

## SERIOUS FLAWS WITH THE FCC RF/MW SAFETY GUIDELINES

Adapted from B. Blake Levitt

***Electromagnetic Fields: A Consumer's Guide to the Issues and How to Protect Harcourt Brace, 1995. Used by permission of author.***

The Federal Communications Commission (FCC) is a licensing and engineering agency that relies on other agencies to recommend and set safety standards for communications technology.

The FCC has traditionally adopted safety recommendations from the American National Standards Institute (ANSI). ANSI is an industry-based and controlled organization comprised of numerous industries, automobile manufacturers, and many others. ANSI looks to a subcommittee of the Institute of Electrical and Electronics Engineers (IEEE) which is responsible for making recommendations for exposure standards to radio frequency radiation (RFR) Subcommittee C95.1. The standards are referred to as ANSI-IEEE C95.1-1992, representing the last year in which revisions were made to the original standard put out in 1966. In June 2003, the IEEE is scheduled to vote on a proposal to further relax RF/MW exposure standards.

In the past the National Council of Radiation Protection and Measurement (NCRP) also sets standards for diverse radiation-producing products, including RF-emitting devices. The NCRP is the only agency mandated by Congress to set radiation standards. In 1986, it set a standard for RF/Microwave (MW) exposure levels for the general public that was five times more stringent than the then-current ANSI standard. As of April 2003, the NCRP's reconstituted committee on RF/MW biological effects will not recommend standards for exposures of the public and workers. See: *Microwave News*, March/April 2003, p.9.

The U.S. Environmental Protection Agency is the agency that has final authority to determine which standards will be used. In 1996, Congress – while preempting states rights for environmental control over RF health concerns – mandated that the FCC get its regulatory house in order. The FCC was widely expected to adopt the IEEE/ANSI standard again. Both industry and the U.S. military favored it and lobbied hard. But the EPA urged that the NCRP standard be adopted instead. What the FCC adopted was the two-tiered NCRP levels for human exposure, adding the IEEE/ANSI description for the two tiers.

This is a step in the right direction. But the standards are still seriously flawed.

1. The model used for both standards is an adult male of average height and weight. It does not take women, pregnant women, or children into consideration – all of whom absorb radiation differently than this “average” model. Nor does it consider the elderly or the infirm who are more susceptible to adverse exposures.
2. The model, and all of the research it is drawn from, is based solely on the thermal effects these frequencies can create. It has been known for decades that microwaves, at sufficient power output, can create heating. That's what occurs in a microwave oven. This model presumes that nothing adverse other than heating occurs. Therefore, if heating does not occur, nothing else does either. But a range of adverse non-thermal effects have been noted for decades as well – significantly lower levels than this current standard. It has been at the heart of this debate since the 1950's.
3. The FCC standards do not take into account:
  - Numerous research reports finding non-thermal effects.
  - Long-term, low-level, continuous exposures such as would be found in homes near RF/MW emitting installations.

- The potential of RF radiation to create “standing wave hot-spots” near metal objects (water towers, other antenna towers, metal roofs, metal girders used in some architectural designs, elevator shafts, etc.)
  - The distinction between digital (pulsed-wave) technology and the older analog (continuous-wave) technology. Pulsed RF has been found in several experiments to increase abnormal cell growth in tumorigenic cell cultures by up to 3000%.
4. The FCC requires very little RFR monitoring from its licensees and does little of its own. As a result the aggregate of many collocated installations, and resulting RFR accumulation, is poorly documented and rarely monitored.
  5. The IEEE is mainly comprised of engineers and physicists who deal with the non-living sciences. They have traditionally been charged with making these technologies work, not with understanding the health effects that are within the purview of the “living” sciences of biology and medicine, etc. Yet appropriate funds for RF research in the living sciences have never been forthcoming. The RF standards in place today are based on a faulty thermal model, designed by professionals from an inadequate range of scientific disciplines, and are drawn from research of an inappropriate kind (short-term, high-power designs models.)
  6. For many of the new personal wireless services, the FCC does not monitor any communications installations for RF compliance. They issue licenses for whole regions and do not have a complete inventory list of actual installations and no idea where many are located. RF emission levels are usually based solely on computer models done by the industry when applying for licenses, not on actual on-site measurements.