

Energy Emissions of Household Items

Electromagnetic Spectrum¹

Additional Resources

FCC: RF Safety FAQ

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

FDA: Radio Frequency Radiation and Cell Phones

<https://www.fda.gov/radiation-emitting-products/cell-phones/radio-frequency-radiation-and-cell-phones>

CTIA: Wireless Health Facts

<https://www.wirelesshealthfacts.com/faq/>

Sources

- 1 Adapted from <https://www.fda.gov/radiation-emitting-products/cell-phones/radio-frequency-radiation-and-cell-phones>
- 2 <https://www.fcc.gov/document/fcc-maintains-current-rf-exposure-safety-standards>
- 3 <https://www.fda.gov/media/135043/download>
- 4 <https://www.fda.gov/media/135043/download>
- 5 <https://www.fda.gov/radiation-emitting-products/cell-phones/scientific-evidence-cell-phone-safety>
- 6 <https://www.audubon.org/news/no-5g-radio-waves-do-not-kill-birds>
- 7 <https://americanbeejournal.com/why-we-shouldnt-fear-5g/>



Gamma rays

↑ Ionizing



X-rays



Ultraviolet



Infrared



Microwaves



Radio waves

↓ Non-Ionizing



Facts About RF Energy

verizon✓

verizon✓

RF 101

Radiofrequency (RF) energy is used to transmit information without wires. It has been safely used for over 100 years. Today, RF is used for life's daily connections – from radios and televisions to smart watches/fitness trackers and wireless headphones, Bluetooth and WiFi routers, and even baby monitors.

RF energy is also used for the wireless technology that provides connectivity for your mobile devices.

Separating the myths from the facts

MYTH: 5G is new and has not been researched.

FACT: Scientists in the U.S. and around the world have conducted research on RF energy for decades. In December 2019², in a unanimous and bipartisan decision, the FCC affirmed that the same RF safety standards that apply to earlier wireless technologies (e.g., 3G and 4G) apply to 5G. The FCC took action after a lengthy proceeding, in consultation with multiple federal agencies and close examination of the RF research. In 2020, the U.S. Food and Drug Administration (FDA) released a report reviewing studies on RF health and safety from the last ten years, and found that “there are no quantifiable adverse health effects in humans caused by exposures at or under the current cell phone exposure limits.”³ The research continues to this day, and agencies continue to monitor it.

MYTH: 5G use of millimeter wave spectrum is harmful.

FACT: RF energy exists all around us, and has many helpful uses. For example, baby monitors use RF energy to convey information and light bulbs use it to provide light. 5G technology uses RF energy to enable very fast wireless internet access service. And 5G technology that uses millimeter wave spectrum is subject to the same FCC safety standards that apply to all frequencies of spectrum used for wireless communications. So, 5G networks using millimeter wave spectrum are not only helpful, but also must meet FCC safety standards.

MYTH: Wireless carriers clustering in an area will cause cumulative RF energy to exceed FCC limits.

FACT: The cumulative RF energy generated by the aggregate antennas must fall within FCC limits.

MYTH: 5G networks put our children at risk.

FACT: No matter which generation of technology we use, all Verizon networks and equipment must comply with federal government safety standards. Those standards have wide safety margins and are designed to protect everyone, including children.

MYTH: 5G will harm the environment and wildlife, disrupting migratory patterns and killing off birds.

FACT: Reports suggesting harmful effects of RF to non-humans, including birds, honey bees, and other insects have been largely discredited. Audobon magazine⁶ published a piece observing that there is no evidence that 5G radio waves kill or otherwise harm birds. The American Bee Journal⁷ also published a piece addressing why there is “no good reason to expect [5G] to harm honeybees.”

BOTTOM LINE: Telecommunications networks and equipment that comply with FCC standards are safe for communities and consumers.