ARRL The national association for AMATEUR RADIO®

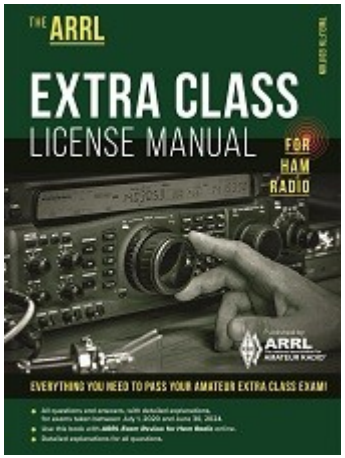
The ARRL Extra Class License Course

All You Need to Pass Your Extra Class Exam

LEVEL 3: Extra

For use with *The ARRL Extra Class License Manual*, 12th Edition

Extra License Manual and other resources



http://www.arrl.org/shop/Licensing-Education-and-Training/

What is the primary function of an external earth connection or ground rod?

A. Reduce received noise

B. Lightning protection

C. Reduce RF current flow between pieces of equipment

D. Reduce RFI to telephones and home entertainment systems

E0A01 ECLM Page (11 - 8)

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(B) E0A01 ECLM Page (11 - 8)

When evaluating RF exposure levels from your station at a neighbor's home, what must you do?

A. Ensure signals from your station are less than the controlled Maximum Permitted Exposure (MPE) limits

B. Ensure signals from your station are less than the uncontrolled Maximum Permitted Exposure (MPE) limits

C. Ensure signals from your station are less than the controlled Maximum Permitted Emission (MPE) limits

D. Ensure signals from your station are less than the uncontrolled Maximum Permitted Emission (MPE) limits

E0A02 ECLM Page (11 - 5)

When evaluating RF exposure levels from your station at a neighbor's home, what must you do?

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C. Ensure signals from your station are less than the controlled Maximum Permitted Emission (MPE) limits

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(B) E0A02 ECLM Page (11 - 5)

Over what range of frequencies are the FCC human body RF exposure limits most restrictive?

A. 300 kHz to 3 MHz

B. 3 to 30 MHz

C. 30 to 300 MHz

C. 300 to 3000 MHz

E0A03 ECLM Page (11 - 4)

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(C) E0A03 ECLM Page (11 - 4)

When evaluating a site with multiple transmitters operating at the same time, the operators and licensees of which transmitters are responsible for mitigating over-exposure situations?

A. Only the most powerful transmitter

B. Only commercial transmitters

C. Each transmitter that produces 5 percent or more of its MPE limit in areas where the total MPE limit is exceeded

D. Each transmitter operating with a duty cycle greater than 50 percent

E0A04 ECLM Page (11 - 7)

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(C) E0A04 ECLM Page (11 - 7)

What is one of the potential hazards of operating in the amateur radio microwave bands?

A. Microwaves are ionizing radiation

B. The high gain antennas commonly used can result in high exposure levels

C. Microwaves often travel long distances by ionospheric reflection

D. The extremely high frequency energy can damage the joints of antenna structures

E0A05 ECLM Page (11 - 7)

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(B) E0A05 ECLM Page (11 - 7)

Why are there separate electric (E) and magnetic (H) field MPE limits?

A. The body reacts to electromagnetic radiation from both the E and H fields

B. Ground reflections and scattering make the field strength vary with location

C. E field and H field radiation intensity peaks can occur at different locations

D. All these choices are correct

E0A06 ECLM Page (11 - 3)

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(D) E0A06 ECLM Page (11 - 3)

How may dangerous levels of carbon monoxide from an emergency generator be detected?

A. By the odor

B. Only with a carbon monoxide detector

C. Any ordinary smoke detector can be used

D. By the yellowish appearance of the gas

E0A07 ECLM Page (11 - 2)

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C. Any ordinary smoke detector can be used

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(B) E0A07 ECLM Page (11 - 2)

What does SAR measure?

A. Synthetic Aperture Ratio of the human body

B. Signal Amplification Rating

C. The rate at which RF energy is absorbed by the body

D. The rate of RF energy reflected from stationary terrain

E0A08 ECLM Page (11 - 4)

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(C) E0A08 ECLM Page (11 - 4)

Which insulating material commonly used as a thermal conductor for some types of electronic devices is extremely toxic if broken or crushed and the particles are accidentally inhaled?

A. Mica

B. Zinc oxide

C. Beryllium oxide

D. Uranium Hexafluoride

E0A09 ECLM Page (11 - 2)

Which insulating material commonly used as a thermal conductor for some types of electronic devices is extremely toxic if broken or crushed and the particles are accidentally inhaled?

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(C) E0A09 ECLM Page (11 - 2)

What toxic material may be present in some electronic components such as high voltage capacitors and transformers?

A. Polychlorinated biphenyls

B. Polyethylene

C. Polytetrafluoroethylene

D. Polymorphic silicon

E0A10 ECLM Page (11 - 2)

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(A) E0A10 ECLM Page (11 - 2)

Which of the following injuries can result from using high-power UHF or microwave transmitters?

A. Hearing loss caused by high voltage corona discharge

B. Blood clotting from the intense magnetic field

C. Localized heating of the body from RF exposure in excess of the MPE limits

D. Ingestion of ozone gas from the cooling system

E0A11 ECLM Page (11 - 3)

Which of the following injuries can result from using high-power UHF or microwave transmitters?

A. Hearing loss caused by high voltage corona discharge

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(C) E0A11 ECLM Page (11 - 3)