

Extra Class License Things to Know #10

1. The differences between the radiation produced by radioactive materials and the electromagnetic energy radiated by an antenna is that RF radiation does not have sufficient energy to break apart atoms and molecules; radiation from radioactive sources does.
2. When evaluating exposure levels from your station at a neighbor's home, you must make sure signals from your station are less than the uncontrolled MPE limits.
3. A practical way to estimate whether the RF fields produced by an amateur radio station are within permissible MPE limits is to use a computer-based antenna modeling program to calculate field strength at accessible locations.
4. When evaluating a site with multiple transmitters operating at the same time the operators and licensees of each transmitter that produces 5% or more of its maximum permissible exposure limit at accessible locations are responsible for mitigating over-exposure situations.
5. One of the potential hazards of using microwaves in the amateur radio bands is the high gain antennas commonly used can result in high exposure levels.
6. There separate electric (E) and magnetic (H) field MPE limits because the body reacts to electromagnetic radiation from both the E and H fields, ground reflections and scattering make the field impedance vary with location and the E field and H field radiation intensity peaks can occur at different locations.
7. The "far-field" zone of an antenna is the area where the shape of the antenna pattern is independent of distance.
8. SAR measures the rate at which RF energy is absorbed by the body.
9. Beryllium Oxide is an insulating material commonly used as a thermal conductor for some types of electronic devices that is extremely toxic if broken or crushed and the particles are accidentally inhaled.
10. Polychlorinated biphenyls is a material found in some electronic components such as high-voltage capacitors and transformers is considered toxic.
11. Injury from radiation leaks that exceed the MPE limits might be a significant hazard when operating a klystron or cavity magnetron transmitter.