

Radiation Safety Review of Hazards Associated with WiFi Access Point (Router) Exposure

WiFi Access Points, like other technology such as TV, radio, cell phones, pacemakers, and satellites, use RF (radiofrequency) energy to transmit signals as radio waves. These radio waves are a form of “non-ionizing” radiation. Non-ionizing radiation is distinct from “ionizing radiation” (e.g. X-Rays) in that it does not contain enough energy to create ionization. This ionization is the source of potentially carcinogenic cell damage and the reason exposure to *ionizing* radiation is strictly controlled.

When *non-ionizing* radiation interacts with the body, it can cause temperature to rise slightly in exposed tissue (like that seen during exercise) ⁽¹⁾. At high exposure levels, this can result in adverse health effects. Safety standards for non-ionizing radiation exposure are based on maintaining this temperature rise below the threshold for harm. These standards are established based on the best available data with conservative safety factors applied ⁽²⁾.

Many studies have been performed on the potential health effects of RF exposure. The ICNIRP (International Commission on Non-Ionizing Radiation Protection) evaluation ⁽¹⁾ of this research concluded that no adverse effects are likely if RF exposure is maintained below the established threshold for thermal effects. Similarly, IEEE (Institute of Electrical and Electronics Engineers) review of recent research ⁽²⁾ concluded that there is “...no credible indication of adverse effects caused by chronic exposures below levels specified...”

WiFi Access Points and other RF devices used by the University of Rochester are required to meet FDA requirements and FCC standards for emitted radiation. FCC rules for RF radiation are based on safety standards developed by IEEE and other non-governmental organizations ⁽³⁾. Based on the best available science, there is no reason to be concerned about adverse health effects due to exposure to these devices.

References and additional sources of science-backed information on RF exposure are included below:

- (1) ICNIRP | Wi-Fi, <https://www.icnirp.org/en/applications/wi-fi/index.html>.
- (2) IEEE Std C95.1-2019, IEEE Standard for Safety Levels with Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 Hz to 300 GHz.

Publicly available at: <https://standards.ieee.org/ieee/C95.1/4940/>.
- (3) Wireless Devices and Health Concerns | Federal Communications Commission (fcc.gov), <https://www.fcc.gov/consumers/guides/wireless-devices-and-health-concerns>.

Cell Phones | FDA, <https://www.fda.gov/radiation-emitting-products/home-business-and-entertainment-products/cell-phones>.

ICNIRP | FAQ, <https://www.icnirp.org/en/rf-faq/index.html>.

ICNIRP Guidelines for Limiting the Exposure to Electromagnetic Fields (100 kHz to 300 GHz),
<https://www.icnirp.org/cms/upload/publications/ICNIRPrfgdl2020.pdf>

Non-Ionizing Radiation From Wireless Technology | US EPA, <https://www.epa.gov/radtown/non-ionizing-radiation-wireless-technology>.

Sincerely,

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