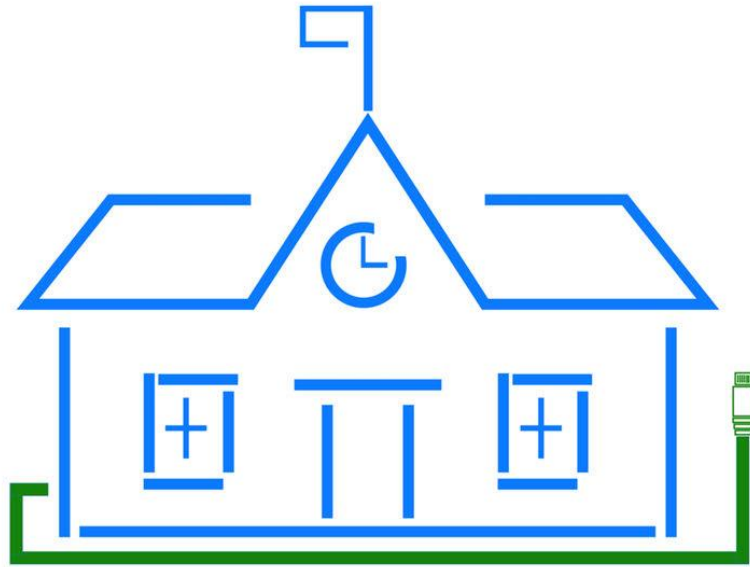




TechSafeSchools

Mitigation & Resource Guide

for EdWeb's Program:

**The Inside Scoop from Tech and Medical Experts
on Improving Students' Behavior and Mood**

Updated October 2025

made possible with support from the Leto Institute



Introduction to TSS' EdWeb Mitigation & Resource Guide:

Why Mitigation of Wireless Radiation is Critical to Protect our Children

Wireless technology has revolutionized our educational system, making it more engaging, as well as providing opportunities to connect quickly to others in the school community and beyond. But this technology comes with an invisible and undeniable risk: all wireless and "smart" devices emit wireless radiation (also known as "radio-frequency radiation" or "RFR"). This type of radiation is a known human health hazard, particularly with cumulative exposures. ***Children are more vulnerable to wireless radiation exposure than adults and will have a lifetime of cumulative exposure.***¹⁶

More than 10,000 published, peer-reviewed studies have documented the serious health effects of wireless radiation exposure, including four studies by the U.S. government. The latest of these studies was released in 2016 by the National Toxicology Program (NTP), part of the U.S. National Institutes of Health. This gold-standard study found "clear evidence of carcinogenesis" (cancer) from exposure to wireless radiation from cell phones.¹¹ A more recent study funded in part by the World Health Organization found "high certainty of evidence linking cell phone radiation to cancer"¹⁸. All wireless devices use the same type of radiation emitted by cell phones.

These findings disprove the theory that non-ionizing radiation is "harmless," which has been the basis for all US government regulations for more than 40 years. The last update to these exposure limits (in 1996) was based on one hour of exposure by 13 rodents, assessing only if there was immediate heating of tissue ("thermal effects"). No cumulative, long-term effects were considered by the Federal Communications Commission (FCC).¹⁸

Documented Health Effects from Cumulative Exposure to Wireless Radiation

Exposure to wireless radiation has been associated with a wide range of both acute and chronic symptoms:

• <i>anxiety/agitation</i>^{32-35, 39} • <i>behavior problems/ hyperactivity</i>^{3, 4} • <i>"brain fog"/ difficulty concentrating</i>²² • <i>cancer and DNA damage</i>⁸⁻¹¹ • <i>cardiac irregularities</i>^{22, 35, 37} • <i>depression / mood symptoms</i>³¹⁻⁴¹ • <i>exacerbation of autism spectrum disorder</i>^{1, 2}	• <i>fertility problems/adverse birth outcomes</i>²⁶⁻²⁹ • <i>headaches / migraines</i>^{20, 37, 38} • <i>immune suppression/ oxidative stress</i>^{42, 43} • <i>inattention / hyperactivity</i>^{3, 4} • <i>seizures</i>^{47, 48} • <i>sleep disturbances</i>⁴⁴⁻⁴⁶ • <i>tinnitus (ringing in the ears)</i>²²
• and Electromagnetic Radiation Syndrome²² (or EMR-S, formerly known as Electromagnetic Hypersensitivity). (Also see Additional References on Pages 20-23)	

Among school children, some may experience just one of these symptoms, while others may have several. If students' symptoms become worse at school and less evident at home (especially after a school break), wireless radiation may be the cause.

Children absorb more radiation than adults, specifically in:

- the hippocampus (brain's center for learning/memory): up to 30X more
- bone marrow of skull: 10x more
- cerebellum: 2x more
- eyes: 2-5x more (especially with Virtual Reality)

Why are Children more vulnerable? They have:

- thinner skulls; more fluid in their brains
- higher percentages of rapidly dividing stem cells (which are vulnerable to all toxins)
- under-developed neurological and reproductive systems
- *plus, a longer lifetime of cumulative exposures* ¹²⁻¹⁷

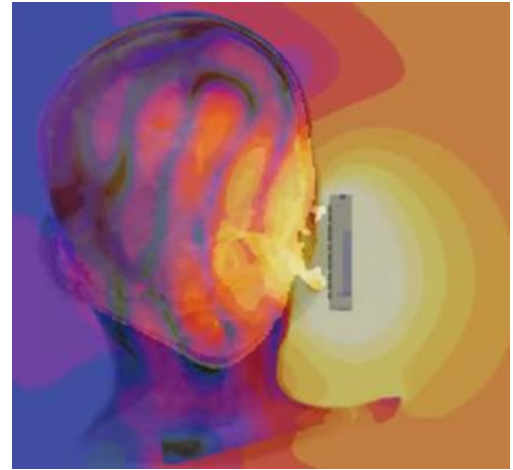


Image courtesy of Environmental Health Trust

For a list of published, peer-reviewed studies on the acute and chronic effects of exposure to wireless radiation, please see the "Science" tab of the TechSafeSchools website:

<https://www.techsafeschools.org/science>

(See Pages 20-23 for Additional References for each of these conditions and symptoms noted above)

Government Standards Are Outdated

Why hasn't the Federal Communications Commission (FCC) taken action to protect public health with updated limits on exposure [in nearly 30 years](#), especially for children?¹⁸ In 2015, an investigative report by [Harvard University's School of Ethics, Captured Agency](#), found that the FCC is a "revolving door" with the management of the agency dominated by executives from the industries it presumably regulates.

Moreover, in 2021, the Federal Court of Appeals found the [FCC guilty of ignoring scientific evidence](#) showing harm from wireless radiation to humans and the environment, and ordered the agency to review its guidelines in light of the latest science.²³ As of September 2025, there has been no action by the FCC to comply with the court's ruling to provide an explanation for this "complete failure to respond to comments concerning environmental harm caused by RF radiation."

Unfortunately, the FCC's outdated, court-challenged standards remain in effect, and are what currently govern the exposure that all U.S. citizens are subjected to, and what manufacturers cling to when defending their wireless devices.

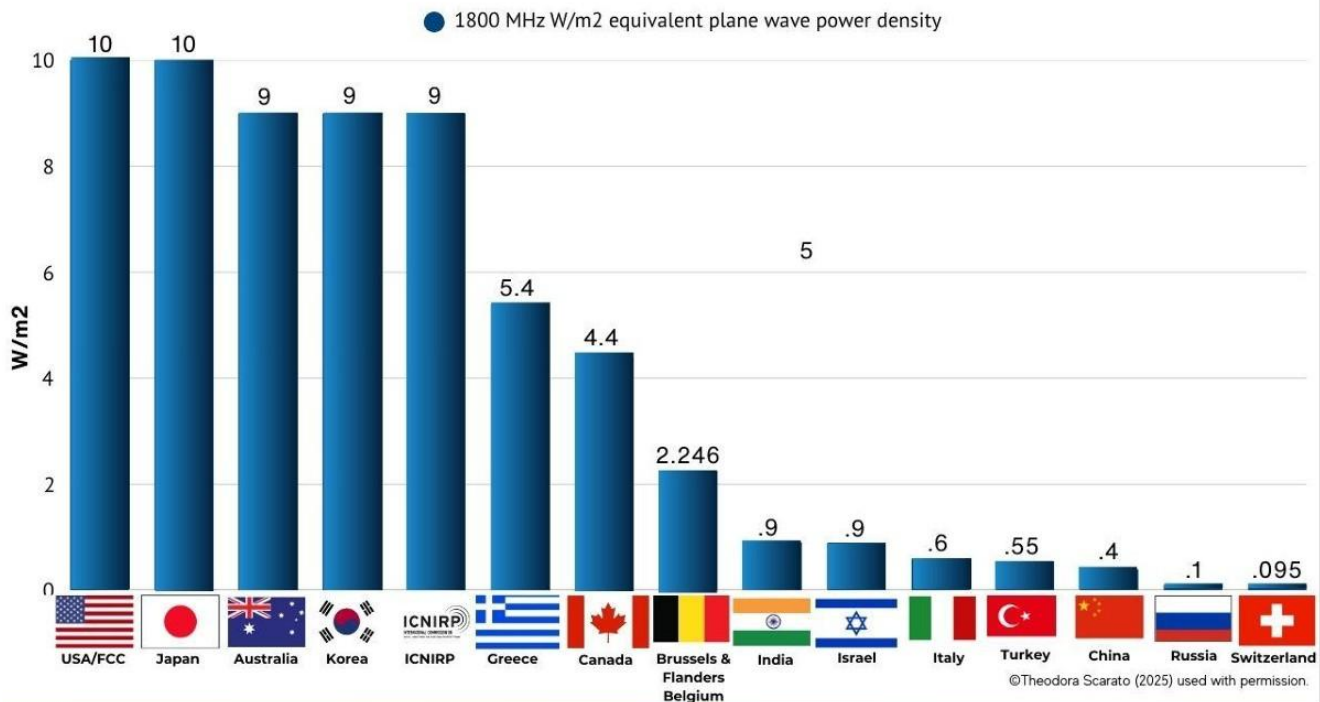
Sampling of U.S. Organizations calling for Reductions in Wireless Radiation Exposure

- [American Academy of Pediatrics](#)
- [American Academy of Environmental Medicine](#)
- [Americans for Responsible Technology](#)
- [The Baby Safe Project](#)
- [California Department of Public Health](#)
- [The California Medical Society](#)
- [The Collaborative for High Performance Schools](#)
- [Maryland State Council on Children's Environmental Health Protection](#)
- [Massachusetts Breast Cancer Coalition](#)
- [New Hampshire 5G Commission](#)
- [New Jersey Education Association](#)
- [Physicians for Safe Technology](#)
- [Santa Clara County \(CA\) Medical Society](#)
- [US Department of the Interior](#)
- [and more than 200 local advocacy groups](#)

Wireless Exposure Limits: US FCC Among the Most Lenient

Country Comparison of RF Limit at 1800 MHz Applied to Homes and Schools

US FCC has the same limit from 1500 MHz to 100,000 MHz



Details for this graph found at <https://ehtrust.org/policy/international-policy-actions-on-wireless/>

Sampling of International Organizations Calling for Lower Exposures to Wireless Radiation Exposure

- [The Austrian Medical Society](#)
- [Cyprus National Committee on Environment and Children's Health](#)
- [The EMF Scientists Appeal](#)
- [European Academy of Environmental Medicine](#)
- [The European Parliament](#)
- [International Association of Firefighters](#)
- [International Commission on the Biological Effects of Electromagnetic Fields](#)
- [The International EMF Scientist Appeal](#)
- [Physicians Health Initiative for Radiation & the Environment](#)
- [Russian National Committee on Non-Ionizing Radiation Protection](#)
- [Swiss Physicians Association of Doctors for Environmental Protection](#)
- [Vienna Medical Association](#)

Countries with Official Recommendations to Reduce Wireless Radiation

Straightforward Advice on Cell Phones: Exposure to Children "Should" Be Minimized



Austria



Belgium



Canada



Croatia



Cyprus



Denmark



England



Finland



France



French Polynesia



Germany



India



Israel



Republic of Korea



Russia



Switzerland



Turkey



Ireland

Source: Presentation by Theodora Scarato, Environmental Health Sciences. Used with permission.

Nations That Restrict Wi-Fi in Classrooms To Protect Children's Health



France



Cyprus



French
Polynesia



Israel



Ghent,
Belgium



Hospitalet,
Spain

Wi-Fi banned in kindergartens

- France, Israel, Ghent Belgium, French Polynesia, Cyprus

Wi-Fi turned Off as default or minimized in elementary classrooms

- France, Israel, Cyprus, numerous school districts

Countries that prohibit cell towers on school property

- Russia, Israel, New Zealand, Chile, Greece, Bangladesh, Lithuania (kindergartens)
- In France, levels must be minimized for base station antenna sites within 100 meters of a school

Source: Presentation by Theodora Scarato, Environmental Health Sciences. Used with permission.

All Wireless Devices Emit Radiofrequency Radiation: Microwave Radiation



Wireless
Phones



Security
cameras



Laptops



Smart
Boards



Computers



Access Points

Smart
Watches



Fortunately, we can measure wireless radiation with the appropriate meters, and we can also mitigate or reduce many of the sources. Measurable levels of wireless radiation are generally extremely high in schools, due to overpowered wireless access points (routers) and hundreds of

wireless devices in use at one time. Compared to other built environments, both schools and hospitals have the most extreme levels of wireless radiation.

While it can seem daunting to deal with mitigating these many sources, there are very simple steps you can take to significantly reduce students’ exposures. We will detail those simple steps in this guide, which takes a “risk reduction” approach.

With the simple strategies outlined in this guide, your school can radically reduce these extreme exposures – and usually at no expense.

How much exposure is too much?

Based on thousands of studies and clinical experiences with patients, the European Academy of Environmental Medicine developed recommendations for what are considered “safer levels” of wireless (RF) Radiation:

- **10 microwatts per meter squared (µW/m2)**
 - **1 µW/m2 for children**
 - **no more than 100 µW/m2 ²²**

Similar standards have been adapted by the [Building Biology Institute \(BBI\)](#) ¹⁹, which also recommends < 1,000 µW/m2 to avoid extreme exposures. These standards are used in EMF assessments internationally. Note the commonly found levels of wireless radiation in a typical classroom, both before and after mitigation using the techniques outlined in this guide:

Common Levels of Wireless Radiation in Schools	Under Access Point	10 feet from Access Point	<i>After Mitigation under access point (following guidance provided in this guide)</i>	<i>After mitigation 10 feet away</i>
	Unit of measurement: µW/m2 (microwatts per meter squared)			
Classroom with no devices on	575,550	11,010	< 350	< 110
Classroom with 20+ laptops and phones powered on	2,500,000	705,000	< 20,200	< 1,500

The dilemma for school leaders: The strong science demonstrating health hazards from wireless radiation puts school leaders in a difficult position. School administrators and board members have a legal, “fiduciary” responsibility to protect students from harm, which protects their schools from liability. Most public schools have invested heavily in wireless technology, after repeated reassurances by the purveyors of wireless systems that their equipment meets or exceeds all government safety guidelines. Now that we know that those guidelines are based on a disproven scientific theory.... ***The question now is, what should we be doing about it?***

The **TechSafe Schools** program is designed for those school leaders who believe that when it comes to children, it is wise to practice the **Precautionary Principle**: When an activity raises threats of harm to human health or the environment, precautionary measures should be taken, even if there is not yet scientific consensus. In this context the proponent of an activity, rather than the public, should bear the burden of proof. Or put more simply: ***It is better to be safe than sorry...particularly with our children.***



Where to Begin

The following mitigation techniques are designed to help you reduce exposure to “**As Low as Reasonably Achievable**” (**ALARA**) for radiation exposures. Before adopting any of these mitigation techniques, it is helpful to know and understand what levels of exposure currently exist.

While there are many EMF meters and detectors on the market, few meters are sensitive and specific enough to provide enough information for us to know whether or not we are actually protecting our children.

Professional Assessment Recommended when Possible: We recommend having wireless radiation assessed by a professional who is trained in measuring exposures based on the biological standards noted above. Those with rigorous training in these methods can be found through the Building Biology Institute. The typical cost for this professional service is often a minimum of \$500.00 dollars for an assessment of several classrooms.

We do not recommend asking tech vendors or hiring “FCC-certified” experts to perform this testing, due to conflicts of interest. This type of expert will often use “average” exposure limits,

with standards that are 40 years old, based only on immediate “thermal effects,” and not protective of children and pregnant women.

DIY Option: We realize that many schools cannot afford a professional assessment. As an alternative, school administrators can purchase or rent a professional grade RF meter to test exposures. There is a huge variation in the quality and reliability of meters used to conduct RF surveys. For a meter that costs less than \$1,000 and detects a wide range of wireless devices in schools, we recommend the **Safe and Sound Pro II**, made by Safe Living Technologies[†].



The Safe & Sound Pro II meter is:

- Both sensitive and specific, reading exposures from Wi-Fi, cell phones, and most wireless devices
- Tested in a third-party lab, with published frequency responses
- +/- 6dB accuracy from 400 MHz to 7.2 GHz; detects signals from 200MHz to 8GHZ
- Costs roughly \$425.00 – and could be loaned to numerous schools in a region through the school libraries. It could also be a tool added to the science teaching of non-ionizing radiation.

Image of Safe and Sound Pro II meter

Basic Operating Protocol for using the Safe & Sound Pro II:

1. With the meter in hand, held at arms' length, begin by waving the meter in Figure 8 pattern while slowly rotating 360 degrees, holding the meter at least one foot away from your body. This way, your body does not block any signal.
2. Keep the meter >1 foot away from metal, mirrors, other reflective surfaces and all wireless devices.
3. **Measure only the “Peak” measurement** to record your data (in microwatts per meter squared: $\mu\text{W}/\text{m}^2$). The “max” setting is simply the highest reading since the meter was turned on or reset. The “average” reading is used by the FCC to determine exposure limitations for humans, in a time-averaged Specific Absorption Rate (SAR). However, this is not how the body experiences the effects of RF radiation. It obscures the unique characteristics of intensity-modulated (pulsed) RF radiation that many scientists and biologists believe is responsible for causing biological harm.

[†] The mention of any product in this guide should not be construed as an endorsement. Any mention of a product or service is simply to offer a possible solution. There is no benefit, financial gain, or conflict of interest to any of the sponsoring organizations.

Baseline Measurements:

Step-by-step, beginning when classrooms are *unoccupied*

1. When the classrooms are unoccupied: Turn off, unplug, or disable all wireless devices, including wireless access points on the ceiling, smart boards, and printers.
2. Remove or power down all laptops, tablets, computers, cell phones, wearables, Bluetooth speakers, smart calculators, and other wireless devices, since these may still be transmitting, even if they are in standby or “airplane mode”.
3. Ensure all wireless devices and personal devices are powered down *in neighboring classrooms* including those located above, below or beside the classroom being measured.



Image of Access Point/ WAP

4. Take measurements of wireless radiation in the front, middle and rear of at least three classrooms (preferably in different parts of the building). Be sure to measure directly under the wireless access point, usually mounted in the center of the room on the ceiling.
5. If there is a cell tower on school property, measure at least one classroom closer to the tower, and one classroom that is further away and out of the tower’s line of sight.
6. In each of these locations noted above (front, middle and rear of classroom). Use the “reset” button between readings. In choosing which number to record, use the middle value of the range, to eliminate any “artifact” from quick response of this sensitive meter.
7. Then, get another set of readings in the same classrooms, with only the WAPs powered on. If steps 1-3 are not viable this is a good compromise, to get a baseline reading before mitigation.
8. ***When school is in session***, repeat these readings with all the equipment turned back on, when a significant number of students (10+) are using their laptops. (This could also be worked into a science curriculum on the effects of non-ionizing radiation.)

Following Mitigation: Take another set of readings to know how it compares. Use step 7-8 above.

Recording your Data: Obtaining accurate measurements of wireless radiation in a classroom is not a simple task! Your readings (and radiation exposure) can vary with building materials, the presence of metal or other reflective objects, the number of devices in use, etc. Yet the data you capture can give you a good idea of the baseline exposure that students are exposed to everyday, and how that changes with the tech used on a regular basis.

Even if you don’t measure the levels of wireless radiation in your school, please follow the steps below – choosing Good – Better – or Best options. It is safe to assume the baseline radiation levels are extremely high, just based on the “default” settings from the manufacturers of wireless access points.

Reducing Students' Exposure to Wireless Radiation

Good – Better – and Best!



Good Options

- **“Distance is your friend”** is a simple rule of thumb for all radiation exposures. Every time the distance from a source to a child is doubled, exposure is reduced by four times, or 400%.
- Always avoid seating students directly under the classroom’s wireless access point.
- Keep laptops off the lap and on the surface of desks.
- Students should view screens at least 12 inches away from their eyes.
- If students are not using the internet, make sure they put their device in airplane mode AND disable Wi-Fi and Bluetooth antennas. These antennas must be disabled, even in airplane mode, to eliminate radiation emissions. Better yet, power down all devices when not in use.
- Hardwire at least the teacher’s internet connection. Then put the laptop on Airplane mode. Most buildings constructed before 2005 still have one or more ethernet ports in classrooms.
- Avoid or strictly limit the use of Virtual Reality headsets.
- Stream only when necessary. Download necessary content or apps beforehand and then work offline (in airplane mode) as much as possible.
- Implement a cell phone-free policy that is “away for the day” from the first bell to the last bell of the day, with phones stored away from students and out of reach all day. (See resources on pages 16 & 17 to assist with this.)

Good Options to Reduce Radiation from Wireless Access Points: IT Help Required

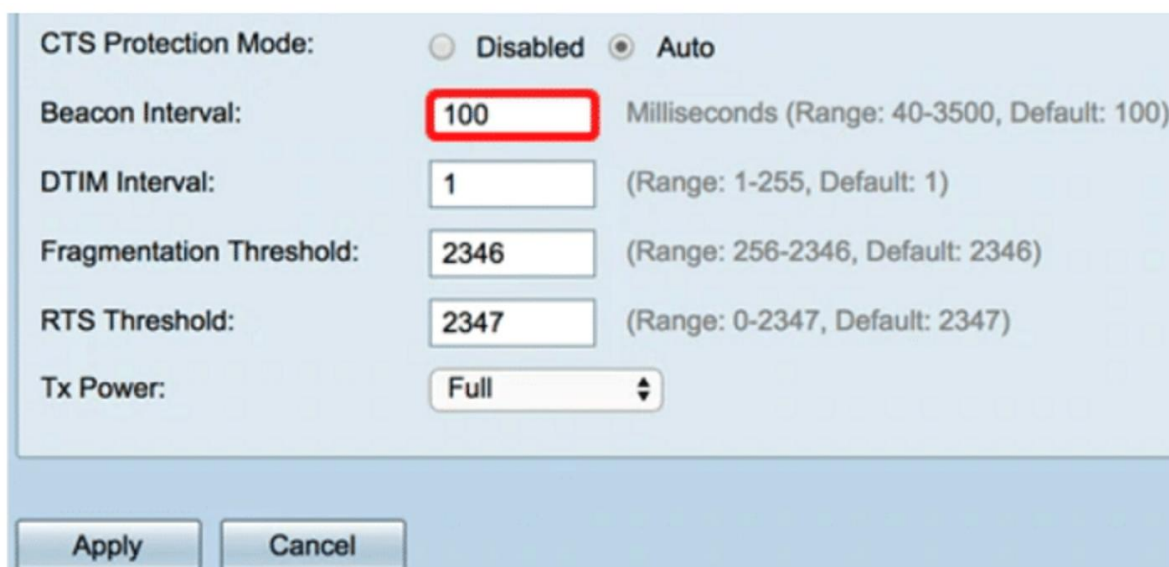
If your school has mounted routers, called wireless access points (WAP), in most classrooms, these simple steps below will not cost anything except the time of your school’s IT director. Most WAPs in school districts are controlled by software, used by IT managers from a central location. The result of these adjustments is much lower RF exposure throughout the entire school. Surprisingly, most schools have found that after these adjustments are made, performance improves in the wireless network due to reduced interference between WAP’s.

The suggestions below should not affect connectivity! Yet it is still advisable to check connectivity with each step, so you can reach the lowest possible level of radiation exposure.

1. **Turn off the 2.45 GHz radio, and leave on the 5GHz radio**, particularly if you have WAP’s in each classroom. This reduces the radiation levels, and reduces interference

between classrooms, because the 2.45 radio has a longer wavelength – reaching much further. When complete, hit “apply” and “save”.

2. **Reduce the transmission power / power level / or “target power to 10%:** This is the simplest and most effective method of reducing the radiation exposure from wireless access points. This will also save energy! This also reduces interference and can often improve connectivity in the immediate classroom. When complete, hit “apply” and “save”.
3. **Adjust the Beacon Signal:** Beacon signals are like one-way broadcast advertisement, saying “I’m here! I’m calling home. And I support these speeds.” The higher the value, the more time between signals, and the less radiation exposure for students and staff. The default for most WAP’s is an interval time of 100 ms (milliseconds). **Adjust this higher to 1000 ms (once a second).** This can also significantly increase the WAP’s battery life. Hit “apply” and “save”.



CTS Protection Mode:	☐ Disabled ☒ Auto
Beacon Interval:	100 Milliseconds (Range: 40-3500, Default: 100)
DTIM Interval:	1 (Range: 1-255, Default: 1)
Fragmentation Threshold:	2346 (Range: 256-2346, Default: 2346)
RTS Threshold:	2347 (Range: 0-2347, Default: 2347)
Tx Power:	Full

Apply Cancel

Beacon adjustment image

4. **Reduce the number of SSIDs** (service set identifiers) in lieu of #2 and #3 above, particularly if you can’t find the Beacon Signal or the power levels. This makes the network more efficient by reducing the “traffic” on an access point. (A U.S. public school district we have worked with successfully reduced their SSID number down to three, and their networks in 45 schools operate very effectively!) This also increases bandwidth and reduces radiation exposures. After reducing the SSID, hit “apply” and “save”.

After taking these steps above, test connectivity with numerous laptops powered simultaneously. If the connectivity is not adequate, turn up the power level in only small doses of five percent.

If your school administrators or IT Director are not yet ready to take any of these steps in adjusting the WAP: Consider the “Signal Tamer” from LessEMF.com[†]. Choose the regular size

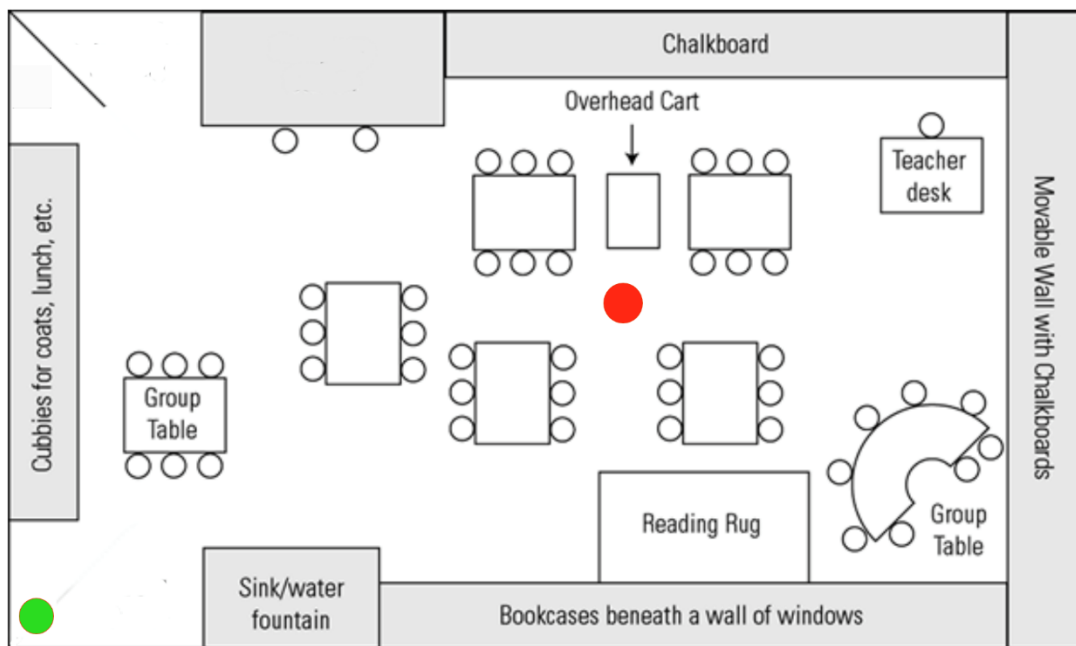
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and regular strength, or creating a covering of your own, using Swiss Shield Daylite fabric.[†] (Other shielding fabrics may block too much of the radiation and cause nearby access points to compensate, emitting more radiation). Place it over an individual access point; secure it with a rubber band. This shielding fabric will reduce the radiation levels by about 90% and will not block connectivity nor cause overheating.

★★★ **Better Options:**

Follow the steps above, plus add one of the following:

- ***Control when the Wi-Fi is turned on, using it only on demand.*** Install a [wall-mounted timer switch](#) or [kill-switch](#)[†] to a dedicated outlet that powers the WAP.
- Power only the fewest number of access points that are needed in your school.
- Use "Sleep Mode" overnight, adjusted in the WAP controller settings, which also saves energy.
- Relocate WAP's away from areas where students and teachers spend the most time. Keep it away from the doorway and other locations of heavy traffic. This can be done over a school break and using input from teachers about the least used locations in their classrooms.
- **For small schools with few wireless devices** used mostly by teachers (such as private classical schools or Waldorf schools), consider the Low-EMF Router by TechWellness.com[†] emits 90% less radiation, has 4 ports for hardwiring, and capacity to turn off Wi-Fi through an app. *This is also a great option for home use.*



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Best Option: Hard-Wire!

Hardwired (“wired”) classrooms are the safest and most secure learning environments for children – with the internet accessed by ethernet cords. Most school buildings constructed before 2005 still have ethernet ports. Many college campuses still have long rows of desks in classrooms that have ethernet connections built into the desks.

Benefits of Hard-Wiring:



- Saves energy – directing energy only to the path through the ethernet cords ⁴⁹⁻⁵⁶
 - Faster connectivity speeds
 - More reliable - fewer connectivity challenges related to building materials and on-line traffic
 - More secure – less risks of hacking; fewer potential security breaches
- Easily adaptable to new technologies – fewer expensive upgrades required
 - ***PLUS: none of the potential health issues of wireless technology.***

Virtually every computer, laptop, iPad, tablet, and smart phone can be easily connected to the internet using simple, low-cost adapters. The adapters by UGreen[†] are “grounded” – with metal on both ends. This grounding both improves connectivity and reduces another EMF – electric fields (or voltage in the air) when coupled with grounded ethernet and grounded switches. When possible, use grounded, shielded ethernet cords, with metal terminals at each end and metal ports.

Where to Prioritize Hard-Wiring if your School is Configured Wirelessly:

1. **Begin by hard wiring each teachers’ laptops/PC**, smart boards, printers, and permanently mounted cameras and projectors. This may require the installation of an inexpensive ethernet switch to provide more ethernet ports. Reducing teachers’ exposures can help them focus and feel less anxious and more resilient in their challenging jobs.
2. Next, prioritize hard-wiring classrooms for special needs students.
3. Then prioritize classrooms for the youngest students (whose bodies and brains are most vulnerable to this cumulative exposure).
4. Consider returning to “computer labs,” or modify media centers with all hard-wired connections, sharing the space with other classes on designated days/times of the week.

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For New Builds: As recommended by the [Collaborative for High-Performance Schools](#), incorporate plans for hardwiring into the building design. This will save the school money in the long run and will create the safest school environment!

Enhancing 504 Plans with Lower Radiation Exposure for Vulnerable Students

- Students with ADD, ADHD, anxiety disorders, autism spectrum disorder, cancer, major depressive disorder, and Electromagnetic Radiation Syndrome (sensitivity to EMF's) should be seated away from wireless access points (typically mounted in the center of the ceiling.)
- Every effort should be made to provide these students noted above with hard-wired connections to the internet. Most schools built before 2005 are equipped with at least one hardwired port. This can be shared between the teacher and student, using a simpler "splitter" / ethernet switch.
- For those students with diagnoses of anxiety and major depressive disorder, a best-practice accommodation for phone-free policies can include asking for a break from class to call a parent, guardian, and/or visit the school counselor. Due to the profound effects of wireless radiation on mood, these are healthier options than allowing these children to keep their phones with them for "comfort."
- For students with diabetes and an insulin pump, their phones can be kept in their backpacks or purse in a case that shields against wireless radiation, from companies such as [ShieldYourBody.com](#) or [TechWellness.com](#)[†]

Phone-Free School Policies: Why & How

In addition to wireless points and laptops, cell phones are the third most common source of wireless radiation exposure in classrooms, and often the one closest to students' bodies. To reduce this radiation risk, the best-practice policy should include keeping phones out of reach all day – from the first bell to the last bell of the day. These "bell-to-bell" policies have shown a wide range of benefits (in addition to reducing radiation exposure).

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Benefits of Bell-to-Bell Policies

- improvements in students' attention, academic success, mental health, and overall social interactions, particularly during lunch periods, plus improved teacher satisfaction!
- reductions in cheating, attendance problems (including mid-class attendance and "bathroom breaks"), social isolation, cyberbullying, physical fights, child exploitation through social media, and overall school safety.

As of 9/22/2025, there are at least 18 U.S. states and the District of Columbia which have passed state-wide bell-to-bell policies. Policies that cover "instructional time only" have limited outcomes and also put the burden of enforcement on over-taxed teachers, rather than school administrators.

In the planning stage of a bell-to-bell cell phone policy, it is crucial to make communication with parents and students a high priority – as you seek their input on HOW such a policy could be implemented, rather than IF a bell-to-bell policy is desired.

Storage options for Cell Phones: There are now numerous options for storing cell phones in schools. The Yondr Pouches provide a simple, yet expensive storage option that hundreds of US schools are now using. However, the Yondr Pouch is not a "faraday bag"; it does not shield the cell phones' wireless radiation. And it is typically kept close to students' bodies - in their purses or backpacks.

Inexpensive means to store phones that are out of reach all day:

- padded envelopes, sorted by homeroom in plastic milkcrates, collected by staff each morning and secured out of reach all day.
- or padded envelopes or file folders in re-purposed metal filing cabinets that lock.
- Hand-made cabinets that lock, constructed by high school students in a carpentry class



Below are two of the best websites to assist schools with developing best-practice policies:

- SmartPhoneFreeChildhoodUS.com: provides on-going, weekly support for policy development and breaking through barriers to implementation
- PhoneFreeSchoolsMovement.org: Sign up to obtain their Phone-Free Schools Administrators' Toolkit, as well as the Ambassadors' Toolkit.

Additional Resources on Phone-Free Schools:

- **Briefing Document by the Distraction-Free Schools Policy Project** : Summary of problems, solutions and Frequency Asked Questions and Answers
<https://docs.google.com/document/d/1KJYBKH1dNWb-x1H1EEAxtBRbatjNHdcoZ-C1km0ZmGY/edit?tab=t.0>
- **Can't Look Away**, a documentary by Bloomberg News, that exposes the dark side of social media and its devastating impact on young users. available until 12/31/25
<https://sfcus.jolt.film/watch/cantlookaway>
- **The Phone-Free Schools Administrator Toolkit: Tools to Implement a Phone-Free School Environment** by Fairplay and Phone-Free Schools Movement *Includes supporting data, implementation materials, and guides for stakeholder communications;*
www.PhoneFreeSchoolsMovement.org
- **Phone-Free Schools on a Budget:** *The webinar (includes transcript): School administrators share successful, low-budget strategies that have worked (including using manila envelopes). Sponsored by Becca Schmill Foundation, Smartphone-Free Childhood USA, and The Anxious Generation Movement* 15 min version found here:
<https://www.youtube.com/watch?v=U8C9m8NvSE>
- **How Can We Make Schools Phone-Free?** *The Anxious Generation Movement: This webpage includes multiple resources for school administrators, educators, and parents - FAQs, templates, data, etc.* <https://www.anxiousgeneration.com/phone-free-schools>
- **The brain science behind bell-to-bell benefits: Neuroscientist Jared Cooney-Horvath's** 13 minute video *provides a powerful brain science-based explanation for why phones have to be physically removed from students for an extended period of time (NOT just "off and away" in backpacks) for benefits of bell-to-bell policies, such as increased attention, to work. The clip on "craving and focus/habits and habit formation" is particularly compelling (minute 3:00 - 5:45)*
<https://youtu.be/3MeS3z2uGgg?si=u2oxKzLbq6bkwFPR>
- **Smartphone Bans, Student Outcomes and Mental Health** (February 22, 2024). Abrahamsson, Sara, Norwegian Public Health Institute, NHH Dept. of Economics Discussion Paper No. 01, <http://dx.doi.org/10.2139/ssrn.4735240> This study highlights academic, social and mental health outcomes of bell-to-bell policies.
- **Toolkit for Assessing Phone-Use in Schools - TAPS** (*Stanford Social Media Lab and Tech and Society Lab at NYU Stern*): A free, ready-to-use evaluation toolkit designed specifically for teachers, administrators, students, parents and policy makers looking to measure the effects of phone policies on student-, family- and school-level outcomes.
<https://tapskit.stanford.edu/>
- **Policies and Practices to reduce tech use in schools:** NC's Burke County Board of Education passed this resolution to intentionally reduce tech use and help teachers with the transition. <https://www.burke.k12.nc.us/board-of-education/balanced-instruction-through-reduced-screen-use>

Additional Policy Recommendations:

1. **Create a school policy and/or school board resolution to keep cell towers**, cellular antennas, and high-voltage power lines off school grounds, including all athletic fields.

If your school already has a cell tower or cellular antennas on the property, this is likely a decision that was based on raising revenue for the school, in a rental agreement with cellular providers. Check with your school system's legal counsel to determine if and when the agreement can be cancelled and the antennas removed.

Assistance with interpretation of the legal contract, and education of school board members on this legal issue, may be available from the Environmental Health Trust. Reach them at Info@EHTrust.org

2. **Consider “tech free” days** as a district-wide policy. NC’s Granville County Public Schools created a guide to assist teachers with [practical teaching tips](#) to make this transition.
3. **Eliminate the use of Virtual Reality** as a policy. Or at very least, send home a permission form to allow parents to understand the risks and to opt-in if they desire.

Reliable Resources on Wireless Radiation Risks:

[TechSafeSchools.org](#) : Resources for more educational tools for schools and parents

[Baby Safe Project.org](#) : Recommendations on safer tech us, along with the related science on fertility effects and birth outcomes; for teachers and students alike. Endorsed by Hugh Taylor, MD, Chair of the Yale School of Medicine’s Dept of Obstetrics and Gynecology.

[EHTrust.org](#) Environmental Health Trust provides analysis of the most important EMF related science, news on worldwide protective policies, and information on practices for safer tech use

[EMF-Portal.org/en](#) : Full online library of all EMF science, plus powerful search engine

[MDSafeTech.org](#): Physicians for Safe Technology worked to create the Santa Clara Co Medical Society’s best practices for safer tech:

<https://mdsafetech.org/2023/08/03/medical-association-adopts-recommendations-for-best-practices-for-safe-technology-in-schools/>

[SafeTechNC.org](#) : See our webinar: *Turning Down the Dial on Wireless Radiation in NC Schools*

[SaferEMR.com](#) : Analysis of EMF science by Joel Moskowitz, PhD, UC Berkeley School of Public Health

Thank you for your interest in creating healthier school environments!



This document is based on " Mitigation Techniques for Reducing RF Radiation in Classrooms," published by TechSafe Schools and used by permission of the copyright owner. This version has been revised by Mary Anne Tierney, RN, MPH, Electromagnetic Radiation Specialist certified by the Building Biology Institute, and director of SafeTech NC.

If you have questions about the recommendations in this guide, reach out to
SafeTechNC@protonmail.com

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Graphic design by



See Scientific References at TechSafeSchools.org:
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School Cell Phone Policy IMPLEMENTATION CHECKLIST

LOGISTICS

- ☐ Determine who will own the new phone policy.
- ☐ Establish how and where phones will be collected.
- ☐ Assign responsibility for checking that phones have been locked away or placed into pouches.
- ☐ Develop a process to manage students who claim they didn't bring a phone to school.
Ex. signing a form each day.
- ☐ Create a clear reporting mechanism for teachers who see students with their phones.
- ☐ Define the specific policy for repeat violations.
- ☐ Identify who will manage follow-up with students and/or families.
- ☐ Plan how to handle students who leave and return during the academic day.
- ☐ Decide on a system for returning phones at the end of the day.
 - Everyone will want them back **right** at the end of the day.
- ☐ Establish a process to address claims of phones being damaged or stolen while in school custody, including how you will handle liability.
- ☐ Develop a strategy to build parent/guardian buy-in around the policy and its consequences for violations.

ACTIVITIES

- ☐ Identify potential pain points in the schedule (lunch, time between bus arrivals and classes starting, etc).
- ☐ Brainstorm activities that can be set up to help take the space of phone use during those pain points.
 - These should be low cost, easy to coordinate (Ex: fort building, water colors, card games, spike ball).
- ☐ Ask or assign adults to oversee this time.

STUDENTS

- ☐ Plan ahead and identify students who may struggle with the cell phone policies.
 - Some students will struggle to adhere to the policies for a variety of reasons: a few will be dealing with a genuine addiction to the technology, others use technology to manage challenges (social isolation/awkwardness; mental illness).
- ☐ Connect the right adults around these kids (counselors, advisors/homeroom teachers) –conversations and planning can go a long way to help.
 - Ideally kids using tech as a coping mechanism will have time to build up other coping skills before the tech is removed.
- ☐ Think through what the consequences are for tech violations for this group: these students will struggle and might make mistakes, but it isn't because they don't care/don't respect rules:
 1. What is a fair way to create consequences that don't involve suspensions?
 - Note: Some schools work with struggling students to create individual cell phone plans
 2. How to involve parents/guardians to support this work?
 3. How do you do this in a way that doesn't presume a lack of compliance?
- ☐ Plan for accommodations to support students with disabilities or health concerns that require technology use during the school day.
 - Early communication with these families and students is **critical**.

FRONT OFFICE

- ☐ Ensure that phone numbers and emails are up to date for students.
- ☐ Ensure that phone numbers and emails are up to date for parents/guardians.
- ☐ Decide how to communicate updates/emergencies–test this system!
- ☐ Set and monitor a space in the front office where students can access their phones–this space can be used to check texts, call home, etc. if necessary.
- ☐ Clearly communicate how parents/guardians can reach their child during the school day. Provide options such as calling the front office or having students come to the office when needed.
 - Since many adults are used to immediate access to their children, establish a plan to manage multiple inquiries, set expectations, and handle any concerns proactively.



How to Talk to Your Kids About Social Media: A Step-by-Step Guide

Step 1: When? Where? While doing what?

Goal: Make a plan for when to have the conversation.

Do:

- ✓ Have the conversation proactively, before the problem happens again.
- ✓ Pick a time your child will be relaxed: in the car, playing catch, taking a walk. Movement is calming.

Don't:

- ✗ Don't sit your child down or call a family meeting, it will put them on the defense.

Step 2: What are you worried about?

Goal: Get really clear about your concerns.

Tips:

- ➔ Be specific!
- ➔ Ask yourself: Why am I worried about this? What outcomes am I worried might happen?
- ➔ If you are having trouble zeroing in on your concern, ask yourself: Is this about my child's health? Safety? Learning? Impact on others?

Step 3: Listen to your child's concern

Goal: Listen to your child, understand their point of view.

What to say:

- 💬 Start with an observation: "I've noticed..." or "It seems like..."
- 💬 Followed by a question: "What's up?" or "Can you fill me in?"
- 💬 Then - zip it! And let them talk.

Tips:

- ➔ Ask clarifying questions
- ➔ Take educated guesses
- ➔ Reflect their words back: "So it sounds like you're saying...is that right?"
- ➔ Reassure them: "Don't worry, you're not in trouble, I just want to understand where you're coming from."

Ready to move on when...

- You've learned something new
- You understand your child's perspective
- Everyone is still calm

Step 4: Share your concern

Goal: Put your concern on the table

What to say:

- 💬 "It seems like [child's concern]..."
- 💬 "AND I'm just worried about..." or "AND the thing is, I just want to make sure..."

Tips:

- ➔ Use AND, not BUT

Ready to move on when...

- There are two sets of concerns on the table: yours and your child's

Step 5: Brainstorm solutions together

Goal: Find a solution that works for both of you

What to say:

- 💬 "I'm sure there's something we can do so that...[child's concern] AND [your concern]. Do you have any ideas?"
- 💬 Let your child take the first crack at the solution
- 💬 No matter what they say, you say: "That's an idea. Let's think about it. Would it work for you, and me?"

Tips:

- ➔ You've got this! These conversations take practice.
- ➔ If it's not going well, it's okay to pause and revisit the conversation later. Don't force it!



The National Association of School Resource Officers (NASRO) is dedicated to making schools and children safer by providing the highest quality training to school-based law enforcement officers.

NASRO, the gold standard in school-based law enforcement training, is a not-for-profit organization founded in 1991 for school-based police, school administrators, and school security and/or safety professionals who work as partners to protect schools and their students, faculty, and staff members.

I have been the Executive Director of NASRO for the last 14 years and prior to that I was a School Resource Officer for 14 years.

NASRO is extremely supportive of a statewide bell to bell phone and social media free policy for grades k-12. We do not support an exception for emergencies. We know that schools, students and staff are safer when student cell phones and personal devices are not present during the school day. For this reason, **if students are allowed to bring personal devices to school they should be securely locked away and inaccessible to the student from the first bell to the last bell of the school day.**

We often hear parents say they want to be able to contact their student in an emergency situation such as an active shooter in the school. However, outside communication during this critical time makes students less safe.

In an emergency situation that requires a lock down the following are essential safety procedures:

- 1) Students need to be focused on the adults giving instructions. During this critical time, students need to listen to the teacher and/or first responders for guidance. Messaging or **calling their parents who are not in the building could distract students from life saving instructions.**
- 2) If in hiding, **students need to remain quiet.** Noise and/or light from students' phone could alert an assailant to the location where students are hiding.
- 3) **Phone lines need to remain open** for communication between staff and first responders. If hundreds of students are calling their parents then the communication channels may be overwhelmed and impede necessary communication with first responders.

4) Clear access to the school allows for faster response times by first responders. **If parents are alerted by students and rush to the school, the extra traffic could potentially block access routes for emergency response vehicles.**

5) **The fewer people approaching the building, the more secure the surroundings.** Parents rushing to the school can risk being mistaken as an assailant.

6) Schools are equipped to manage emergency communication with first responders and with parents. **Misinformation can quickly spread over social media.** If students are texting and posting on social media during an emergency situation it could lead to a more hazardous situation.

For the best outcome it is essential for students NOT to be on their phones during a lockdown. **In addition to phones placing students in more danger during emergency situations, they also contribute to a less safe school environment in general.** A significant portion of discipline referrals result from students having access to phones and social media during the school day. These concerns include privacy violations, social media drama, cyberbullying, and fights. All of which are significantly reduced in schools that require students to lock up their phones for the entire school day. If students have access at any point during the day, lunch or passing periods for example, then these infractions still occur. Therefore, it is prudent that legislation be passed so all students can have a safe and distraction-free learning environment.



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Executive Director
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COLLABORATIVE FOR
HIGH PERFORMANCE
SCHOOLS.



2014 US-CHPS

Criteria

New Construction
and Renovation

Low-EMF Best Practices

Intent

Minimize exposure to extremely low frequency (ELF) magnetic fields.

EQ 15.1 – Low-EMF Wiring

EQ 15.2 – Low-EMF Best Practices

Numerous organizations recommend minimizing exposure to extremely-low frequency (ELF) electric and magnetic fields (EMF).

The US National Electrical Code (NEC) has been published since 1897 to promote safe electrical installations and to prevent fire hazards and electric shock. Wiring errors not only violate electrical code rules but may also cause unnecessary ELF magnetic field exposures. Wiring errors may occur in new construction or modernization projects, and inspections conducted by local code enforcement authorities may not detect the great majority of these problems.

In 2000, the expert panel of the [California EMF Project](#) (scientists of the California Department of Health Services on behalf of the

California Public Utilities Commission) concluded based on the then-available scientific evidence that “*EMFs can cause some degree of increased risk of childhood leukemia, adult brain cancer, Lou Gehrig’s Disease, and miscarriage.*”

In 2002, the International Agency for Research on Cancer classified **extremely low frequency magnetic fields** (ELF MF) as possibly carcinogenic ([monograph volume 80](#)).

In 2006, the [IEQ Indoor Environmental Quality Project](#) committee of the **US National Institute of Building Sciences** recommended to keep [magnetic field exposure levels](#) in occupied areas below 2.5 mG (250 nT), and preferably below 1 mG (100 nT).

In 2009, the **Austrian Sustainability Building Council** with support by the Federal Ministry of Transportation, Innovation and Technology released its latest version of the [Total Quality Building Assessment](#) tool. This green building rating system includes a criterion for low ELF magnetic field exposure levels: less than 1 mG (100 nT) “excellent”, 1-2 mG (100-200 nT) “very good” (summary of threshold levels in [English](#)).

In addition, many education technology tools such as desktop computers, laptops, tablets, and other electronic devices are sources of electromagnetic fields. When used within close range of the human body, a student’s exposure to electromagnetic fields such as ELF magnetic and electric as well as radio-frequency electromagnetic fields may increase considerably. ELF magnetic fields were classified as possibly carcinogenic by the World Health Organization (WHO) International Agency for Research on Cancer (IARC) in 2002, and radio-frequency (RF) electromagnetic fields (including mobile phones) were classified as possibly carcinogenic by the WHO/IARC in 2011. In order to reduce the potential for adverse effects due to these exposures, it is important in school environments with children to apply the precautionary principle “as low as reasonably achievable (ALARA)” by providing low-EMF classrooms, specifying low-EMF IT equipment and wired Internet access network technology, and establishing low-EMF user practices.

EQ 15.1 – Low-EMF Wiring		Credit	
		2 points	
Applicability	Verification		
All projects.	Design Review	Construction Review	Performance Review



Requirement

2 points	EQ 15.1 <i>No net current magnetic fields – Correct school wiring</i> The wiring in all school rooms shall be compliant with the currently adopted US National Electrical Code (NEC) in the local jurisdiction, and applicable state electrical code. All school rooms shall be free of the following common wiring errors: - Improperly wired subpanels (neutral-to-ground bond); - Incorrect three-way switch wiring; - Incorrect wiring of switched outlet circuits; - Neutrals from separate branch circuits that are connected anywhere beyond the panel of origin for the circuits; - Neutral-ground shorts (intentional or inadvertent) anywhere in the system. The correctness of the wiring shall be checked in each room and the ELF magnetic field exposure measured levels (tRMS) comply with 1 mG (100 nT) in new construction and 2 mG (200 nT) in existing school modernizations, see the Austrian Sustainability Building Council (2009) – Total Quality Building Assessment Rating System as shown in Table 13 below.
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EQ 15.2 – Low-EMF Best Practices		Credit	
		1 - 2 points	
Applicability	Verification		
All projects.	Design Review	Construction Review	Performance Review

Requirement

1 point	EQ 15.2.1 <i>Low EMF Best Practices for Computers</i> The District or equivalent governing body for a private school shall pass a resolution requiring: - Desktop computers, laptops, notebooks, and tablets be operated on a desk; operation of these devices on an occupant's lap or body is prohibited; computer workstation equipment must be greater than 2 feet from occupants. - Desktop computers, laptops, notebooks, and tablets be TCO-certified or laboratory tested to meet TCO Criteria "Mandate A.4.2" for EMF emissions. - Laptops or notebooks have an Ethernet port and a physical switch to conveniently disable all wireless radios at once and an adaptor with a 3-pin plug. - Only tablets that support a USB Ethernet adaptor for a wired network connection; operate tablets only in battery mode and not when plugged in.
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OR 1 point	EQ 15.2.2 <i>Wired local area network (LAN) to reduce radio-frequency (RF) EMF</i> • Install a wired local area network (LAN) for Internet access throughout the school. Provide wired network connections for desktop computers, laptops, notebooks, and tablets. All wireless transmitters shall be disabled on all Wi-Fi-enabled devices. Provide wired input devices for computer workstations.
OR 1 point	EQ 15.2.3 <i>Wired Phones to reduce RF EMF in classroom</i> • Install easily accessible hard-wired phones for teacher and student use and prohibit installation and use of standard DECT cordless phones and cordless phones operating at 2.4 GHz and 5.8 GHz unless they have been laboratory tested to demonstrate that the cordless phone base station and handsets (whether placed in the charging station or not) do not emit RF EMF emissions in standby mode. • Prohibit the use of cell phones and other personal electronic devices in instructional areas / classrooms. Additionally, they shall be required to be powered off or be in airplane mode (sleep mode is not sufficient) except during fire-life-safety drills and incidents.

Easy Wi-Fi ON/OFF Timer^{*}

**Enables or disables Wi-Fi Access Point
at the touch of a button**



WHAT?

This switch enables Wi-Fi if needed
ONLY for instruction

HOW?

Simply turn ON switch for **SHORTEST**
length of time needed, light will
indicate time selected^{**}

WHEN?

TO BE USED BY TEACHER/STAFF ONLY
when *****Wi-Fi is needed*****

Remember: In order to successfully reduce RFR
exposure don't forget to disable the Wi-Fi on
individual devices as well!^{***}

THANK YOU FOR YOUR COOPERATION!

^{*} Easily connects in line with existing POE service to access points.

^{**} Switch allows for a Wireless Access Point to be powered on for specific periods of time (30, 60, 90, 120 minutes), and defaults to OFF setting when not in use. ^{***}This is an easy solution for classrooms and also residential dorm rooms to help students reduce exposure to RFR while they sleep. Students have permission to use timer in dorm rooms if Wi-Fi access point is present.

This switch helps to reduce RFR exposure from the Wi-Fi access point. It's important to also disable the Wi-Fi on individual wireless devices as well. *The safest, fastest and most energy efficient way to connect is always via ethernet - not Wi-Fi!*

Be TechSafe in the Classroom

Reducing Exposures to RF Radiation from Wireless Devices

- All wireless devices (laptops, tablets, smart boards, etc.) should be **TURNED OFF** when an internet connection is not needed.
- Always place wireless devices on a desk or table surface. Students should not use wireless devices on their laps.
- Students should view screens at least 12 inches away from their face.
- Create as much distance as possible between students when they are using wireless devices.



Important note: Hardwired networks are best as they increase speed, protect privacy and present no health or safety risks from radiation emitted from wireless devices. If it's not possible to hardwire, ask your IT department to decrease the router power output to as low as possible while still providing good access.

These suggestions are based on information from the World Health Organization's International Agency for Research on Cancer (IARC); The American Academy of Pediatrics; the Journal of the American Medical Association; Microwave News; Environmental Working Group; National Cancer Institute. To read peer-reviewed studies regarding RF radiation and human health, please visit www.techsafeschools.org/science. For additional copies of this poster please visit our website.



www.TechSafeSchools.org

Best Practices for Using Wireless Technology in Schools

All wireless devices emit microwave or radio-frequency radiation (RFR). Scientific studies have shown that this type of radiation, previously thought to be relatively safe, has measurable and harmful biological effects on humans. Developing fetuses and young children are among the most vulnerable to this type of radiation.

The safest solution is to provide wired connections. Wired connections are faster, more secure, more economical and safer than wireless networks. Most wireless routers have Ethernet connections, and allow the wireless function to be disabled. Your IT department can install wired Ethernet connections in classrooms. Computers and tablets can be hardwired to the Internet using adapters.

For situations where hard-wired installations are not yet possible, we recommend the following no-cost guidelines below.

1. Distance is critical. Proximity to wireless devices is the most important factor in determining the amount of radiation exposure. The exposure decreases significantly as you move away from the source.

2. Avoid prolonged contact by keeping wireless devices away from the body. Always place devices on a solid surface. Do not permit students to use devices in their laps. Viewing distance should be a minimum of 12 inches from the screen.

3. Turn off antennas when not in use. On all devices for learning, the default settings should be set to OFF for cellular, Bluetooth, Siri, location services, Wi-Fi and mobile hotspot. Turn specific antennas on for the device only when needed. Typically, students only use Wi-Fi in class.

4. Stream only when necessary. Download necessary apps beforehand and then work offline (in airplane mode) as much as possible. If students are not using the internet, make sure they put their device in airplane mode AND disable Wifi and Bluetooth antennas. These antennas must be disabled, even in airplane mode, in order to eliminate radiation emissions.

5. Turn off wireless devices when not in use.

6. Power down routers when possible. The router is usually the most significant source of radiation in a classroom. The strongest radiation from a router typically extends out from the router 5 to 10 feet in every direction. Find out if the router has an easily accessible power switch that can be turned off when not in use. A router can be moved near the classroom door rather than placed in the middle of the room above student tables or desks.

7. Reduce transmit power of routers and access points. Commercial routers are more powerful than those for home use and are often overpowered for classroom needs. Ask your staff IT person to reduce radiation emissions w/o affecting connectivity to devices by:

- Reducing the transmit power to 25% or less on wireless access points
- Disabling either the 2.4GHz or 5GHz radio on the wireless access point.
- Changing beacon signal interval time from 100 ms to 1000 ms.

8. Require cell phones be turned OFF in classrooms.

For links to scientific studies, as well as legal and technical information regarding the use of wireless technology in schools, please visit www.TechSafeSchools.org

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