

# Radio World

The Newspaper for Radio Managers and Engineers

REPRINTED FROM JANUARY 16, 2008

WWW.RADIOWORLD.COM



## Should I Climb That Live AM Tower?

allowed to climb the tower. If the power is 200 Watts or less, it is generally safe.

At power levels in between, the risk depends on a couple of factors.

If it is a very tall tower, the energy is distributed over a greater distance, and the risk is much less than for a short tower. Higher frequencies are also worse than low frequencies.

Of course, higher frequencies usually mean shorter towers. But in addition to the impact on the height of the tower, the human body makes a better antenna and absorbs more energy at the high end of the AM band than it does at the low end.

One problem that is difficult to measure without very specialized equipment is induced and contact current.

When a person is on the tower, the body becomes part of the antenna. Current flows through the body as a branch circuit path parallel to the antenna. The current can enter both through contact and indirectly as induced current. The

current is likely to enter at the hands and exit at the feet.

The main problem is at the wrists and the ankles. These areas have relatively small cross-sectional areas, and the current density can be extremely high. Specific Absorption Rates (SAR) of more than 100 Watts per kilogram of body mass are possible and have been documented.

When you consider that the FCC's whole body Maximum Permissible Exposure (MPE) limit for Occupational/Controlled exposure is based on limiting whole-body SAR levels to no more than 0.4 Watts per kilogram, you can understand why an SAR level of more than 100 W/kg is a serious problem.

*Richard Strickland has presented more than 150 public and private seminars on RF radiation safety and has written numerous articles on this topic. Spotlight on RF Safety appears regularly in Radio World. E-mail questions or suggestions to the author at [rstrick@rfsafetysolutions.com](mailto:rstrick@rfsafetysolutions.com).*

by **Richard Strickland**

*This is one in a series of Q&As with the author about RF safety; the series is archived at [radioworld.com](http://radioworld.com).*

**Question:** *Is it safe to climb AM radio towers while the station is on the air?*

**Answer:** In general, "hot" AM antenna climbing is not a good idea. It is only safe when the system is operating at very low power.

If the power into the base of the antenna exceeds 500 Watts, nobody should be