

For educational purposes, please find the information taken directly from the FAQ section of the FCC website on Tower and Antenna safety:

ARE WIRELESS CELLULAR AND PCS TOWERS AND ANTENNAS SAFE?

Cellular wireless radio services transmit using frequencies between 824 and 894 megahertz (MHz). Transmitters in the Personal Communications Service (PCS) use frequencies in the range of 1850-1990 MHz. More recently, advanced wireless services have been or are being introduced that transmit at frequencies in the 600, 700, 800, 1695-1780, 1915-1920, 1995-2020, 2110-2200 MHz spectrum ranges. Antennas used for cellular and PCS transmissions are typically located on towers, water tanks or other elevated structures including rooftops and the sides of buildings. The combination of antennas and associated electronic equipment is referred to as a cellular or PCS "base station" or "cell site." Typical heights for free-standing base station towers or structures are 50-200 feet. A cellular base station may utilize several "omni-directional" antennas that look like poles, 10 to 15 feet in length, although these types of antennas are less common in urbanized areas.

In urban and suburban areas, cellular and PCS service providers commonly use "sector" antennas for their base stations. These antennas are rectangular panels, e.g., about 1 by 4 feet in size, typically mounted on a rooftop or other structure, but they are also mounted on towers or poles. Panel antennas are usually arranged in three groups of three each. It is common that not all antennas are used for the transmission of RF energy; some antennas may be receive-only.

At a given cell site, the total RF power that could be radiated by the antennas depends on the number of radio channels (transmitters) installed, the power of each transmitter, and the type of antenna. While it is theoretically possible for cell sites to radiate at very high power levels, the maximum power radiated in any direction usually does not exceed 500 watts.

The RF emissions from cellular or PCS base station antennas are generally directed toward the horizon in a relatively narrow pattern in the vertical plane. In

the case of sector (panel) antennas, the pattern is fan-shaped, like a wedge cut from a pie. As with all forms of electromagnetic energy, the power density from the antenna decreases rapidly as one moves away from the antenna. Consequently, ground-level exposures are much less than exposures if one were at the same height and directly in front of the antenna.

Measurements made near typical cellular and PCS installations, especially those with tower-mounted antennas, have shown that ground-level power densities are hundreds to thousands of times less than the FCC's limits for safe exposure. This makes it extremely unlikely that a member of the general public could be exposed to RF levels in excess of FCC guidelines due solely to cellular or PCS base station antennas located on towers or monopoles.

When cellular and PCS antennas are mounted at rooftop locations it is possible that a person could encounter RF levels greater than those typically encountered on the ground. However, once again, exposures approaching or exceeding the safety guidelines are only likely to be encountered very close to and directly in front of the antennas. For sector-type antennas, RF levels to rear are usually very low.