

SUBELEMENT G0 – ELECTRICAL AND RF SAFETY [2 Exam Questions – 2 Groups]

G0A – RF safety principles, rules and guidelines; routine station evaluation

G0A01

What is one way that RF energy can affect human body tissue?

- A. It heats body tissue
- B. It causes radiation poisoning
- C. It causes the blood count to reach a dangerously low level
- D. It cools body tissue

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G0A02

Which of the following properties is important in estimating whether an RF signal exceeds the maximum permissible exposure (MPE)?

- A. Its duty cycle
- B. Its frequency
- C. Its power density
- D. All these choices are correct

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G0A03 [97.13(c)(1)]

How can you determine that your station complies with FCC RF exposure regulations?

- A. By calculation based on FCC OET Bulletin 65
- B. By calculation based on computer modeling
- C. By measurement of field strength using calibrated equipment
- D. All these choices are correct

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G0A04

What does “time averaging” mean in reference to RF radiation exposure?

- A. The average amount of power developed by the transmitter over a specific 24-hour period
- B. The average time it takes RF radiation to have any long-term effect on the body
- C. The total time of the exposure
- D. The total RF exposure averaged over a certain time

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G0A05

What must you do if an evaluation of your station shows RF energy radiated from your station exceeds permissible limits?

- A. Take action to prevent human exposure to the excessive RF fields
- B. File an Environmental Impact Statement (EIS-97) with the FCC
- C. Secure written permission from your neighbors to operate above the controlled MPE limits
- D. All these choices are correct

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G0A06

What precaution should be taken when installing a ground-mounted antenna?

- A. It should not be installed higher than you can reach
- B. It should not be installed in a wet area
- C. It should be limited to 10 feet in height
- D. It should be installed such that it is protected against unauthorized access

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G0A07

What effect does transmitter duty cycle have when evaluating RF exposure?

- A. A lower transmitter duty cycle permits greater short-term exposure levels
- B. A higher transmitter duty cycle permits greater short-term exposure levels
- C. Low duty cycle transmitters are exempt from RF exposure evaluation requirements
- D. High duty cycle transmitters are exempt from RF exposure requirements

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G0A08

Which of the following steps must an amateur operator take to ensure compliance with RF safety regulations when transmitter power exceeds levels specified in FCC Part 97.13?

- A. Post a copy of FCC Part 97.13 in the station
- B. Post a copy of OET Bulletin 65 in the station
- C. Perform a routine RF exposure evaluation
- D. Contact the FCC for a visit to conduct a station evaluation

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G0A09

What type of instrument can be used to accurately measure an RF field?

- A. A receiver with an S meter
- B. A calibrated field strength meter with a calibrated antenna
- C. An SWR meter with a peak-reading function
- D. An oscilloscope with a high-stability crystal marker generator

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G0A10

What is one thing that can be done if evaluation shows that a neighbor might receive more than the allowable limit of RF exposure from the main lobe of a directional antenna?

- A. Change to a non-polarized antenna with higher gain
- B. Post a warning sign that is clearly visible to the neighbor
- C. Use an antenna with a higher front-to-back ratio
- D. Take precautions to ensure that the antenna cannot be pointed in their direction

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G0A11

What precaution should you take if you install an indoor transmitting antenna?

- A. Locate the antenna close to your operating position to minimize feed-line radiation
- B. Position the antenna along the edge of a wall to reduce parasitic radiation
- C. Make sure that MPE limits are not exceeded in occupied areas
- D. Make sure the antenna is properly shielded

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G0B – Station safety: electrical shock, safety grounding, fusing, interlocks, wiring, antenna and tower safety

G0B01

Which wire or wires in a four-conductor connection should be attached to fuses or circuit breakers in a device operated from a 240 VAC single phase source?

- A. Only the two wires carrying voltage
- B. Only the neutral wire
- C. Only the ground wire
- D. All wires

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G0B02

According to the National Electrical Code, what is the minimum wire size that may be used safely for wiring with a 20 ampere circuit breaker?

- A. AWG number 20
- B. AWG number 16
- C. AWG number 12
- D. AWG number 8

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G0B03

Which size of fuse or circuit breaker would be appropriate to use with a circuit that uses AWG number 14 wiring?

- A. 100 amperes
- B. 60 amperes
- C. 30 amperes
- D. 15 amperes

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G0B04

Which of the following is a primary reason for not placing a gasoline-fueled generator inside an occupied area?

- A. Danger of carbon monoxide poisoning
- B. Danger of engine over torque
- C. Lack of oxygen for adequate combustion
- D. Lack of nitrogen for adequate combustion

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G0B05

Which of the following conditions will cause a Ground Fault Circuit Interrupter (GFCI) to disconnect the 120 or 240 Volt AC line power to a device?

- A. Current flowing from one or more of the voltage-carrying wires to the neutral wire
- B. Current flowing from one or more of the voltage-carrying wires directly to ground
- C. Overvoltage on the voltage-carrying wires
- D. All these choices are correct

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G0B06

Which of the following is covered by the National Electrical Code?

- A. Acceptable bandwidth limits
- B. Acceptable modulation limits
- C. Electrical safety inside the ham shack
- D. RF exposure limits of the human body

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G0B07

Which of these choices should be observed when climbing a tower using a safety belt or harness?

- A. Never lean back and rely on the belt alone to support your weight
- B. Confirm that the belt is rated for the weight of the climber and that it is within its allowable service life
- C. Ensure that all heavy tools are securely fastened to the belt D-ring
- D. All these choices are correct

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G0B08

What should be done by any person preparing to climb a tower that supports electrically powered devices?

- A. Notify the electric company that a person will be working on the tower
- B. Make sure all circuits that supply power to the tower are locked out and tagged
- C. Unground the base of the tower
- D. All these choices are correct

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G0B09

Which of the following is true of an emergency generator installation?

- A. The generator should be located in a well-ventilated area
- B. The generator must be insulated from ground
- C. Fuel should be stored near the generator for rapid refueling in case of an emergency
- D. All these choices are correct

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G0B10

Which of the following is a danger from lead-tin solder?

- A. Lead can contaminate food if hands are not washed carefully after handling the solder
- B. High voltages can cause lead-tin solder to disintegrate suddenly
- C. Tin in the solder can "cold flow," causing shorts in the circuit
- D. RF energy can convert the lead into a poisonous gas

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G0B11

Which of the following is good practice for lightning protection grounds?

- A. They must be bonded to all buried water and gas lines
- B. Bends in ground wires must be made as close as possible to a right angle
- C. Lightning grounds must be connected to all ungrounded wiring
- D. They must be bonded together with all other grounds

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G0B12

What is the purpose of a power supply interlock?

- A. To prevent unauthorized changes to the circuit that would void the manufacturer's warranty
- B. To shut down the unit if it becomes too hot
- C. To ensure that dangerous voltages are removed if the cabinet is opened
- D. To shut off the power supply if too much voltage is produced

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G0B13

What must you do when powering your house from an emergency generator?

- A. Disconnect the incoming utility power feed
- B. Insure that the generator is not grounded
- C. Insure that all lightning grounds are disconnected
- D. All these choices are correct

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G0B14

What precaution should you take whenever you adjust or repair an antenna?

- A. Ensure that you and the antenna structure are grounded
- B. Turn off the transmitter and disconnect the feed line
- C. Wear a radiation badge
- D. All these choices are correct

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