at 2450 MHz (8 treatments of 2-hr each)	Trosic, 2002
1.5 W/Kg	GSM cell phone exposure affected gene expression levels in tumor suppressor p53-deficient embryonic stem cells; and significantly increased HSP 70 heat shock protein production	Czyz, 2004
1.8 W/Kg	Whole-body exposure to RF cell phone radiation of 900-1800 MHz 1 cm from head of rats caused high incidence of sperm cell death; deformation of sperm cells; prominent clumping together of sperm cells into "grass bundle shapes" that are unable to separate/swim. Sperm cells unable to swim and fertilize in normal manner.	Yan, 2007

Stress proteins, HSP, disrupted immune function	Brain tumors and blood-brain barrier
Reproduction/fertility effects	Sleep, neuron firing rate, EEG, memory, learning, behavior
Oxidative damage/ROS/DNA damage/DNA repair failure	Cancer (other than brain), cell proliferation
Disrupted calcium metabolism	Cardiac, heart muscle, blood-pressure, vascular effects

## Reported Biological Effects from Radiofrequency Radiation at Low-Intensity Exposure (Cell Tower, Wi-Fi, Wireless Laptop and 'Smart' Meter RF Intensities)

SAR (Watts/Kilogram)		Reference
2.0 W/Kg	GSM cell phone exposure of 1-hr activated heat shock protein HSP 27 (stress response) and P38 MAPK (mutagen-activated protein kinase) that authors say facilitates brain cancer and increased blood-brain barrier permeability, allowing toxins to cross BBB into brain	Leszczynski, 2002
2 W/Kg	900 MHz cell phone exposure caused brain cell oxidative damage by increasing levels of NO, MDA, XO and ADA in brain cells; caused statistically significant increase in 'dark neurons' or damaged brain cells in cortex, hippocampus and basal ganglia with a 1-hr exposure for 7 consecutive days	Ilhan, 2004
2.6 W/Kg	900 MHz cell phone exposure for 1-hr significantly altered protein expression levels in 38 proteins following irradiation; activates P38 MAP kinase stress signalling pathway and leads to changes in cell size and shape (shrinking and rounding up) and to activation of HSP 27, a stress protein (heat shock protein)	Leszczynski, 2004
2.0 - 3.0 W/Kg	RFR accelerated development of both skin and breast tumors	Szmigielski, 1982
2 W/Kg	Pulse-modulated RFR and MF affect brain physiology (sleep study)	Schmidt, 2012

STANDARDS		
0.08 W/Kg	IEEE Standard uncontrolled public environment (whole body)	IEEE
0.4 W/Kg	IEEE Standard controlled occupational environment (whole body)	IEEE
1.6 W/Kg	FCC (IEEE) SAR limit for 1 gram of tissue in a partial body exposure	FCC, 1996
2 W/Kg	ICNIRP SAR limit for 10 grams of tissue	ICNIRP, 1996

Stress proteins, HSP, disrupted immune function	Brain tumors and blood-brain barrier
Reproduction/fertility effects	Sleep, neuron firing rate, EEG, memory, learning, behavior
Oxidative damage/ROS/DNA damage/DNA repair failure	Cancer (other than brain), cell proliferation
Disrupted calcium metabolism	Cardiac, heart muscle, blood-pressure, vascular effects

**HB-2596**

Submitted on: 2/4/2020 3:52:08 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Charlotte OBrien	Individual	Oppose	No

Comments:

Dear Legislators,

I live in rural Haiku on Maui and do not want to spend the tax dollars needed to bring 5G to the outlying areas of our state. We are soon getting fiber optics and that is more than is necessary to live in rural Hawaii. Please spend our money on something that preserves the beauty and eco-systems of our paradise state.

Charlotte OBrien

Haiku, Maui

**HB-2596**

Submitted on: 2/4/2020 6:14:17 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Doug Bonney	Individual	Oppose	No

Comments:

we need much more testing!

**HB-2596**

Submitted on: 2/4/2020 6:28:55 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
sera manjarrez	Individual	Oppose	No

Comments:

I, Sera Manjarrez STRONGLY oppose this bill. This bill is detrimental to our biological health, our children's and all living organisms.

There are known news reports and studies that show they cause cancer and we need legislators that are going to help protect us and our future.

Please, DO NOT ALLOW THIS BILL TO PASS! Fully research and make the appropriate decision. There are healthier alternatives.

Thank you.



**HB-2596**

Submitted on: 2/4/2020 7:13:27 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Brian Hurst	Individual	Oppose	No

Comments:

We oppose HB2596. We do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines. There is ample evidence worldwide of the harmful effects upon birds, bees and humans. Brussels has rejected the 5G agenda and the public has protested loudly in many different countries. We are not in competition with the Chinese and they should also be warned about the toxic nature of this technology which is known to be a defense weapon that can be used against crowds or individuals. In the hands of the wrong people this could be the cause of a major disaster to our beloved planet.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy. This would be a safer way to use 5G and makes a lot more sense than the present agenda. We will continue to fight this inhumane treatment of the world's life forms. Enough damage has been done. It is time to bring this to a halt and NOW.

**HB-2596**

Submitted on: 2/4/2020 7:15:58 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Joli Johnston	Individual	Oppose	No

Comments:

I strongly oppose HB2596. Wireless radiation is a known health hazard and I will not consent to the use of my tax dollars to grant telecom companies to build more of these harmful towers. We need legislation that will protect people of all ages from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation that causes direct damage to our cells and DNA. Cities all over the world have halted these 5G programs in the interest of safety for their people. Please listen to the voice of your constituents over the money kick backs that the telecom companies are undoubtedly offering. This is one of the most important issues facing our modern society. Please choose wisely.

**HB-2596**

Submitted on: 2/4/2020 7:59:43 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Carrie Nicol	Individual	Oppose	No

Comments:

**HB-2596**

Submitted on: 2/4/2020 8:18:10 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Carmela Tafoya	Individual	Oppose	No

Comments:

We oppose HB2596. We do not approve of our taxpayer money being used to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

I don't give my consent to any act, bill or resolution that supports various aspects of 5G Technology as part of Broadband deployments throughout the State of Hawaii.

I strongly oppose this bill and any legislator who adopts this legislation prior to conducting a thorough peer reviewed health and environmental study via the State Dept. of Health regarding the impact of 5G & related technologies on the health of Hawaii's citizens and all biological life on land, air and sea!

**LATE**

**HB-2596**

Submitted on: 2/4/2020 9:15:25 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Paul Stanley	Individual	Oppose	No

Comments:

I OPPOSE THE BILL FOR 5G BROADBAND DEVELOPEMENT.

The best plan is fiber optic cable to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

I have been a Hawaii public school teacher since 1989 and a school technologist since 1992.

Since 2001 I have been suffering from an illness that the World Health Organization (WHO) calls Electromagnetic Hypersensitivity (EHS). This was caused by over exposure to microwaves (cell phone repeaters on the roof of my working place and wi-fi).

My symptoms include: a burning sensation in my head that continues and increases until I can move away from the source, a terrible sensation of pain through out the body, muscle spasms, irritability, insomnia, confusion, inability to concentrate and others. This all translates to stress on the body which can lead to a whole host of other ailments.

Radio waves are the ultimate pollutant. You can't see, hear, smell them, but contrary to what the "experts" say your body is stressed by them. Unfortunately for me, over exposure has left me with Electromagnetic Hypersensitivity (EHS).

The truth is that the FCC "safety" standards are obsolete and the evidence is that myself and others got sick.

**There are many others in Hawaii that are suffering from this debilitating condition.**

I've had EHS since 2004. I lost my dream job in educational television that I worked so hard to get. This job that I loved exposed me to microwave signals daily for six years until my body broke down and I had to quit. The many cell phone antennas and microwave transmission dishes on the roof above my office pushed me beyond my body's limits.

This was just the beginning of a very long, living nightmare. The damage had been done. I could not even sleep in my own home because of my neighbors' wi-fi signals coming into my home. After twelve years, I still am injured by Electro Magnetic Radiation (EMR).

I lost my job, had to sell my home and I've spent more than \$60,000.00 seeking treatment to heal this affliction. I've spent my life savings and have no money for my children's college education.

If 5G networks are implemented, my life will be even more impossible with antennas everywhere. I ask that it will be stopped until further investigation as to the harms that it creates.

Thank you,

Paul Stanley, M.Ed. (Educational Technology)

PO Box 894821

Mililani, HI 96789

**LATE**

**HB-2596**

Submitted on: 2/4/2020 9:47:12 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
June Haygood	Individual	Oppose	No

Comments:



**LATE**

**HB-2596**

Submitted on: 2/4/2020 11:09:48 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Julia Contreras	Individual	Oppose	No

Comments:

We oppose HB2596. We do not approve of our taxpayer money being used to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**LATE**

**HB-2596**

Submitted on: 2/4/2020 11:43:47 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Eric Day	Individual	Oppose	No

Comments:

Aloha,

I strongly oppose HB2596. I do not approve of our taxpayer money being used to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

Thank You,

Eric Day

Kihei, HI

**LATE**

**HB-2596**

Submitted on: 2/4/2020 11:54:16 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Kara Whitaker	Individual	Oppose	No

Comments:

I strongly OPPOSE this bill. Wireless radiation is a known health concern. We need legislation that will instead protect against this exposure. Thank you.

**LATE**

**HB-2596**

Submitted on: 2/4/2020 12:09:44 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Aline Huntly	Individual	Oppose	No

Comments:

I oppose HB2596. I do not approve of grants being given to private companies installing more harmful cell towers and antennas, including untested 5G technology. Wireless radiation is a known health hazard and we need legislation that will protect our ohana from the hazards of continuous exposure to pulsed microwave radiation, which causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines claim. Fiber is safer, faster, more secure, and protects privacy.

I am one of the growing number of people who experience unpleasant symptoms from radio frequency exposure, but many studies have shown that everyone is affected on a cellular level by 'electrosmog' and the long-term affects should be a serious concern. Many people already experience headaches, feelings of stress, lowered immunity and sleep disturbance from the current RF levels in their homes and work places and studies have shown a connection between high levels of RF exposure and neurological/neuropsychiatric effects such as insomnia, depression, anxiety, headaches, memory loss and confusion. Other effects include suppressed immune response, hormonal disturbance, and cellular damage that can eventually lead to irreversible long-term health effects such as cancer. There are literally thousands of studies conducted by University research labs all over the world showing that wireless radiation does impact the human body in many ways but it seems that the 'studies' financed by the cellular industry (which obviously has a massive bias) have been drowning the unbiased studies, in the US at least. Many other countries take the research much more seriously, recognizing the non-thermal biological effects and taking measures to protect their citizens (and especially their keiki) by setting RF exposure limits to way less than the US does.

I love having access to the internet and totally support access for all throughout the islands...but not at this cost. 5G has barely been tested at and it is quite possibly even more harmful than 4G.

**LATE**

**HB-2596**

Submitted on: 2/4/2020 1:31:26 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Sheila Gage	Individual	Oppose	No

Comments:

We strongly oppose HB2596. We do not approve of our taxpayer money being used to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**LATE**

**HB-2596**

Submitted on: 2/4/2020 1:36:43 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Diane Kitahara	Individual	Oppose	No

Comments:

I STRONGLY OPPOSE TO THIS BILL (2596)!!!

**LATE**

**HB-2596**

Submitted on: 2/4/2020 2:09:36 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Pat Beekman	Individual	Oppose	Yes

Comments:

I strongly oppose this measure because of its danger to human health by microwave radiation, especially 5G. Instead, use safer physical means to convey communications services, such as fiber.

**LATE**

**HB-2596**

Submitted on: 2/4/2020 2:15:52 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
carolina visser	Individual	Oppose	No

Comments:

We oppose HB2596. We do not approve of our taxpayer money being used to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.



**LATE**

**HB-2596**

Submitted on: 2/4/2020 2:46:57 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Meloney Thill	Individual	Oppose	No

Comments:

We very strongly oppose HB2596. We do not support our tax money being used to fund more harmful cell towers and antennas. Wireless radiation has been linked to many health risks including cancer. Childhood cancer is at an all time high and we do not need to have more exposure to anything that can cause so much harm.

Please consider the risks with this and please consider the safety of all individuals living on the Island. We need to be protected by the people we have voted into place.

Thank you for taking the time to read this.

**LATE**

**HB-2596**

Submitted on: 2/4/2020 4:30:56 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Brandon Jamile	Individual	Oppose	Yes

Comments:

We strongly oppose hb2596. Cellular radiation is classified as a carcinogen. Please oppose this bill

**LATE**

**HB-2596**

Submitted on: 2/4/2020 4:32:47 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Deborah Davis	Individual	Oppose	No

Comments:

Aloha!

I oppose HB2596. I do not approve of our taxpayer money being used to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

Thank you for your time and serious consideration!

**LATE**

**HB-2596**

Submitted on: 2/4/2020 5:11:53 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Dale Nelson-Floto	Individual	Oppose	No

Comments:

**LATE**

**HB-2596**

Submitted on: 2/4/2020 5:51:06 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
J Riverstone	Individual	Oppose	Yes

Comments:

Aloha Legislators,

I strongly oppose this bill. While I appreciate the desire for equal access to Internet service for rural communities, this bill should be tabled until the State has ensured that research has been done demonstrating the safety of the latest fifth generation (5G) wireless communications technology.

There is mounting evidence on the dangers of electromagnetic pollution or wireless radiation, and rather than giving carte blanche to the telecom industry, research is needed to prove the safety of the latest technologies. By no means should the State be incentivizing and funding harmful technologies.

Thank you,

Gerald (Jerry) Riverstone

**LATE**

**HB-2596**

Submitted on: 2/4/2020 6:07:19 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Felicia Cowden	Individual	Oppose	No

Comments:

As an individual Kauai County Councilmember, I oppose HB2596. Many of my constituents are vehemently opposed to the introduction of 5G technology to our island community. This house meeting had very little notice. There is a great deal of information that determines this technology has not been proven safe for humans as well as other living beings. At the National Association of Counties, the overwhelming attendance on this topic at the nationwide conference opposed 5G.

**LATE**

**HB-2596**

Submitted on: 2/4/2020 6:31:29 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Tessa Alburn	Individual	Oppose	No

Comments:

I strongly OPPOSE 5G. The research on the negative effects is significant and shows the ***serious and fast-acting health hazards*** of these waves.

Vote for your health and the health of ALL instead.

Please keep these islands SAFE for all concerned, and refrain from 5G and instead install Fiber Optics which as safe for people and for the land.

Thank you.

**LATE**

**HB-2596**

Submitted on: 2/4/2020 7:00:49 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
TANYA NICHOLS	Individual	Oppose	No

Comments:

We oppose HB2596. We do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation. This toxin causes biological damage at levels that are unacceptable.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property value and protects privacy.



**LATE**

**HB-2596**

Submitted on: 2/4/2020 7:18:48 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Daniela Voda	Individual	Oppose	No

Comments:

We oppose HB2596. We do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

Daniela Voda

**LATE**

**HB-2596**

Submitted on: 2/4/2020 7:40:01 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
alison yahna	beekeeper, representing LIFE on Earth	Oppose	No

Comments:

As a mother and a beekeeper I oppose this bill for the reasons of the unstudied, unexamined dangers of 5G exposure. known to be detrimental to human health and deadly to bird, insects and other creatures... please do NOT pass this bill and subject us to ENF and microwave energy frequencies without our knowledge and consent

**LATE**

**HB-2596**

Submitted on: 2/4/2020 7:50:29 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Richard Conrad	Individual	Oppose	No

Comments:

**LATE**

**HB-2596**

Submitted on: 2/4/2020 7:54:44 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Daniel Voda	Individual	Oppose	No

Comments:

We oppose HB2596. We do not approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

Daniel Voda

**LATE**

**HB-2596**

Submitted on: 2/4/2020 8:13:47 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Mary Soliel	Individual	Oppose	No

Comments:

I VEHEMENTLY Oppose HB2596! And so should you if you care about your children, especially, your families, friends, and all of life. I have spent dozens of hours researching the effects of 5G and there is insurmountable proof that wireless radiation is a health hazard, and 5G a hazard many times over.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines! The best plan is fiber to the premises! Fiber is safer, faster, more secure, protects property values and protects privacy. PLEASE for the sake of all of life, oppose this bill. If this passes, I will leave Hawaii and never come back.

Attached is a sample of research I have studied over many months. With this much concern the world over and by top scientist, professionals, and researchers, it is ALL of our moral obligation to put a stop to this dangerous rollout. There simply is no excuse and we must have the courage to say no! Thank you so much!

**LATE**

**HB-2596**

Submitted on: 2/4/2020 8:47:59 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Jaroslava Sibia	Individual	Oppose	No

Comments:

We oppose HB2596. We do not approve of our taxpayer money being used to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**LATE**

**HB-2596**

Submitted on: 2/4/2020 9:01:56 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
John Nagle	Individual	Oppose	No

Comments:

I strongly oppose. Fiber is safer.

**LATE**

**HB-2596**

Submitted on: 2/4/2020 9:02:51 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Sunniva Maguire	Individual	Oppose	No

Comments:

Honorable Chair and Committee Members,  
Please oppose SB2527.

I personally get very strong 3-4 day in duration migraines if I am around wireless radiation. I have a RF frequency measuring device and when it is under a certain level I am fine, however I can only frequent about 5% of the areas I used to enjoy. After thousands of painful headaches one learns. I would like if I may to draw your attention to what Dr. Sharon Goldberg, researchers and medical papers that are not on the telecom industry's payroll have to say.

Dr. Sharon Goldberg is an Integrative Internal Medicine Physician. Her background includes fifteen years as an academic Hospital Medicine physician and medical educator responsible for the training of medical students and resident physicians. She was Assistant Professor at New York City's Mount Sinai Hospital; Albert Einstein College of Medicine and at the University of Miami Miller School of Medicine. She is board certified in Internal Medicine and Integrative Medicine. Dr. Goldberg has clinical expertise treating environmental illness, including Microwave Syndrome (Electro-Sensitivity).

"Wireless radiation has biological effects. Period. This is no longer a subject for debate when you look at PubMed and the peer-review literature. These effects are seen in all life forms; plants, animals, insects, microbes. In humans, we have clear evidence of cancer now: there is no question We have evidence of DNA damage, cardiomyopathy, which is the precursor of congestive heart failure, neuropsychiatric effects...5G is an untested application of a technology that we know is harmful; we know it from the science. In academics, this is called human subjects research." – Goldberg

Mahalo for your time, here is her full testimony :

Video: <https://www.youtube.com/watch?v=CK0AliMe-KA&fbclid=IwAR3gq3BL3fl8u3IF7hh3eEtFZ4nwRNmvZZSp6DIwX-3gRD2cpCmOk0ALBp4>



In writing: The Dangers of 5G Wireless Technology

Wireless radiation has biological effects. Period. This is no longer a subject for debate. When you look at Pub Med and the peer-reviewed literature and these effects are seen in all lifeforms, plants, animals, insects, microbes. In humans we have clear evidence of cancer. There is no question. We have evidence of DNA damage, cardiomyopathy, which is the precursor of congestive heart failure, neuropsychiatric effects. So 5G is not a conversation about whether or not these biological effects exist. They clearly do. 5G is a conversation about unsustainable healthcare expenditures.

EMF Radiation and Diabetes

Why do I say this? We've been sitting on the evidence for EMR and chronic disease for decades. And now we're seeing all these epidemics appearing. So diabetes is the first epidemic. I think most of you know the statistics, they're very scary. 1 in 3 American children will become diabetic in their lifetime and if they're Hispanic females, the number is 1 in 2. So what does this have to do with wireless radiation? Wireless radiation and other electromagnetic fields, such as magnetic fields and dirty electricity, have been clearly associated with elevated blood sugar and diabetes. That is what the Peer-Reviewed Literature says. It is not opinion. The closer you live to a cell tower, the Higher your Blood Glucose. That is based on hemoglobin A1C measurements. So the idea with small cells of putting the cells closer to people's homes and bedrooms scientifically is very dangerous. And from an economic perspective, it's dangerous. And you may not know this, I was shocked to find this out, but the way you create a model of diabetes in rats in the lab is by exposing them to 2.4 GHz. And this is not for long term exposure. I don't have time to talk about the costs, but the huge problem with diabetes really is chronic kidney disease. End stage renal disease – the worst complication of diabetes – leads to hemodialysis. Hemodialysis is an automatic qualification for Medicare and if you don't qualify for Medicare, we still have to dialyze the patient, and the state ends up paying in many different instances. So renal failure is 1% of Medicare, but it takes up 7% of all Medicare expenditures. I don't have time to talk about this anymore, but once again the other epidemics that clearly link from the science with electromagnetic radiation are related to mental health.

Scientific, Peer-Reviews Research on the Dangers of EMF

And this is straight from PubMed (our national library of medicine, where you would go for peer-reviewed literature) and this isn't my opinion, this is science. So we have three epidemics that clearly they're essentially one epidemic. We have deterioration of mental health in the United States. And if you look really at the science, what does it show? And these epidemics are suicide epidemic, epidemics in violent crime, so shootings, and the opioid epidemic. This is in the peer-reviewed literature. These are facts. These are things that have just been glossed over by the wireless industry.

We need to examine our epidemics in the context of our EMF exposures. What does that mean? That means that the CDC should be tracking these epidemics. The CDC needs to start measuring how much radiation people are being exposed to before we roll out 5G. There are four kinds of electromagnetic fields that we know are harmful to human health. Radio frequency radiation, magnetic fields, dirty electricity, and electric fields. Our exposure, any given person, and all humans are affected by EMFs, are given exposure, has nothing to do with the research that my colleagues are going to site with the national toxicology program. That is an assessment of the risk of one cell phone in

the near field. What is our exposure in a day? It's not one cell phone, it's cell phones, it's multiple wireless networks. It's smart meters, it's cell towers, it's this sandwich and it all adds up. And this is a serious problem for occupational health, public safety and personal safety. And I feel that it's irresponsible to be even talking about the Internet of Things (IoT) and rolling out a new, untested technology, when we're not even measuring what are our current exposures from the current networks.

I got interested in electromagnetic fields after my administrator at the University of Miami gave me a new iPhone. I used it for 20 minutes on speaker and my, my finger was burning at the end of the call. That was years ago. I started reading about the science and connecting with other scientists and really my expertise, I've taken care of a lot of patients with chronic disease. So when I talk about diabetes and for instance heart failure, that the national toxicology program shows clear evidence of cardiomyopathy in that study. In other words, that's a precursor to congestive heart failure. This is from the United States renal data system, healthcare expenditures for persons with chronic kidney disease: "Over half of the 2015 medicare spending for beneficiary is age 65 and older was for those who had diagnoses of CKD, diabetes Mellitus or heart failure. All three of these conditions. When you look as an independent scientist (not someone who's funded by wireless) all of those three conditions are linked." So diabetes and heart failure are linked with EMF exposures there. It's very clear.

American Cancer Society and Harmful EMFs

What are we to make of the American Cancer Society (ACS) telling us there's no evidence of a harmful product? Well, at this point there's a national and international 5G appeal that thousands of people have signed. The point is, many of these organizations have conflicts of interest. I don't know who's on their board who made these decisions. I've been reading this literature for years and really I got interested in it because I've spent my career taking care of so many patients who are sick in the hospital. And when I found out about the links, I was just shocked. I couldn't believe it. So I've read these articles myself and the experts who don't work for telecom and who are in their independent research, everyone comes to the same conclusion. We're not in a place where we should be debating this anymore.

This is exactly what happened with tobacco. It's the exact same thing. And really right now the only people protecting the only people who are able to protect Americans are our legislators, because we don't have any relevant, regulatory guidelines to protect human health. The FCC guidelines were developed for short term exposures, 6 minutes, 30 minutes depending on a phone or outdoor exposure and they have absolutely no connection to the biological effects that have been very clearly summarized in the bio initiative. That's a huge document generated all of the summaries are there. There are very concise summaries and abstracts documenting everything that I'm saying.

In academic medicine we have a name for what's happening now with 5G. This is called an untested application of a technology that we know is harmful. We know it from the science. In academics, this is called human subjects research. Human subjects research is very tightly regulated. You can't just roll out some type of a research project on human beings unless A) you have their informed consent, so they understand the risks and benefits, and B) you have the approval. Like someone is actually examining

the literature inside and saying, "This research project, we believe that it's safe. There's no evidence in the science to indicate that it would not be safe." We have decades of evidence to show that it is not safe.

#### The Importance of Evidence-Based Medicine

One of the things that I taught in medical school is evidence based medicine; teaching medical students and residents how to critically evaluate the literature, the science. And one of the first things that you teach residents is that you always have to look at the funding. You can read about it. Marsha Angle, the editor of the New England Journal just wrote a great op Ed in the New York Times about researchers who are funded by private industry. The results of their research are much more likely to support whatever it is that is being funded.

Some people are asking, "What is the amount of EMFs that an individual could be exposed to if these small cells are installed, and what is the prediction of how much EMFs the human body would experience?" The answer is that no one's measuring, and that is the problem. Your exposure will depend on what you do in a given day. So if one cell phone causes cancer, clear evidence of cancer, DNA damage, heart damage, well what happens if you work at an airport? What happens if you work in a stadium where there are 100,000 people coming to watch a football game and everyone's using their phone at the same time? The problem is that we have a very, very systematic, clear, empirical way to measure these exposures. And it's a discipline called building biology. There are certain situations relevant to public safety where we really do need to be measuring with firefighters, with airline pilots. Because when you activate microwave radiation inside an enclosed metal space, you get amplification, you have increased power density. So think about an airplane, everyone's with their devices. Every device is emitting radiation and the access point is right next to the cockpit usually. So what does this do to pilots? What does this do to firefighters? We already have a submission to the FCC from Susan Foster about firefighters that were unable to function in the line of duty. This is from 2013, after exposure to a cell tower that was put up near their station and they also have two way communication devices that they wear. So we have to measure these exposures. That is the start. And not go ahead and roll out a whole bunch of Internet of Things with more like more devices that we're not even measuring what we're exposed to now.

#### Toxicology and Health Effects Of Electromagnetism

Paul Heroux is Professor of Toxicology, Electromagnetism and Health at McGill University. Dr. Heroux Directs the McGill Occupational Health Program. He is a toxicologist who holds a PhD in Physics and began his career working for industry studying health effects of electromagnetic fields and radiation. Professor Heroux currently teaches toxicology and is considered an expert in the field of electro biology, having authored several textbooks. He has extensive teaching and research experience with the biological effects of electromagnetic radiation.

"I want to tackle the subject of insurance. You know that neither Lloyd's of London, nor Swiss Re will underwrite liability policies for electromagnetic radiation because they think the health risk is too great. In other words, they believe that when the lawyers get involved, and I know many of them, the companies who deliver this radiation to the public could be wiped-out... The environment has to be cleaned-up of electromagnetic

radiation progressively, not augmented in radiation. Electromagnetic radiation has repeatedly been linked with cancer in animals...”

I could include so many more credible statements but please do not give taxpayers money to fund the deployment of wireless infrastructure and more of the health crisis we are seeing.

Mahalo,  
Sunniva Maguire

**LATE**

**HB-2596**

Submitted on: 2/4/2020 9:11:23 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Nycki Hardin	Individual	Oppose	No

Comments:

I oppose HB2596. I do not approve of our taxpayer money being used to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard and will further destroy the natural beauty of the land.

We need legislation that will protect people and all living organisms from the hazards of continuous exposure to microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**LATE**

**HB-2596**

Submitted on: 2/4/2020 9:31:36 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
kaitlyn russell	Individual	Oppose	No

Comments:

We oppose HB2596. We do not approve of our taxpayer money being used to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**LATE**

**HB-2596**

Submitted on: 2/4/2020 10:14:41 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
alice Tobin	Individual	Oppose	No

Comments:

I oppose HB2596. I do not approve of streamlining deployment of more harmful cell towers, antennas and small cell facilities that damage life and property values. We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

I do not approve of our taxpayer money being used to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard. We need legislation that will protect people of all ages, and all living organisms. It has been scientifically documented by many doctors that Electro-magnetic radiation from cell towers causes health problems of many kinds, some have even been diagnosed.

Hawaii do not need 5G. Please stop it.

**LATE**

**HB-2596**

Submitted on: 2/4/2020 10:40:38 PM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Alexandra Marshall	Individual	Oppose	No

Comments:

I STRONGLY OPPOSE HB2596, I do NOT approve of grants being given to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard and the citizens of Hawaii should not be exposed to it.

We need legislation to protect us and our environment from continuous exposure of this manmade radiation, which causes biological damage at much higher levels than current US radiation guidelines.

Fiber is a better alternative and is safer, more secure, faster, and protects property values and privacy.

Thank you.



**LATE**

**HB-2596**

Submitted on: 2/5/2020 12:06:44 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
John Ragan	Individual	Oppose	No

Comments:

I strongly OPPOSE **HB2596**. I do not approve of our taxpayer money being used to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**LATE**

**HB-2596**

Submitted on: 2/5/2020 12:07:32 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
L. Ragan	Individual	Oppose	Yes

Comments:

I strongly OPPOSE **HB2596**. I do not approve of our taxpayer money being used to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**LATE**

**HB-2596**

Submitted on: 2/5/2020 7:12:33 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Nichole A.	Individual	Oppose	No

Comments:

I strongly oppose HB2596!

**LATE**

**HB-2596**

Submitted on: 2/5/2020 8:20:54 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Amber Laplante	Individual	Oppose	No

Comments:

I oppose HB2596. I do not approve of our taxpayer money being used to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.

**LATE**

**HB-2596**

Submitted on: 2/5/2020 8:44:30 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Abe Vandenberg	Individual	Oppose	No

Comments:

Lay Fiber, do not use wireless technologies. Connect our communities with cables, not with unproven and dangerous technologies (research and listen to scientists, not Telecom companies..

Please encourage and do you own due diligence to protect our environment and our health

There are many documented negative effects from EMR in the scientific literature as well as anecdotal evidence from around the world. This includes both to wildlife and to human beings.

We should not be test subjects and these projects/expansions of unproven technologies are dangerous.

This is a complex issue and there is a lot of research to be done.

There are already document effects on wildlife:

<https://ecfsapi.fcc.gov/file/7521097894.pdf> - "BEES, BIRDS AND MANKIND Destroying Nature by 'Electrosmog'

Ulrich Warnke - FCC"

5G will substantially increase exposure to radiofrequency electromagnetic fields (RF-EMF) on top of the 2G, 3G, 4G, Wi-Fi, etc. for telecommunications already in place. RF-EMF has been proven to be harmful for humans and the environment.

<https://www.5gappeal.eu/scientists-and-doctors-warn-of-potential-serious-health-effects-of-5g/> - Scientists and doctors warn of potential serious health effects of 5G - [5Gappeal.eu](https://www.5gappeal.eu)

**LATE**

**HB-2596**

Submitted on: 2/5/2020 8:50:29 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Brigitte Bieheller	Individual	Oppose	No

Comments:

**LATE**

**HB-2596**

Submitted on: 2/5/2020 9:16:44 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

Submitted By	Organization	Testifier Position	Present at Hearing
Deborah	Individual	Oppose	No

Comments:

Dear Hawaii State Legislature,

I am very concerned about HB2596, as a citizen, as a doctor and also as a frequenter of Hawaii. The small cell wireless roll out of expanded 4G and 5G services has not been tested for human biological safety. The industry has not heeded the National Toxicology Programs \$30 million dollar study, showing that cell phone frequencies can cause cancer to the brain, heart and damage DNA. The industry has told Congress that it does not have any plans to test for safety. Independent scientists have been studying EMF Radiofrequencies and Microwave frequencies and have determined it to be detrimental to our own human electromagnetic frequencies. Moving forward on such a bill could have catastrophic affects on Hawaii's wildlife, humans, and marine life as well as the fauna and flora.

As a frequent Hawaii visitor (we spend every other year in Hawaii for Christmas holidays), I am concerned if you go forward with this. We will not come to your islands. It will not be safe. I was incredibly concerned when you allowed the 5G Drone to fly above the Maui skies between Lanai and 6 whales became beached (5 died). 5G and other EMF can mess up the migratory sensors of whales, bees and birds. This will have astronomical effects. Has anyone there studied this? If not, you must. Please ask your Maui residents if they have felt the impact of the 5G drones. I implore you to take this slowly and look at all the facts and documents of potential dangers. It may also affect your first responders from responding as seen by Susan Foster's small study of firefighters.<https://ehtrust.org/firefighters-wake-call-us-susan-foster-re-sb-649-opposing-cell-towers-rights-way/>

Please do your research.

Please oppose HB2596.

Sincerely,

Dr. Deborah Sie

**LATE**

**HB-2596**

Submitted on: 2/5/2020 9:33:31 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Cameron Hoffer	Individual	Oppose	No

Comments:

I oppose HB2264 because I do not believe in streamlining the deployment of more harmful cell towers, antennas and small cell facilities that are a hazard to life and property values.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.



**LATE**

**HB-2596**

Submitted on: 2/5/2020 9:33:35 AM

Testimony for EDB on 2/5/2020 9:00:00 AM

<b>Submitted By</b>	<b>Organization</b>	<b>Testifier Position</b>	<b>Present at Hearing</b>
Reina Dawn	Individual	Oppose	No

Comments:

We oppose HB2596. We do not approve of our taxpayer money being used to fund more harmful cell towers and antennas. Wireless radiation is a known health hazard.

We need legislation that will protect people of all ages, and all living organisms, from the hazards of continuous exposure to pulsed, data-modulated, microwave radiation, which is a manmade toxin that causes biological damage at levels many thousands of times lower than current US radiation exposure guidelines.

The best plan is fiber to the premises. Fiber is safer, faster, more secure, protects property values and protects privacy.