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Radiation from Cell Phone Base Stations

There are no explicit federal legislative or regulatory requirements that limit public exposure to electromagnetic radiation from cell phone antenna. At the same time, tower operators must obtain approval from the Federal Communication Commission (FCC) in order to construct or operate cell phone stations or transmitters. FCC has established voluntary guidelines on public exposure to environmental sources of radiofrequency (RF) energy, and the FCC considers compliance with these requirements to be a de facto threshold for obtaining their approval. This makes the FCC guidelines essentially mandatory requirements.

The guidelines are found in Title 47 of the Code of Federal Regulations (CFR) part 1.1310(b). They specify a maximum permissible exposure (MPE) limit for general population/uncontrolled exposures to environmental RF radiation. The MPE is frequency-dependent. For cellular radio systems, which use frequencies between 800 and 900 MHz, the MPE is approximately 5.5-6.0 milliWatts per square centimeter (mW/cm²). For personal communication services (PCS), which operate in the frequency of 1800-2000 MHz, the MPE is approximately 10 mW/cm². The MPE is cumulative to all sources affecting a given area, meaning that the total RF emission from one area may not exceed the MPE even when there is more than one generator.

A new radiation source that exceeds the FCC recommendations may still be approved for licensing provided the tower operator performs a formalized environmental assessment (EA) on the location and the FCC makes an official determination that there is no significant environmental impact. The procedures for performing an EA are described in FCC's Office of Engineering Technology (OET)

Bulletin 65, Evaluating Compliance with FCC-specified Guidelines for Human Exposure to Radiofrequency Radiation, latest edition.

To prevent states and localities from setting inconsistent standards, Section 407(a)(7) of the Telecommunications Act of 1996 expressly prohibits states and localities from regulating the placement, construction, or modification of personal wireless services based on the environmental effects of RF radiation. This authority is solely reserved to the federal government.

Several private standards organizations have developed voluntary recommendations for human exposure to RF radiation, including the American National Standards Institute (ANSI), the Institute of Electrical and Electronics Engineers, Inc. (IEEE), and the National Council on Radiation Protection and Measurements (NCRP). These standards are not mandatory.

For further information about the FCC requirements for RF radiation safety, see the FCC RF Safety Web site at <http://www.fcc.gov/oet/rfsafety>.

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