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What's the Deal With Exposure Limits?

by Richard Strickland

This is the fourth in a series of Q&As with Richard Strickland about RF safety; the series is archived at radioworld.com.

Question: The FCC has two sets of exposure limits, often referred to as the occupational and public limits. Can a station assume that all its employees may enter any area providing that the RF field level is below the occupational limit?

Answer: No, you cannot assume that all employees and all areas restricted to employees qualify to use the higher limits.

The two sets of exposure limits in the FCC Regulations are for Occupational/Controlled (occupational) exposure and General Population/Uncontrolled exposure (public). The limits are referred to as Maximum Permissible Exposure (MPE) limits.

The FCC uses two criteria to determine whether the higher occupational MPE limits can be used. The FCC states that the area should be a controlled environment. A controlled environment

requires that an appropriate safety program be in place — in this case, an RF safety program. And since a key component of any safety program is training, this means that only trained personnel should be allowed into any area that exceeds the public MPE limits.

While the FCC encourages developing and implementing an RF safety program, it is not something that is rigidly enforced. The other criteria that the FCC

ing the FCC chairman's signature for over a year includes clarification of what the FCC expects.

The FCC states that "fully aware" means "that an exposed individual has received written and verbal information concerning the potential for RF exposure and has received training regarding appropriate work practices relating to controlling or mitigating his or her exposure."

The FCC regulations state that only fully aware workers who are able to exercise control over their exposure should be allowed to be exposed to RF field levels that exceed the public MPE limits.

use and are part of the FCC Regulations are based on the training, knowledge and support equipment of the personnel involved.

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These two important terms are in the regulations but are not well explained. A Notice of Proposed Rulemaking that was issued in June 2003 and has been await-

The FCC also states, "We propose to specify that 'exercise control' means that an exposed individual is able to reduce or avoid exposure by administrative or engineering work practices, such as use of personal protective equipment or time averaging of exposure."

In the safety programs that I develop for clients, I usually use a simple color-coding system that dictates who can go in certain areas:

- Green Zones always have RF field

levels below the public MPE limits. Anybody can be in a green area at any time.

- Yellow Zones may have field levels that exceed the public limits but are unlikely to exceed the occupational limits. Only fully aware workers who are able to exercise control over their exposure should be allowed in yellow areas.

- Red Zones may have field levels that may exceed the occupational limit. The simple answer is that nobody should be allowed in these areas unless power is reduced or shut off. In practice, people can be allowed in these areas if they know what they are doing. This includes knowing when and how to use RF hazard protection equipment, such as RF protec-

tive garments and RF personal monitors, as well as understanding how to use time averaging effectively.

A perfect example of a Red Zone is a tower with FM and television antennas on it. Towers may also contain some wireless system antennas. A climber can move quickly past certain antennas providing that the time-averaged exposure is either below the occupational MPE limits or less than 10 times the occupational MPE limits (1,000 percent) for a climber wearing an RF protective garment.

People who go on building rooftops, such as HVAC and elevator repair personnel and window washers, may be “occupational” personnel, but they are unlikely

to know much about RF energy. So they would not qualify as being fully aware or having the ability to exercise control.

The same could be said for many people in the broadcast field. Although they may know a little about RF energy, you have to be objective in determining whether they meet these criteria. If they have not received RF safety training, they definitely do not.

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. 