

2023

Initiative Petition for a Law Relative to Radiation Limits for Technology and Wireless Facilities

Version B

Be it enacted by the People, and by their authority:

SECTION 1. The General Laws are hereby amended by inserting after chapter 166A the following new chapter:

(a) This chapter shall be known as 'Wireless and Technology Corporations Reducing Radiation'

(b) Technology corporations, including but not limited to internet and personal wireless services providers and electronic product manufacturers, must universally limit electromagnetic field exposures *to the minimum required* for access to their services and operation of their devices. This directive refers in particular to all new products, services, installations, but also, where compatibility exists, to service upgrades, product upgrades, and ongoing software updates. Limits on electromagnetic field exposures shall include but not be limited to the arenas of power density, harmonics, transients, poor power quality, pulsing, interference, and signaling.

Without preventing access to personal wireless services or to communications, radiation exposures must be limited to 'As Low as Reasonably Achievable' or 'ALARA' and 'As Safe as Reasonably Achievable' or 'ASARA' based on the guidance of current, independent science as well as software and technological capabilities, including but not limited to as follows:

1. AB
2. JC
3. KR
4. AOL
5. JPN
6. PHS
7. AB
8. CMT
9. GWS
10. GH
11. BCL
12. U
13. JH
14. YP
15. DO
16. am

- (1) require product and software design, as well as installation, that reduces the power density or 'amount' of radiation;
- (2) use automated protocol-based reductions of the number of emissions, their duration, or integrated dose;
- (3) protect power quality, including compliance with electrical code standard IEEE 519, that may be disrupted by wireless transmissions or use of inverters and transformers;
- (4) conduct measurements and calculations of radiation exposure based on real-life usage and real-life exposure, including worst-case scenarios and cumulative exposure, rather than setting and using arbitrary distances;
- (5) eliminate the use of extraneous wireless transmissions within devices, equipment, and products, in particular where the wireless transmission does not serve the consumer or owner;
- (6) require that all *new* antennas and wireless devices and, where technologically feasible, all *old* antennas and wireless devices – including but not limited to laptops, hearing aids, TVs, and tablets – come equipped with updated software and design that can:
 - (i) stop radiating when positioned against the body;
 - (ii) include a soft key that easily allows all wireless transmissions to be turned on or halted;
 - (iii) set factory and default mode to wired connectivity;
 - (iv) except for cellphones and related devices primarily for mobile communications, require wireless functionality be an opt-in service;

1. AB
2. JC
3. KR
4. QOC
5. JPN
6. PHL
7. AB
8. CM
9. GWS
10. CM
11. BC
12. C
13. SP
14. JPN
15. JPN
16. AM

(v) include a soft key for a mode that only receives and does not transmit;

(vi) insure that digital connectors prevent leakage;

(vii) inhibit radiative emissions in contact with the body;

(viii) use antenna patterns reducing the Percent of Power absorbed in the Head and body and increasing the Percent of Power Radiated for communications; and

(ix) block a device's wireless emissions, but not its' reception, when it is positioned close to the head/body;

(xi) modify the antenna emission pattern (to hemispherical) to radiate away from the head and the body;

(xii) enable mobile phones and other devices to fully operate without wireless connectivity and instead use wired connectivity, including for texting and making calls, when the device is connected to wires such as Ethernet cords;

(xiii) eliminate location and other trivial handshake transmissions when the device is unmoved, set in 'Airplane' mode, powered 'down' or otherwise in an unused state;

(xiv) provide consumers an easy option to turn off wireless emissions completely and still use devices which do not require wireless for usage, such as in the case of hearing aids;

(xx) include easy-to-use software capable of monitoring and limiting calls.

(d) Definitions:

1. HB
2. JC

3. KR

4. AOC

5. PW

6. PS

7. AB

8. CW

9. GS

10. CW

11. BL

12. a

13. SH

14. YD

15. DU

16. AM

'Electromagnetic field' means, in the context of this chapter, the radiation emitted via technology from antennas or from electrical devices in the frequency range from 0 to at least 300 gigahertz. Radiation includes electric fields and magnetic fields, as well as optical and wireless radiation.

'Frequency' is a measurement of the characteristic of a wave of radiation. In one second, the number of times a wave crests is called the hertz and that number is also labeled as the frequency, while distance from peak to peak is the wavelength. Radiation from electronics and modern technologies ranges from approximately 0 hertz to 300 gigahertz, encompassing 300 billion different frequencies of different wavelengths.

'Radiation' means a series of waves of energy that oscillate through space.

'Technology corporations' means corporations that design, manufacture, or sell products or services which involve digital technologies, wireless technologies, or which require for use of the product or service a frequency conversion via an inverter, transformer, or other device.

(d) The attorney general shall enforce good faith compliance of subsection (a) through adjudication of complaints alleging such violations in accordance with chapter 93A. This remedy shall not be exclusive and shall be in addition to all other causes of action, remedies and penalties provided by law, and shall allow for a qui tam action under chapter 93A as well as a private right of action for product liability and negligence.

(e) Upon the effective date of this section, compliance with all software design provisions shall be in good faith and implemented as soon as possible without delay, with subsection (b) paragraph (1) implemented at minimum within 1 year; subsection (b) paragraph (4) implemented within 2 months; and the rest in subsection (b) implemented at minimum within 1 year and 3 months.

SECTION 2. Section 8 of chapter 25C is hereby amended by striking out paragraph (a) and inserting in place the following paragraph:--

1. AB
2. JC

3. KR

4a. OC

5. JPW

6. RS

7. AB

8. CM

9. EHS

10. GEL

11. BC

12. CC

13. SP

14. UP

15. DP

16. AM

“(a) Notwithstanding chapter 159 or any other general or special law to the contrary, the department shall not assume regulatory control of placement, modification, or construction of wireless facilities. The department shall, however, conduct monitoring and data-collecting functions of electromagnetic radiation as emitted from wireless facilities and their successors, including but not limited to mobile radio telephone service or radio utilities, and provide support to municipalities in their review of wireless facility applications and infrastructure.

SECTION 3. Section 8 of chapter 25C shall be known as “Jurisdiction over wireless service; regulatory and enforcement authority.”

SECTION 4. Section 1 of chapter 25C is hereby amended by striking the words ‘without regard to any transmission media or technology’ and inserting in place the following words:-

“with respect to the transmission media and technology that best reduces electromagnetic radiation exposures from 0 to at least 300 GHz”

SECTION 5. Chapter 25C is hereby amended by adding the following new section after section 9:-

(a) There shall be in the department and under the supervision and control of the commissioner a division of communication and electronic radiation monitoring, that shall enable monitoring and accountability of electromagnetic radiation emitted by modern technologies from 0 to at least 300 GHz through the collection and sharing of relevant data. The division shall keep the public informed on findings, maintaining public transparency through reporting except to protect the privacy of planned audits, to protect ongoing criminal investigations, and to prevent crime as defined below.

1. *AB*
2. *SC*

3. *KR*

4. *adC*

5. *JPW*
6. *QA*

7. *AB*

8. *CLW*

9. *GS*

10. *CW*

11. *BC*

12. *C*

13. *SK*

14. *JP*

15. *DO*

16. *HM*

(1) The division shall create an easy-to-understand and searchable database and public state-wide map of relevant wireless facility, related wireless technologies, and wireless radiation data, called the Electromagnetic Database, including but not limited to:

- (i) wireless facility antenna locations, identified by type;
 - (ii) on-site peaks and maximum peak power exposures, reflected in volts per meter and DBM or watts, for wireless facilities and ambient radiation;
 - (iii) incidents where federal exposure limits were exceeded for the general population;
 - (iv) incidents where federal exposure limits were exceeded for the occupational populations;
 - (v) incidents where any state exposure limits were exceeded;
 - (vi) data on dropped calls and denial of service from routine Drive Tests;
 - (vii) frequencies utilized by facilities;
 - (viii) antenna types utilized by facilities, range, and area;
 - (ix) dates and times when transmissions start, are added, and stop;
 - (x) legal contact information for all entities responsible for any wireless facility, including (A) site developer(s); (B) carrier(s); (C) antenna or permit owner(s); (D) property owner(s); and (F) partners, board members, and relevant parent companies;
- (2) Exceptions to subsection (a) paragraph (1) of this chapter can only be granted for the antenna locations used by police or comparable personnel at the federal level to prevent crime where secrecy is required, as in to secretly surveil a criminal and only for the period of time where the secret operation continues. These installations must be included for reporting, but may be included without location data.
- (3) The database shall include not only information on wireless radiation power density, but shall also include other electromagnetic information such as but not limited to power quality and fields from electricity, as well as other relevant electromagnetic data collected during audits and investigations.

1. KB
2. JC
3. KR
4. OC
5. PW
6. BS
7. AB
8. CM
9. GS
10. CW
11. BL
12. EL
13. SR
14. JR
15. DO
16. AM

(4) The division shall include engineers capable of assessing ambient radiation, wireless facilities and related technology for radiation emissions from 0 to at least 300 gigahertz, as potentially emitted by communications technology, as follows in this chapter.

(i) Within each county in Massachusetts, there shall reside a minimum of one full-time engineer from the department equipped and capable of professionally assessing ambient radiation, wireless facilities, and related technologies hereafter each called a county engineer, who shall have or promptly acquire the Building Biology Electromagnetic Radiation Specialist™ certification or an equivalent certification approved by the Building Biology Institute. Each county engineer may not have any other employment and may not receive gifts, money, or any other reward from a carrier or wireless technology corporation, but shall be accountable to the department. Each county engineer shall complete an annual report of work completed that shall be available to the public.

(A) County engineers shall assist local municipalities with the task of assessing radiation emissions from wireless facilities, including for annual audits and applications. County engineers shall review existing facilities and establish, in concert with the department, protocols for providing municipal assistance. County engineers shall support assessments of electromagnetic field radiation by conducting assessments; reviewing the work of independent consultants; and by providing information on available consultants including expertise, frequency range, and clientele.

(B) In conducting and supporting assessment, county engineers shall conduct an on-site assessment and insure as best possible that operators and any other relevant parties of the facility are not aware of when assessments take place. County engineers shall support auditing protocols that include but are not limited to on-site assessments of worst-case scenarios, peak power measurements, maximum peak power measurements, range, direction, and signal characteristics, using volts per meter alongside either DBM or watts. In addition to other equipment, county engineers shall utilize long-term spectrum analyzers to monitor peaks in power density over a period of time.

1. AB
2. JC
3. KR
4. DC
5. JPN
6. JP
7. AB
8. CM
9. GHS
10. GW
11. BL
12. C
13. JP
14. JP
15. DD
16. AM

(C) County engineers shall collect data on dropped calls and denial of service for the public, as well as conduct Drive Tests.

(D) County engineers may assist with identifying abandoned transmitting antennas for decommissioning and removal.

(ii) In addition to reviewing wireless facilities, the division shall assist with investigation of radiation from other technologies with the assistance of a technical or other appropriately qualified engineer or engineers with a background in electrical or radio-frequency engineering.

(iii) The division shall also assist with radiation measurements for epidemiological purposes.

(iv) Any fees set or provided for auditing or for any other services by county engineers may not be provided to the division, department, or county engineer, but must enter the legislature's General Fund for appropriation.

(4) The division shall further provide information, including publications, on how the public and other agencies can best mitigate radiation exposures from technologies within the department's jurisdiction, including telecommunications and cable, including the names of all authors on publications;

(5) The commissioner shall require the reporting and the submission of such specified additional information for division's work. The commissioner shall annually prepare and submit to the governor and the general court, on or before the first Wednesday of November, a report of the division's activity, together with recommendations which the commissioner considers necessary or desirable.

(b) For the purposes of this section, the following words shall have the following meanings:

1. TB
2. JC
3. KR
4. AOC
5. JPW
6. PA
7. AB
8. CLV
9. GHS
10. GHS
11. BL
12. CC
13. JH
14. JP
15. DO
16. AM

'Electromagnetic field' means the radiation emitted via technology from antennas or from electrical devices in the frequency range from 0 to at least 300 gigahertz. Radiation includes electric fields and magnetic fields, as well as optical and wireless radiation.

'DBM' means and stands for decibel milliwatts, and like watt measurements is an average measurement over time of the wireless signal strength of wireless networks. Signal strengths are recorded in negative numbers, and can range from approximately -30 dBm to -110 dBm. The closer the number is to 0, the stronger the cell signal.

'Drive Test' is actual drive test data within that provides for carrier frequencies the date and time for the test or test; the location, in longitude and latitude of each point at which signal strength was recorded; and each signal strength recorded, measured in DBM, for each frequency.

'Federal exposure limits' means the general population or uncontrolled exposure limits set forth within 47 CFR §1.1310(e)(1), Table 1 Section (ii), made applicable pursuant to 47 CFR §1.1310(e)(3) and also means the occupational or controlled exposures set forth within 47 CFR §1.1310(e)(1), Table 1 Section (i), made applicable pursuant to 47 CFR §1.1310(e)(2).

'Frequency' is a parallel name for a wavelength of radiation. In one second, the number of times a wave crests is called the hertz and that number is also labeled as the frequency. Radiation is considered to range from 0 hertz to 300 gigahertz, which encompasses 300 billion different frequencies of different wavelengths.

'Personal wireless service' means commercial mobile services, unlicensed wireless services, and common carrier wireless exchange access services for telecommunications, within the meaning of 47 U.S.C. §332(c)(7)(c)(i), and as defined therein.

'Radio-frequency' refers to radiation frequencies that range from below 3 kilohertz to about 300 gigahertz and which include the communications and radar signals.

1. PB
2. JC
3. KR
4. AC
5. JPN
6. JF
7. AB
8. CM
9. GRS
10. GW
11. BL
12. CC
13. JH
14. JP
15. DO
16. AM

'Radiation' means a series of waves of energy that oscillate through space and in the context of this section refers to electromagnetic fields from electronics and modern IT and communication technologies.

'Site developer' or 'site developers' means individuals and/or entities engaged in the business of constructing wireless facilities and wireless facility infrastructure and leasing space and/or capacity upon, or use of, their facilities and/or infrastructure to wireless carriers. Unlike wireless carriers, site developers generally do not directly provide personal wireless services to end-use consumers.

'Volts per meter' is a unit of measurement that calculates the intensity of radiation. The measurement describes the potential volts between two points one meter apart, so that intensity of the radiation increases as the voltage number increases.

'Wireless carriers' or 'carrier' means companies that provide personal wireless services to end-use consumers.

'Wireless facility' means a facility or facilities used for the provision of personal wireless services, within the current meaning of 47 U.S.C. §332(c)(7)(c)(ii). It means a specific location at which a structure that is designed or intended to be used to house or accommodate antennas or other transmitting or receiving equipment is located. This includes, without limitation, towers of all types and all kinds of support structures, including but not limited to buildings, church steeples, silos, water towers, signs, utility poles, or any other structure that is used or is proposed to be used as a telecommunications structure for the placement, installation and/or attachment of antennas or the functional equivalent of such. It expressly includes all related facilities and equipment such as cabling, radios and other electronic equipment, equipment shelters and enclosures, cabinets, and other structures enabling the complex to provide wireless services. A wireless facility includes site distributed antenna systems, small cell networks, and collocation of distributed antenna systems as well as small cell networks on existing wireless communications infrastructure.

'Wireless carriers' or 'carrier' means companies that provide personal wireless services to end-use consumers.

(c) Upon the effective date of this section, this program shall be established within one year.

1. AB
2. JC
3. KR
4. G. O'Z
5. JPW
6. DS
7. AB
8. CEN
9. GLS
10. GH
11. BL
12. CC
13. JH
14. JP
15. DO
16. AM

SECTION 6. The General Laws are hereby amended by inserting after chapter 159C the following new chapter:-

Without limiting the right of municipalities to craft additional ordinance requirements, the following state-wide regulations shall be required for the operation of wireless facilities:

(a) Annual testing of wireless facility radiation shall be mandated, paid for by the operator of the wireless facility, with municipalities allowed to conduct additional testing at their own expense unless the wireless facility has failed to meet any relevant radiation state requirements or exceeded federal exposure guidelines, in which case testing shall be at the expense of the operator. The annual testing must be provided with a certification under penalty of perjury that the proposed facility, both individually and cumulatively with all other emitters that contribute more than five percent to the cumulative emissions in the vicinity (if any), will comply with federal exposure limits and any state requirements. The testing must be on-site and provide peak power and maximum peak power measurements. The report must be prepared and certified by an engineer acceptable to the municipality, and the testing time must, where possible, be kept secret from the operator. The report must include the actual frequency bands and power density (in volts per meter, watts effective radiated power and in DBM) for all existing and proposed antennas at the site and exhibits that show the location and orientation of all transmitting antennas and the boundaries of areas with exposures in excess of the uncontrolled/general federal exposure limit and the boundaries of areas in excess of the controlled/ occupational federal exposure limit. Each such boundary shall be clearly marked and identified for every transmitting antenna at the project site.

(b) Wireless facility permittees must have the funds in escrow or the insurance to cover potential claims of harm from radiation. In addition to conventional insurance, the permittee shall procure and maintain at its expense or cause its contractor or subcontractor to procure and maintain throughout the term of the permit environmental pollution liability insurance in an amount not less than \$3,000,000 per antenna that covers radiation pollution with

1. JB
2. SC
3. KR
4. OC
5. JPN
6. PA
7. AB
8. CM
9. GUS
10. GW
11. BC
12. CL
13. JR
14. CP
15. DO
16. AM

respect to the wireless facility. The insurance must be obtained from an insurer licensed to do business in Massachusetts and may not consist of self-insured insurance. The relevant policy shall name the municipality, its elected/appointed officials, commission members, officers, representatives, agents, volunteers, and employees as additional insureds. The permittee is to use its best efforts to notify the municipality of any modification to the policy or cancellation of the insurance policy within 30 days.

(c) The permittee shall provide original certificates and amendatory endorsements of copies of the applicable policy language providing insurance coverage required in subsection (b). All certificates and endorsements are to be received and approved by the municipality before any work commences, but failure to obtain documents prior to work shall not waive the licensee's obligation to provide them. The permittee shall furnish updated certificates and endorsements to the municipality annually. The municipality shall have the right to require updated certificates and endorsements or complete, certified copies of the required insurance policies at any time.

(d) The permittee shall provide to the division of electronics and communications radiation described in chapter 25C the documents necessary for completion of the Electromagnetic Database, for monitoring and mapping of data, and to permit the county engineer(s) to conduct random audits at all times at the wireless facility.

(e) An applicant for a wireless facility must provide substantial evidence for any claim of a significant gap in coverage or capacity deficiency, including for any carrier, and provide substantial evidence that the proposed facility would remedy any such gap. The evidence must include:

(1) For claims of a capacity deficiency or gap in service rendering the carrier incapable of providing adequate coverage, the applicant shall provide dropped call records and denial of service records evidencing the number and percentage of calls within which the carrier's customers were unable to initiate, maintain and conclude the use of the carrier's personal wireless services without actual loss of service, or interruption of service.

1. KB
2. SC
3. KR
4. a. OC
5. JPW
6. PS
7. AB
8. CW
9. RUS
10. BW
11. BL
12. CC
13. JH
14. GP
15. DD
16. Am

(2) If, and to the extent that an applicant claims that a specific wireless carrier suffers from a significant gap in its personal wireless services, the applicant shall conduct or cause to be conducted a Drive Test within the specific geographic areas within which the applicant is claiming such gap or gaps exist, for each frequency at which the carrier provides personal wireless services. The applicant shall provide the local authorities with the actual drive test data recorded during such drive test, in a simple format which shall include, in table format:

(i) the date and time for the test or test;


(ii) the location, in longitude and latitude of each point at which signal strength was recorded;

(iii) each signal strength recorded, measured in volts per meter and DBM, for each frequency.

Such data is to be provided in a separate table for each frequency at which the respective carrier provides personal wireless services to any of its end-use customers.

(iv) the applicant shall also submit Drive Test Maps, depicting the actual signal strengths recorded during the actual drive test, for each frequency at which the carrier provides personal wireless services to its end-use customers.

(3) If an applicant claims that it needs a "minimum" signal strength (measured in volts per meter and DBM) to remedy its gap or gaps in service, then for each frequency, the applicant shall provide three (3) signal strength coverage maps reflecting actual signal strengths in three (3) bins in both V/m and DBM, the first being at the alleged minimum signal strength, and two (2) additional three (3) bin maps in both V/m and DBM depicting signal strengths immediately below the alleged minimum signal strength claimed to be required.

1. DB3
2. JC
3. KR
4. aoc
5. JPW
6. PP
7. AB
8. 
9. GUS
10. CW
11. BC
12. OC
13. JA
14. JP
15. DO
16. AM

(f) On public higher education and public school campuses and in state parks and state forests, the installation of new wireless facilities shall be prohibited including, but not limited to, (1) site distributed antenna systems and small cell networks; (2) any structure; and (3) collocation of distributed antenna systems and small cell networks on existing wireless communications infrastructure.

(g) In state parks and state forests, the installation of new wireless facilities shall be prohibited including, but not limited to, (1) site distributed antenna systems and small cell networks; (2) any structure; and (3) collocation of distributed antenna systems and small cell networks on existing wireless communications infrastructure. An exception for wireless connectivity shall be made for minimal installations if required for basic emergency service, with selection of such services chosen to limit wireless infrastructure expansion.

(h) Any applicant or permittee must provide information to the municipality and the county engineer on how to swiftly and safely turn off a facility's transmissions so that the county engineer or municipality can turn off a facility's transmissions in the event transmissions exceed allowable levels.

(i) Violations. An applicant or permittee shall be prohibited from submitting further applications for 6 years if proven to have acted in bad faith in providing data or evidence. If the permittee has acted in bad faith in providing data or evidence or has shown a consistent pattern of non-compliance, the permittee's facility shall be shut down, permit removed, and the facility may be removed at any time. Any facility that is non-compliant but claims innocence, must provide an explanation and evidence of innocence, and further must shut down at once if exposures exceed allowable levels and fix the facility before returning to normal operations.

Any person or other legal entity who fails to comply with or who violates this section or who shall refuse a reasonable request to inspect any premises or who shall have aided or abetted the commission of any such violation shall each be guilty of a separate offense and, upon conviction thereof, shall be subject to a fine of \$600 or imprisonment for a term of not

1. HB
2. JC
3. KR
4. QOC
5. QPW
6. PS
7. AB
8. CWR
9. GKS
10. Qhu
11. BC
12. ac
13. JB
14. JB
15. QO
16. Am

more than 15 days, or both -- the fine of \$600 shall be increased annual in accordance with a 6 percent interest rate. Each day after notice that a violation continues shall be deemed a separate offense. In addition, a civil penalty of \$500 per day may be assessed for any such violation, which civil penalty shall be recovered by the municipality in a civil action -- this penalty shall be increased annually in accordance with a 6 percent interest rate. Outstanding fines of 90 days shall define the facility as abandoned and subject to removal.

This remedy shall not be exclusive and shall be in addition to all other causes of action, remedies and penalties provided by law.

(j) All work completed on wireless facilities shall not be completed as 'one touch make ready' which means that a permittee may alone simply move existing wires from other utilities and antennas to make room for a new antenna or antennas. Instead, all of the entities that already have equipment must be present to insure the electronic and wireless safety of any new installation. If there is an electrical or wireless error that occurs with the installation, this shall be the responsibility of the entity or entities that caused the mistake regardless of the passage of time. An exception to this rule shall be when the utility is removing a wireless antenna, in which case removal rather than installation is the difference allowing a single entity to make a change.

(k) For the purposes of this section, the following words shall have the following meanings:

'Applicant' means any individual, corporation, limited liability company, general partnership, limited partnership, estate, trust, joint-stock company, association of two or more persons having a joint common interest, or any other entity submitting an application for a facility permit, site plan

approval, variance, building permit, and/or any other related approval, for the installation, operation and/or maintaining of one or more personal wireless service facilities.

'Collocation' is to install, mount, or add new or additional equipment to be used for the provision of personal wireless services to a pre-existing structure, facility, or complex which is already built and being used to provide personal wireless service by a different provider of such services, wireless carrier or site developer.

1. *KB*
2. *SC*
3. *KR*
4. *AOY*
5. *DPW*
6. *PSA*
7. *AB*
8. *CLW*
9. *CLS*
10. *CLW*
11. *BC*
12. *CC*
13. *JD*
14. *CL*
15. *DO*
16. *AM*

'Distributed antenna system' or 'DAS' means a network of spatially separated antenna nodes connected to a common source via a transport medium that provides personal wireless services within a geographic area.

'DBM' means and stands for decibel milliwatts, which is a concrete measurement of the wireless signal strength of wireless networks. Signal strengths are recorded in negative numbers, and can range from approximately -30 dBm to -110 dBm. The closer the number is to 0, the stronger the cell signal.

'Facility' means a set of wireless transmitting and/or receiving equipment, including any associated electronics and electronics shelter or cabinet and generator.

'Frequency' is a parallel name for a wavelength of radiation. In one second, the number of times a wave crests is called the hertz and that number is also labeled as the frequency. Radiation from electronics and modern communications ranges from approximately 0 hertz to 300 gigahertz, encompassing 300 billion different frequencies of different wavelengths.

'Macrocell' means a cellular base station that typically sends and receives radio signals from large towers and antennas.

'Node' or 'DAS node' means a fixed antenna and related equipment installation that operates as part of a system of spatially separated antennas, all of which are connected through a medium through which they work collectively to provide personal wireless services, as opposed to other types of personal wireless facilities, such as macrocells, which operate independently.

'Personal wireless service' means commercial mobile services, unlicensed wireless services, and common carrier wireless exchange access services for telecommunications, within the meaning of 47 U.S.C. §332(c)(7)(c)(i), and as defined therein.

'Small cell' means a fixed cellular base station that typically sends and receives radio signals and which are mounted upon poles or support structures at substantially lower elevations than macrocell facilities.

1. PB
2. JC
3. KR
4. AOC
5. JAW
6. CS
7. AB
8. CMS
9. GUS
10. DM ✓
11. BC
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13. AD
14. (U)
15. DO
16. Alm

'Substantial evidence' means such relevant evidence as a reasonable mind might accept as adequate to support a conclusion. It means less than a preponderance but more than a scintilla of evidence.

'Wireless carriers' or 'carrier' means companies that provide personal wireless services to end-use consumers.

'Wireless facility' means a facility or facilities used for the provision of personal wireless services, within the current meaning of 47 U.S.C. §332(c)(7)(c)(ii). It means a specific location at which a structure that is designed or intended to be used to house or accommodate antennas or other transmitting or receiving equipment is located. This includes, without limitation, towers of all types and all kinds of support structures, including but not limited to buildings, church steeples, silos, water towers, signs, utility poles, or any other structure that is used or is proposed to be used as a telecommunications structure for the placement, installation and/or attachment of antennas or the functional equivalent of such. It expressly includes all related facilities and equipment such as cabling, radios and other electronic equipment, equipment shelters and enclosures, cabinets, and other structures enabling the complex to provide wireless services.

(k) Upon the effective date of this section, this section shall be immediately in force.

SECTION 6. Chapter 71 of the General Laws, as appearing in the 2018 Official Edition, is hereby amended by adding the following section:-

Section 98. The department of elementary and secondary education shall require an educational k-12 science and technology standard to the effect that students shall learn about the biological impacts of electromagnetic radiation ranging from 0 to 300 gigahertz emitted by natural radiation and modern technologies, including digital and electronic products and antennas. These educational standards shall be age-appropriate, focusing on scientific grounds beyond thermal heating beginning from grade 7 through grade 12 and only more simply beforehand, but in sum shall be provided for student safety and awareness of consumer, environmental, and occupational health.

1. KB
2. JC

3. KR

4. AG

5. JW

6. QF

7. AB

8. CC

9. GW

10. CW

11. PC

12. CC

13. AD

14. WD

15. DD

16. AM

SECTION 7. The General Laws are hereby amended by inserting after chapter 159C the following new chapter:

(a) This chapter shall be known as 'Radiation and Wireless Corporations.'

(b) Carriers, personal wireless services, and wireless facilities - and any corporation offering internet and telecommunications access - must universally limit electromagnetic field radiation power density, pulsing, and signaling to the minimum required for operation of services. They must use automated protocol-based reductions of the number of emissions, their duration, or integrated dose. Without preventing access to personal wireless services, radiation exposures must be limited to 'As Low as Reasonably Achievable' or 'ALARA' and 'As Safe as Reasonably Achievable' or 'ASARA' based on the guidance of current, independent science as well as software and technological capabilities.

(c) The attorney general shall enforce good faith compliance of subsection (a) through adjudication of complaints alleging such violations in accordance with chapter 93A. This remedy shall not be exclusive and shall be in addition to all other causes of action, remedies and penalties provided by law, and shall allow for a qui tam action under chapter 93A as well as a private right of action for product liability and negligence.

(c) For the purposes of this section, the following words shall have the following meanings:

'Electromagnetic field' means, in the context of this chapter, the radiation emitted via technology from antennas or from electrical devices in the frequency range from 0 to at least 300 gigahertz. Radiation includes electric fields and magnetic fields, as well as optical and wireless radiation.

'Frequency' is a measurement of the characteristic of a wave of radiation. In one second, the number of times a wave crests is called the hertz and that number is also labeled as the frequency, while distance from peak to peak is the wavelength. Radiation from modern

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2. JC
3. KB
4. AJC
5. JPN
6. QJ
7. AB
8. LMS
9. GHS
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13. AD
14. QJ
15. JPN
16. AM

digital and wireless technologies is considered to range from approximately 0 hertz to 300 gigahertz, which encompasses 300 billion different frequencies of different wavelengths.

'Personal wireless service' means commercial mobile services, unlicensed wireless services, and common carrier wireless exchange access services, within the meaning of 47 U.S.C. §332(c)(7)(c)(i), and as defined therein.

'Radiation' means a series of waves of energy that oscillate through space.

'Wireless carriers' or 'carrier' means companies that provide personal wireless services to end-use consumers.

'Wireless facility' means a facility or facilities used for the provision of personal wireless services, within the current meaning of 47 U.S.C. §332(c)(7)(c)(ii). It means a specific location at which a structure that is designed or intended to be used to house or accommodate antennas or other transmitting or receiving equipment is located. This includes, without limitation, towers of all types and all kinds of support structures, including but not limited to buildings, church steeples, silos, water towers, signs, utility poles, or any other structure that is used or is proposed to be used as a telecommunications structure for the placement, installation and/or attachment of antennas or the functional equivalent of such. It expressly includes all related facilities and equipment such as cabling, radios and other electronic equipment, equipment shelters and enclosures, cabinets, and other structures enabling the complex to provide wireless services. A wireless facility includes site distributed antenna systems, small cell networks, and collocation of distributed antenna systems as well as small cell networks on existing wireless communications infrastructure.

SECTION 8. The General Laws are hereby amended by inserting after chapter 159C the following new chapter:

Wireless Investigation

(a) There shall be a prohibition set on the further installation of small cells and wireless facilities as may be used for personal wireless service and driverless cars. This prohibition shall exist while an investigation of the health and environmental effects of the

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16. AM

electromagnetic radiation from these technologies occurs. This investigation shall be completed with a report and opinion on how to address this and other wireless technologies.

(b) The two-year investigation shall consist of a commission with appointees from the following organizations:

- (1) The Attorney General or designee;
- (2) A nominee of the Massachusetts Teachers Association or Boston Teachers Union;
- (3) A nominee of the Massachusetts School Nurse Association;
- (4) One union member nominated by the Massachusetts AFL-CIO;
- (5) One telecommunications worker representative nominated by the Communications Workers of America;
- (6) One doctor nominated by the American Environmental Academy of Medicine;
- (7) One doctor nominated by the Massachusetts Medical Society, ideally with expertise in either cancer, neuroscience, or infertility;
- (9) One pediatric doctor nominated by the Massachusetts Chapter of the American Academy of Pediatrics;
- (10) One doctor nominated by the Greater Boston Physicians for Social Responsibility;
- (11) One doctor or scientists nominated by the Massachusetts Breast Cancer Coalition;
- (12) A representative of the State House selected by the Speaker of the House;
- (13) A senator of the State Senate selected by the President of the Senate;
- (14) A representative of small business appointed by the governor;
- (15) 3 non-voting members appointed by governor:
Telecommunications representative;
Medical system representative;
Engineer in wireless networks;

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5. JPW
6. CP
7. AB
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9. GS
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11. BC
12. CC
13. SP
14. YL
15. DO
16. AM

(16) 4 non-voting commissioners, directors, or their designees for the following departments:

Public Health;

Telecommunications and Cable;

Technical Assistance and Technology Office;

Consumer Affairs & Business Regulation.

(c) The commission's meeting notes, meeting transcripts, other communications, meeting attendance, votes of each member that votes, and member conflicts of interest shall be recorded and made available to the public. Records shall be freely available and immediately accessible for public viewing online as well as included in any commission report(s), with the exception, if more than one report is submitted, that meeting notes, attendance, and communications may be split among reports according to relevant time period.

All commission members with conflicts of interest due to industry or employment shall be prohibited from participating as voting members, but shall be called non-voting members. Any commission member deemed a non-voting member shall recuse himself or herself from any commission votes to decide or influence the the outcome of commission reports and commission decisions, and shall instead serve only to assist the commission. Chairmanship, legislative and policy decisions for reports to the Commonwealth shall be decided by vote only of all members with voting status. Only members deemed voting members may author commission reports.

Certain members of the commission shall automatically be stipulated as non-voting members who attend to assist but may not vote. Non-voting members shall include any member appointed whose livelihood with conflicts of interest, but who nevertheless is a required appointment according to the list of defined members, such as any member appointed by virtue of government position but who has conflicts of interest.

In contrast, all other voting members of the commission must be free of conflicts of interest, and for this reason any nominee shall recuse himself or herself from nomination if conflicts

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5. APW
6. QJ
7. AB
8. CWS
9. GWS
10. QW
11. BC
12. C
13. JH
14. UP
15. ID
16. AM

of interest exist or provide evidence of elimination of conflicts of interest before appointment, such as placement of a relevant investment portfolio into a blind trust.

Conflicts of interest of a commission member shall be defined as a current investment portfolio in or a history or present livelihood depending upon the telecommunications, energy, IT, or utility industry, as well as to related industries such as to the medical device industry. Conflicts of interest of a member shall extend to the member's family, including the member's spouse and relatives within the second degree of consanguinity and affinity.

All commission members, both voting and non-voting members, must file a statement detailing any relevant conflicts of interest and continue to do so in the two years following the commission's final report. These statements must be filed with the Secretary of State promptly during the commission period and in the two years following closure of the commission, and must be freely and immediately accessible to the public online.

Through public hearings, invited speakers, and literature review, the commission shall conduct an investigation including but not limited to the following topics:

- (1) identify past and present factors which may obscure relevant scientific findings, including but not limited to study conditions and methodology (such as but not limited to frequency pulsing and polarization), sources of funding, economic interests, FCC regulations, historic events, and industry compliance;
- (2) utilize the knowledge gleaned from subsection (a) to further critically evaluate scientific research, conclusions, and hearing testimony;
- (3) based on research, identify
 - (1) gaps in knowledge;
 - (ii) common and potential exposures in the past as compared to the present and expected future;
 - (iii) known, likely, and potential impacts of existing and future exposures, particularly in relation to the reproductive, neurological, and immune systems and to agriculture, ecosystems, and the continued viability of the human race;

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4. aoc
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9. BHS
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14. AD
15. AD
16. AM

(4) If legitimate concerns exist to justify limiting exposures, then identify potential guidelines or solutions for safer technology, including with respect to telecommunications, utilities, IT, and building wiring and technology use; identify recommended action steps in the short- and long-term to limit harm from exposures in the arena of private and public buildings, transportation, utilities, workplaces, education, emergency services, medical care, medical devices, building wiring, manufacturing, and government services; identify solutions to limit negative economic impacts upon the general populace and small businesses, including with regard to retirement funds, funding safer technology, and reports of disability or disease caused by exposures.”

SECTION 9. Because first responders utilize technology such as wireless equipment and wireless facilities extensively and reducing exposures may be especially complex, the Commonwealth shall establish a commission to examine how best to mitigate resulting non-ionizing radiation exposures, including the costs and benefits, while maintaining the efficacy of first responder services.

The members of the commission shall elect a chairperson from among the members. The first meeting of the commission shall be called by the first-named senator and the first meeting of the commission shall be held within 45 days of the effective date of this section. Within fourteen months of the first meeting a report of findings, recommendations and drafts of proposed legislation or regulations shall be submitted. Eight members of the commission shall constitute a quorum. The commission shall include the following 14 members or their designees:

- (1) the senate and house chairmen of the Joint Committee on Telecommunication, Utilities and Energy;
- (2) one representative of the Massachusetts Broadband Institute;
- (3) one representative of the Massachusetts Coalition of Police;
- (4) one representative of the Massachusetts Chiefs of Police Association;
- (5) one representative of the State Police Association of Massachusetts;

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7. AB
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9. GHS
10. CW
11. BV
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13. JAW
14. JAW
15. JAW
16. AM

- (6) one representative of the Professional Firefighters of Massachusetts;
- (7) one representative of the EMS Division of the Boston Police Patrolmen's Association
- (8) one representative of the Massachusetts Medical Society;
- (9) two nominees of the Environmental Health Trust;
- (10) one representative of the Massachusetts Environmental Epidemiology Program;
- (11) one member who shall be appointed by the governor, who shall be a professor or lawyer with knowledge of telecommunications policy and history;
- (12) the commissioner of the department of telecommunications and cable.

(d) Definitions:

'Facility' means a set of wireless transmitting and/or receiving equipment, including any associated electronics and electronics shelter or cabinet and generator.

'Frequency' and 'wavelength' are measurements of the characteristics of a wave of radiation. In one second, the number of times a wave crests is measured in Hertz, and that number is called its frequency. Radiation from electronic and digital technologies is considered to range from 0 Hertz to 300 gigaHertz, which encompasses 300 billion different frequencies of different wavelengths.

'Radiation' is a series of waves of energy that oscillate through space.

'Power quality' refers to maintaining the electricity to be smoothly sinusoid at the rated voltage (e.g. 110 volts) and frequency (e.g. 60 hertz) such as through properly powering, grounding, and, where necessary, quality filtering. When power quality is poor, additional frequencies can ride on the electrical lines and power or frequencies can surge or sag. Poor power quality can be caused directly by cheap inverters, improper grounding, and injecting data transmissions onto power lines. The IEEE recognizes that power quality needs to be regulated to protect the normal operation and lifetime of electronic equipment, hence created the IEEE 519 standard.

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3. KR
4. JVC
5. JPN
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7. AB
8. CLW
9. GUS
10. CLW
11. BC
12. CL
13. JPN
14. JPN
15. JPN
16. AM

SECTION 10. Chapter 71 of the General Laws is hereby amended by adding after section 97 the following new section:-

Section 98. (a) Definitions. As used in this section, the following words shall have the following meanings:

"Collocation" means the act of siting facilities on an existing structure without the need to construct a new support structure and without a substantial change in the size of an existing wireless service facility.

"Distributed antenna system" means a network system consisting of one or more nodes connected by a fiber system to a wireless service provider's base transceiver station or other location.

"Mobile service" means the same as defined in 47 U.S.C. § 153(33), as may be amended.

"Non-ionizing radiation" means electric and magnetic fields emitted from frequencies ranging from 0 hertz through 300 gigahertz.

"Small cell network" means a network consisting of one or more nodes connected, directly or indirectly, by fiber to a wireless service provider's mobile switching center or other point of interconnection.

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2. JC

3. KR

4. AOC

5. JPW

6. PP

7. AB

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9. BWS

10. BLW

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13. SP

14. CP

15. DP

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“Structure” means a pole, tower, base station, or other building, whether or not it has an existing antenna facility, that is used or to be used for the provision of personal wireless service (whether on its own or commingled with other types of services).

“Telecommunications service” means the offering of telecommunications for a fee directly to the public, or to such classes of users as to be effectively available directly to the public, regardless of the facilities used.

(b) To the extent possible and within its means, every public school shall eliminate man-made non-ionizing radiation emissions known or likely to be harmful. To the extent possible and within its means, every public school shall establish measures and take action to reduce man-made non-ionizing radiation emissions which are (1) potentially harmful; (2) unintentional; or (3) of unknown effect.

(c) Initial measures. Every public or independent school shall insure, as long as any wireless antennas exist on school property and transmit, that such antennas are set to emit the minimum of power density possible for the minimum time necessary.

Every public school shall prioritize prompt replacement of wireless broadband and telecommunications connectivity in favor of hard-wired access, and shall educate its

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16. AM

students and staff on reducing non-ionizing radiation exposures at school and at home for better health.

Upon resetting any existing wireless antennas to end or minimize transmissions, every public school shall establish routine monitoring systems to insure wireless transmissions do not restart.

(d) Continuing measures. Every public school shall set objectives to methodically reduce all non-ionizing radiation exposures, reasonable deadlines to meet these objectives, and shall keep public records of progress towards each objective as well as a public record of why any objectives have not been obtained.

(e) Wireless Infrastructure. All public public schools and associated school districts shall prohibit use of school property for construction of facilities to provide telecommunications service and other mobile services including, but not limited to, (1) site distributed antenna systems and small cell networks; (2) any structure; and (3) collocation of distributed antenna systems and small cell networks on existing wireless communications infrastructure. Where such facilities are preexisting the public school district shall seek, to the extent within its means, removal of such facilities.

1. KB
2. JC
3. KR
4. OC
5. JPN
6. PA
7. AB
8. CM
9. WS
10. AW
11. BC
12. C
13. JH
14. JH
15. DO
16. AM

(f) Accountability. Administration and good faith progress towards all of the objectives of this section shall be a component of any public school or district review.

SECTION 11. Chapter 15A of the General Laws is hereby amended by adding after Section 15 the following section:-

Section 15A. (a) Definitions. As used in this section, the following words shall have the following meanings:

"Collocation" means the act of siting facilities on an existing structure without the need to construct a new support structure and without a substantial change in the size of an existing wireless service facility.

"Distributed antenna system" means a network system consisting of one or more nodes connected by a fiber system to a wireless service provider's base transceiver station or other location.

"Mobile service" means the same as defined in 47 U.S.C. § 153(33), as may be amended.

"Non-ionizing radiation" means electric and magnetic fields emitted from frequencies ranging from 0 hertz through 300 gigahertz.

1. KB
2. SC

3. KR

4. QOL
5. 8PW
6. Q/A

7. AB

8. CW

9. GHS

10. CW

11. BC

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14. (U)

15. DO

16. AM

"Small cell network" means a network consisting of one or more nodes connected, directly or indirectly, by fiber to a wireless service provider's mobile switching center or other point of interconnection.

"Structure" means a pole, tower, base station, or other building, whether or not it has an existing antenna facility, that is used or to be used for the provision of personal wireless service (whether on its own or commingled with other types of services).

"Telecommunications service" means the offering of telecommunications for a fee directly to the public, or to such classes of users as to be effectively available directly to the public, regardless of the facilities used.

(b) To the extent feasible, every public or independent institution of higher education located in the Commonwealth of Massachusetts and authorized to grant degrees pursuant to any general or special law shall eliminate exposures to man-made non-ionizing radiation known or likely to be harmful. To the extent feasible, every institution shall establish measures and take action to reduce exposures to man-made non-ionizing radiation which is (1) potentially harmful; (2) unintentional; or (3) of unknown effect.

(c) Initial measures. Institutions shall take the following initial steps. Every institution shall insure, as long as any wireless antennas exist on school property and transmit, that such

1. *AB*
2. *SC*

3. *KR*

4. *G.O.C.*

5. *JPW*

6. *CD*

7. *AB*

8. *CD*

9. *Plus*

10. *CD*

11. *BL*

12. *CD*

13. *SD*

14. *CD*

15. *CD*

16. *AM*

antennas are set to emit the minimum of power density possible for the minimum time necessary.

Every institution shall prioritize prompt replacement of wireless broadband and telecommunications connectivity in favor of hard-wired access, and shall educate its students and staff on reducing non-ionizing radiation exposures at school and at home for better health.

Upon resetting any existing wireless antennas to end or minimize transmissions, every institution shall establish routine monitoring systems to insure wireless transmissions do not reset.

(d) Continuing measures. Every institution shall set objectives to methodically reduce all non-ionizing radiation exposures, reasonable deadlines to meet these objectives, and shall keep public records of progress towards each objective as well as a public record of why any objectives have not been obtained.

(e) Wireless Infrastructure. All institutions shall prohibit use of campus property for construction of facilities to provide telecommunications service and other mobile services including, but not limited to, (1) site distributed antenna systems and small cell networks; (2) any structure; and (3) collocation of distributed antenna systems and small cell networks

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2. JC

3. KR

4. GOC

5. JPN

6. PA

7. AB

8. CS/20

9. BKS

10. CW

11. BL

12. C

13. Jd

14. YP

15. DD

16. HM

on existing wireless communications infrastructure. Where such facilities are preexisting the institution shall seek, to the extent within its means, removal of such facilities.

SECTION 12. Chapter 71 of the General Laws is hereby amended by adding after section 97 the following section:-

Section 99. (a) Definitions. As used in this section, the following word shall have the following meaning:

“Building Biology electromagnetic radiation specialist” refers to an electromagnetic radiation specialist certified by the Building Biology Institute, a 501(c)(3) founded in Florida in 1987 based on the German principles of Building Biology.

(b) The department of elementary and secondary education, working with the board of elementary and secondary education, shall develop guidance and recommendations to assist schools in reducing man-made non-ionizing radiation exposures which are (1) known or likely to be harmful; (2) potentially harmful; (3) unintentional; or (4) of unknown effect.

(c) Development. Guidelines shall be based on current science independent of industry influence and shall adopt a cautionary stance. Guidelines shall provide varying approaches in order to account for the variable financial abilities and circumstances of school districts. The department shall consider practices that protect the health and safety of public school

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3. KR

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14. U

15. DO

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students and staff, and may consult with Building Biologist electromagnetic radiation specialists and medical, scientific, and engineering experts provided the following conditions are met: (1) the expert is acknowledged and named in publication of relevant findings; (2) the expert has an appropriate professional and educational background for the expertise provided; and (3) the expert is free of conflicts of interest and free of industry clients, the latter excepting experts contracted with industry only to reduce non-ionizing radiation exposures.

The department shall annually review and update guidance affecting, but not limited to, the purchase, installation, and use of broadband services, digital devices, electrical equipment, lighting, and telecommunications services.

(d) Adoption. From the recommendations, the board of elementary and secondary education shall select those which can quickly and easily be adopted without a financial burden and require adoption as soon as can be arranged. For the remainder, the board of elementary and secondary education shall set reasonable deadlines for adoption, and shall prioritize measures which dramatically reduce detrimental exposures and improve health. The board of elementary and secondary education shall annually review and update as necessary.

Regardless of board guidance, any school in the Commonwealth shall be allowed to set more stringent goals to further reduce non-ionizing radiation exposures.

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2. SC

3. KR

4. aoc

5. JPN

6. PD

7. AB

8. CMS

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(e) The board of elementary and secondary education shall develop a procedure to evaluate the administration and good faith efforts of public schools to reduce non-ionizing radiation in accordance with state and federal law. The evaluation shall be designed in a manner which limits the digital reporting requirements and bureaucratic burden.

(f) If financial or other obstacles block the intent of this section, the secretary of education shall submit to the Governor and the state legislature an explanation.

SECTION 13. Chapter 15A of the General Laws is hereby amended by adding after section 44 the following section:-

Section 45. (a) Definitions. As used in this section, the following word shall have the following meaning:

“Building Biology electromagnetic radiation specialist” refers to an electromagnetic radiation specialist certified by the Building Biology Institute, a 501(c)(3) founded in Florida in 1987 based on the German principles of Building Biology.

(b) To assist public and independent institutions authorized to grant degrees pursuant to any general or special law, the board of higher education shall develop guidance and recommendations in reducing man-made non-ionizing radiation exposures which are (1) known or likely to be harmful; (2) potentially harmful; (3) unintentional; or (4) of unknown effect.

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2. SC
3. KR
4. JC
5. JPN
6. OS
7. AB
8. CDS
9. BWS
10. QW
11. BC
12. CC
13. SD
14. UP
15. DJ
16. AM

(c) Development. Guidelines shall be based on current science independent of industry influence and shall adopt a cautionary stance. Guidelines shall provide varying approaches in order to account for the variable circumstances of institutions. The board shall consider practices that protect the health and safety of public school students and staff, and may consult with Building Biologist electromagnetic radiation specialists and medical, scientific, and engineering experts provided the following conditions are met: (1) the expert is acknowledged and named in publication of findings; (2) the expert has an appropriate professional and educational background for the expertise provided; and (3) the expert is free of conflicts of interest and free of industry clients, the latter excepting experts contracted with industry only to reduce non-ionizing radiation exposures.

The board shall annually review and update guidance affecting, but not limited to, the purchase, installation, and use of broadband services, digital devices, electrical equipment, lighting, and telecommunications services.

(d) Adoption. From the recommendations, the board shall select those which can quickly and easily be adopted without a financial burden and require adoption as soon as can be arranged. For the remainder, the board shall set reasonable deadlines for adoption, and shall prioritize measures which dramatically reduce detrimental exposures and improve health. The board shall annually review and update as necessary.

1. JB
2. JC
3. KR
4. AC
5. JW
6. AS
7. AB
8. AS
9. AS
10. AW
11. AC
12. CC
13. AS
14. AS
15. AS
16. AM

Regardless of board guidance, any institution in the Commonwealth shall be allowed and encouraged to set more stringent goals to further reduce non-ionizing radiation exposures.

(e) Accountability. The board shall develop a procedure to evaluate the administration and good faith efforts of every public and independent institution of higher education in the Commonwealth to reduce non-ionizing radiation in accordance with state and federal law. The evaluation shall be designed in a manner which limits the digital reporting and bureaucratic burden.

SECTION 14. Chapter 40J of the General Laws is hereby amended by adding to the end of paragraph (b) of Section 6B after the word 'growth' the following:-

growth; (v) securing the wired infrastructure that belongs to the public and is used for telecommunications and internet infrastructure; and (vi) support hard-wired connectivity in public spaces. The first priorities of the institute shall be to provide hard-wired communications by supporting the public wired infrastructure outdoors, to begin eliminating holdings in wireless communications except where the technology is utilized by police and emergency services exclusively; and to support hard-wired indoor connectivity in public spaces including schools. By hard-wired, the board shall preferentially support fiber and

1. KB
2. SC
3. KR
4. GOC
5. JPN
6. PS
7. AB
8. CUB
9. BUS
10. CUB
11. BC
12. C
13. J
14. J
15. J
16. Am

shall also support indoor hard-wired Ethernet or fiber connectivity indoors, in particular fiber-to-the-premises over all other internet access.

SECTION 15. Chapter 40J of the General Laws is hereby amended by replacing 'the chairman of the governing board of the John Adams Innovation Institute or his designee;' in paragraph (c) of Section 6B with the following:-

'and an engineer with knowledge of Building Biology'

SECTION 16. Chapter 40J of the General Laws is hereby amended by replacing 'telecommunications, broadband infrastructure, public-private partnership development, information technology or other fields of experience consistent with the mission of the institute' in paragraph (c) of Section 6B with the following:-

telecommunications, broadband infrastructure, public-private partnership development, information technology, Building Biology, reducing exposure, or other fields of experience consistent with the mission of the institute

SECTION 17. Chapter 164 of the General Laws is hereby amended by inserting after section 116B the following section:-

SECTION 116C: Smart/wireless utility meter information

a) As used in this section, the following terms shall have the following meanings:

1. HB
2. SC
3. KR
4. AUC
5. JPN
6. PA
7. AB
8. SEM
9. AUS
10. CW
11. BC
12. C
13. AD
14. UP
15. DO
16. AM

(1) "Electromechanical analog meter", means a purely electric and mechanical device, using no electronic components, no switch mode power supply, no transmitter, no antenna, and no radio frequency emissions.

(2) "Utility company", shall mean an electric, gas, or water company, or town or city-owned utility or other utility provider.

(3) "Wireless meter" shall mean: Any transmitting metering device with electronic components and/or any electric or battery operated meter that is capable of measuring, recording, and sending data by means of a wireless signal from a utility consumer or member to a utility company, municipality, or cooperative association in a manner utilizing one-way communication, two-way communication, or a combination of one-way and two-way communication either through the meter itself or through a device ancillary to the meter. Common names include, but are not limited to, AMR, ERT, smart, AMI, and Comprehensive Advanced Metering Plan CAMP.

(4) "Equivalent technology" shall mean utility infrastructure that communicates data using wireless frequencies, but which may be undisclosed due to proprietary rights.

b) The department of public utilities shall direct utility companies to provide ratepayers the following:

1. KB
2. SC
3. KR
4. A. OC
5. PN
6. PL
7. AB
8. CM
9. CS
10. CW
11. BC
12. CC
13. SD
14. UP
15. DO
16. QM

of a non-wireless utility meter. The utility company shall promptly comply with such removal and replacement installation request made by the ratepayer to said company.

e) Utility companies are:

(1) prohibited from shutting off service to a ratepayer based on the ratepayer's utility usage or on the ratepayer having electromechanical analog meters;

(2) prohibited from imposing any disincentive on a ratepayer for not consenting to the installation or use of wireless meters;

(3) required to notify ratepayers in writing that the installation and use of wireless meters are not mandated by state or federal law and are not permitted without the ratepayer's consent;

(4) prohibited from discriminating against ratepayers who may have medical conditions that are exacerbated by exposures to pulsed microwave radio frequencies; and

(5) prohibited from installing "equivalent technology", such as direct wireless connection to devices in the home or business, on poles or in any other manner near the home or business of an individual requesting a non-transmitting meter.

1. KB
2. SC
3. KR
4. aoc
5. JPN
6. PL
7. AB
8. ~~SC~~
9. ~~PL~~
10. C
11. PL
12. C
13. ~~PL~~
14. ~~PL~~
15. ~~PL~~
16. am

(1) a choice of the type of utility meters to be installed and operated on their places of residence, property or business; among the choices offered shall be the installation and ongoing operation of an "electromechanical analog meter"; and

(2) the ability to retain and operate an "electromechanical analog meter" on an ongoing basis at no cost; and

(3) the right to replacement of a wireless meter with a non-transmitting electromechanical meter at no cost.

c) The utility companies shall be required to obtain the ratepayer's written consent:

(1) before installing wireless meters or "equivalent technology" on the ratepayer's property and

(2) before altering the functionality of said meters.

d) The utility companies shall provide written notice to ratepayers within 90 days of the effective date of this act for the purpose of informing said ratepayers if wireless meters have been installed on their properties. Ratepayers shall have the right to request that the utility companies remove said wireless meters and install in their place electromechanical analog meters that emit no radiofrequency electromagnetic radiation. There shall be no cost or other periodic usage charges to the ratepayer for such removal, replacement installation, and use

1. KB
2. JC

3. KR
4. ADC
5. JPN

6. PA

7. AB

8. QLS

9. RUS

10. GHW

11. BC

12. CC

13. SP

14. YK

15. DO

16. AM

f) The department of public utilities shall establish terms and conditions to comply with the requirements of this section.

g) The department of public utilities shall additionally convene a study of how utilities can eliminate electromagnetic exposures, opening a docket for comment and providing a report to the legislature within one year.

h) This section shall take effect upon its passage.

1. HB
2. SC

3. KR
4. A DC
5. JPV

6. PA

7. AB

8. CL

9. GWS

10. ALW

11. BG

12. CC

13. JH

14. JH

15. DO

16. AM