W9AY STUDY GUIDE · ELEMENT 3 · FREE SAMPLE

General Radiotelephone (GROL)

Complete question pool, organised by section, with study notes and every answer.

100	579	17	2.4 h
EXAM QUESTIONS	IN THE POOL	SECTIONS	TO READ ONCE

This is one section, free. 3Q, RF Safety & Lightning Protection: all 12 of its pool questions, each with its answer. Read the notes, then cover the answers and work through the questions, and watch how quickly the answers start to stick. The rest of the guide works the same way.

Get the full guide: w9ay.com/study/grol. It adds all 17 sections and every one of the 579 pool questions. Pay through Stripe; your download link appears as soon as you pay and is emailed to you.

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Contents

100 questions on the exam, drawn from 579 in the pool.

SECTION	TOPIC	QUESTIONS	READING
3Q	RF Safety & Lightning Protection	12	~3 min

Element 3Q — RF Safety & Lightning Protection

Topic 99

RF Exposure and MPE

- Maximum Permissible Exposure (MPE) averaging: **controlled = 6 minutes**, **uncontrolled = 30 minutes**.
- Multi-antenna MPE evaluation: include antennas with more than **5%** of the maximum permissible power density.
- RF exposure danger to eyes: RF heating may cause **cataracts**.
- MPE study required at: **1000 Watts Effective Radiated Power (ERP)**.
- Never look into a fiber optic cable: an active signal may **burn the retina**, and **infrared light cannot be seen**.
- MPE area personnel training and certification: required **yearly**.

3-99Q1 *(modified — acronym expanded)*

Compliance with MPE, or Maximum Permissible Exposure to RF levels (as defined in FCC Part 1, Office of Engineering and Technology (OET) Bulletin 65) for "controlled" environments, are averaged over _____ minutes, while "uncontrolled" RF environments are averaged over _____ minutes.

- A. 6, 30.
- B. 30, 6.
- C. 1, 15.
- D. 15, 1.

Answer: A

3-99Q2

Sites having multiple transmitting antennas must include antennas with more than _____% of the maximum permissible power density exposure limit when evaluating RF site exposure.

- A. Any
- B. 5
- C. 1
- D. 12.5

Answer: B

3-99Q3

RF exposure from portable radio transceivers may be harmful to the eyes because:

- A. Magnetic fields blur vision.
- B. RF heating polarizes the eye lens.
- C. The magnetic field may attract metal particles to the eye.
- D. RF heating may cause cataracts.

Answer: D

3-99Q4

At what aggregate power level is an MPE (Maximum Permissible Exposure) study required?

- A. 1000 Watts ERP.
- B. 500 Watts ERP.
- C. 100 Watts ERP.
- D. Not required.

Answer: A

3-99Q5

Why must you never look directly into a fiber optic cable?

- A. High power light waves can burn the skin surrounding the eye.
- B. An active fiber signal may burn the retina and infra-red light cannot be seen.
- C. The end is easy to break.
- D. The signal is red and you can see it.

Answer: B

3-99Q6

If the MPE (Maximum Permissible Exposure) power is present, how often must the personnel accessing the affected area be trained and certified?

- A. Weekly.
- B. Monthly.
- C. Yearly.
- D. Not at all.

Answer: C

Topic 100

Lightning Protection and Safety

- Direct lightning hit: **no device can protect** a station from a direct hit.
- No sharp corners on ground leads: lightning will **jump off** because it **cannot make sharp bends**.
- Power drill: **never use without eye protection**.
- Electrical fire (short circuit): **Class C** fire, extinguished with **FE30**.
- Shorted-stub lightning protectors: work **only at the tuned frequency band** (not all frequencies).
- **Ground Fault Interrupter (GFI) socket:** prevents electrical shock by **sensing ground path current** and shutting the circuit down.

3-100Q1

What device can protect a transmitting station from a direct lightning hit?

- A. Lightning protector.
- B. Grounded cabinet.
- C. Short lead in.
- D. There is no device to protect a station from a direct hit from lightning.

Answer: D

3-100Q2

What is the purpose of not putting sharp corners on the ground leads within a building?

- A. No reason.
- B. It is easier to install.
- C. Lightning will jump off of the ground lead because it is not able to make sharp bends.
- D. Ground leads should always be made to look good in an installation, including the use of sharp bends in the corners.

Answer: C

3-100Q3

Should you use a power drill without eye protection?

- A. Yes.
- B. No.
- C. It’s okay as long as you keep your face away from the drill bit.
- D. Only in an extreme emergency.

Answer: B

3-100Q4

What class of fire is one that is caused by an electrical short circuit and what is the preferred substance used to extinguish that type of fire?

- A. FE28.
- B. FE29.
- C. FE30.
- D. FE31.

Answer: C

3-100Q5

Do shorted-stub lightning protectors work at all frequencies?

- A. Yes.
- B. No, the short also kills the radio signals.
- C. No, the short enhances the radio signal at the tuned band.
- D. No, only at the tuned frequency band.

Answer: D

3-100Q6

What is a GFI electrical socket used for?

- A. To prevent electrical shock by sensing ground path current and shutting the circuit down.
- B. As a gold plated socket.
- C. To prevent children from sticking objects in the socket.
- D. To increase the current capacity of the socket.

Answer: A

Want the rest?

Get the full guide

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What the full guide covers

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