

## Radiofrequency radiation

### What is radiofrequency radiation?

Radio frequency (RF) radiation, a type of non-ionizing radiation, refers to energy that transmits wireless information with frequencies from three kilohertz (kHz) to 300 megahertz (MHz).

RF energy is essential for telecommunications services such as radio and television broadcasts, cellphones, microwave point-to-point links, and satellite communications. As demand for cellular and wireless services grows, more of these antennas are being placed on rooftops and sides of buildings. Many are disguised to hide their presence. Energy released by these antennas may have different sizes and emit RF radiation in different directions, up to 360 degrees.

### Is RF radiation hazardous?

Low-level RF radiation is not considered hazardous. However, at the levels produced by telecommunication equipment, it can pose a health risk for workers. In humans, high exposure levels can produce symptoms known as thermal effects due to the ability of RF energy to rapidly heat tissue; reddening of the skin and burns are examples. People with active electronic implantable medical devices (pacemakers and insulin pumps, for example) should first consult a doctor before entering areas where exposure to RF radiation is possible.



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### Are the antennas that transmit RF radiation safe?

Access to antennas that transmit high levels of RF radiation is usually restricted so that the public is not exposed to high-level RF radiation. But it is possible for workers to be exposed if they work near RF-generating antennas. At a minimum, look for signs and keep your distance if possible. Make sure that you are not right in front of the antennas and not pointing directly at your work.

That's most likely to happen near antennas used for cellular and other personal communications services because they are often located on rooftops, the sides of buildings, and other elevated structures in urban and suburban areas. These antennas are typically rectangular panels arranged in groups. Other antennas are designed to blend into their surroundings and workers may not be aware of them. However, not all of these antennas transmit RF energy; some may be receivers.

The RF energy that could be radiated by cellular and other personal communications services antennas depends on the number of transmitters, the power of each transmitter, and the type of antenna. Generally, the highest exposure levels are at the same height and directly in front of the antenna, but the exposure levels rapidly decrease with distance.

### How do I know if I'm overexposed to RF radiation?

In the United States, the Federal Communications Commission (FCC) has adopted safety guidelines for evaluating RF exposures, based on recommendations of the National Council on Radiation Protection and Measurements and the Institute of Electrical and Electronics Engineers.

### Does Oregon OSHA have health and safety rules covering exposure to RF radiation?

1910.97 Nonionizing Radiation, along with the FCC's exposure guidelines, depends upon the electric and magnetic field strength and power density of the transmitter.



### How can I protect myself from RF radiation?

A personal RF monitor can warn you if you are in an area where RF radiation is at a dangerous level, based on the FCC's exposure guidelines, but you need to learn how to use it and understand how to interpret RF exposure levels.

### If you don't have an RF monitor, these tips can help you:

- Look for warning signs posted near RF antennas; the signs should identify the hazard and tell you where to get more information.
- Avoid standing directly in front of or close to an antenna. As a rule of thumb, stay six feet away from a single antenna and 10 feet away from a group of antennas.
- If you are not sure, ask your supervisor, the building owner, or the property manager if RF-generating antennas are present where you need to work. The building owner or property manager should have the information, or know whom to contact for information about antennas, their locations, and the RF radiation levels.
- The antenna owner should move or temporarily power down the device if RF radiation levels are high where you need to work.

