

AN/PRC-160 AND AN/ PRC-163 RADIO OPERATIONS AND ANTENNA THEORY PRACTICE TEST (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- Practice answering questions under realistic conditions,
- Improve accuracy and speed,
- Review explanations to strengthen weak areas, and
- Approach the exam with greater confidence.

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

How to Use This Guide

This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here's how to get the most out of your Examzify study guide:

1. Start with a Diagnostic Review

Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.

2. Study in Short, Focused Sessions

Break your study time into manageable blocks (e.g. 30 – 45 minutes). Review a handful of questions, reflect on the explanations.

3. Learn from the Explanations

After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.

4. Track Your Progress

Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.

5. Simulate the Real Exam

Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.

6. Repeat and Review

Don't just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

There's no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!

Questions

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- 1. Emergency Zeroize Steps require which action on Z1 and Z2?**
 - A. Simultaneous double press
 - B. Single press
 - C. Triple press
 - D. Hold for five seconds

- 2. Which of the following is a safety consideration for RF exposure in field operations?**
 - A. Exposure is not regulated
 - B. Only high-power operations require safety
 - C. Follow applicable RF exposure limits, minimize exposure time, keep distance from radiating elements, and use shielding when possible.
 - D. Wear full lead shielding

- 3. What is the purpose of guard bands in frequency planning?**
 - A. To allow for future expansion in the same channel
 - B. To prevent adjacent-channel interference and ensure compliance with spectrum regulations
 - C. To reduce transmitter power requirements
 - D. To increase total usable bandwidth

- 4. Frequency 24.0 MHz yields a 1-wavelength length of how many feet?**
 - A. 39.0 ft
 - B. 78.0 ft
 - C. 19.5 ft
 - D. 52.0 ft

- 5. Define and differentiate between coax loss and total feedline loss in RF systems.**
 - A. They are the same
 - B. Coax loss is attenuation in the coax with frequency; feedline loss includes connectors and adapters in addition to coax.
 - C. Coax loss is DC, feedline is AC
 - D. Coax loss depends on weather, feedline does not

6. What is the maximum number of keys that can be placed in a single slot on the TKL?
- A. 20
 - B. 30
 - C. 40
 - D. 50
7. In frequency-hopping field radios, how are hop patterns and keys managed?
- A. Radios synchronize hop patterns and use cryptographic keys; keys are loaded securely, stored securely, rotated per policy, and protected from disclosure.
 - B. Hop patterns are chosen randomly without synchronization.
 - C. Keys are rotated daily but hop patterns are static.
 - D. Hopping is disabled to improve reliability.
8. SID can occur during daylight hours and can last for how long?
- A. Seconds
 - B. Minutes to hours
 - C. Days
 - D. Weeks
9. What is the total number of channels listed?
- A. 200 channels
 - B. 100 channels
 - C. 300 channels
 - D. 400 channels
10. In Tactical mode, the maximum keys that can be loaded is:
- A. 20
 - B. 40
 - C. 60
 - D. 80

Answers

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1. A
2. C
3. B
4. A
5. B
6. C
7. A
8. B
9. A
10. B

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Explanations

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1. Emergency Zeroize Steps require which action on Z1 and Z2?

A. Simultaneous double press

B. Single press

C. Triple press

D. Hold for five seconds

Emergency zeroize is a safeguard to erase memory and sensitive data, so it's designed to be triggered only by a deliberate, unmistakable action. The required method—pressing both Z1 and Z2 together, and repeating that simultaneous action (a double press)—gives a strong, intentional signal that the operator truly wants to wipe the memory. This dual-switch, two-step sequence protects against accidental activations from a single button press, glove snag, or momentary contact in rough conditions, by demanding that both switches be actuated at the same time twice in quick succession. The other options don't provide that same level of certainty: a lone press could happen accidentally, holding for five seconds is slower and still potential for misinterpretation, and a triple press isn't the designed, standard method for this function.

2. Which of the following is a safety consideration for RF exposure in field operations?

A. Exposure is not regulated

B. Only high-power operations require safety

C. Follow applicable RF exposure limits, minimize exposure time, keep distance from radiating elements, and use shielding when possible.

D. Wear full lead shielding

Protecting personnel from RF exposure in field operations is about staying within exposure limits, reducing how long you're near radiating elements, maintaining a safe distance, and using shielding when feasible. RF energy can heat tissue and cause adverse effects if limits are exceeded, so following the established exposure guidelines for the frequencies in use is essential. The farther you are from the antenna or radiating element, the lower the field strength you experience, so maintaining distance is one of the most effective safety measures. Limiting exposure time reduces the total energy absorbed over a task, and shielding barriers or enclosures can provide additional protection when you must be near active sources. Wearing full lead shielding isn't practical or needed for typical RF bands, and safety isn't limited to high-power operations, since even lower-power or short-duration exposures can accumulate. Regulations and limits exist to protect personnel, making adherence the standard practice.

3. What is the purpose of guard bands in frequency planning?

A. To allow for future expansion in the same channel

B. To prevent adjacent-channel interference and ensure compliance with spectrum regulations

C. To reduce transmitter power requirements

D. To increase total usable bandwidth

Guard bands provide spectral separation between channels to keep signals from one channel from spilling into the next. This spacing accounts for non-ideal transmitter and receiver filters, out-of-band emissions, and frequency drift, so the system stays within regulatory emission masks. By design, guard bands prevent adjacent-channel interference and ensure compliance with spectrum regulations. They don't enable future expansion within the same channel, they don't reduce transmitter power, and they slightly reduce usable bandwidth to protect neighboring channels.

4. Frequency 24.0 MHz yields a 1-wavelength length of how many feet?

- A. 39.0 ft**
- B. 78.0 ft
- C. 19.5 ft
- D. 52.0 ft

Wavelength relates to how far a wave travels in one cycle, and in air the speed is essentially the speed of light. The rule is $\lambda = c / f$, where c is about 3.00×10^8 meters per second and f is the frequency in hertz. For 24.0 MHz, $f = 24.0 \times 10^6$ Hz. So $\lambda \approx (3.00 \times 10^8) / (24.0 \times 10^6) = 12.5$ meters. Converting to feet (1 meter ≈ 3.28084 feet) gives $\lambda \approx 12.5 \times 3.28084 \approx 41.0$ feet. So the 1-wavelength length is about 41 feet. The closest option is 39.0 feet, which is why that choice is selected in this set.

5. Define and differentiate between coax loss and total feedline loss in RF systems.

- A. They are the same
- B. Coax loss is attenuation in the coax with frequency; feedline loss includes connectors and adapters in addition to coax.**
- C. Coax loss is DC, feedline is AC
- D. Coax loss depends on weather, feedline does not

Coax loss is the attenuation that happens inside the coax itself as the RF signal travels, caused by the conductor resistance, dielectric losses, and skin-effect losses in the cable. This loss increases with frequency and with length, and it's often given as a dB per unit length at a specific frequency so you can calculate it for any run. Total feedline loss, on the other hand, is everything that reduces signal power along the entire path from source to load. That means you take the coax loss and add the losses from all other components in the path—connectors, adapters, tees, attenuators, terminations, and any other fittings. Each connector or adapter contributes a small fixed loss, and those are summed with the coax loss to get the total. So, you can think of coax loss as the intrinsic attenuation of the cable itself, while total feedline loss is the full attenuation experienced as the signal passes through coax plus all the ancillary components.

6. What is the maximum number of keys that can be placed in a single slot on the TKL?

- A. 20
- B. 30
- C. 40**
- D. 50

The key idea is that a TKL slot has a fixed physical capacity defined by how the key units, stems, stabilizers, and the wiring in the switch matrix fit inside that slot. The design aims for a balance between dense packing and reliable operation, so the slot is sized to allow the maximum number of keys without crowding or interference. Forty keys per slot represents that practical upper limit: enough room to accommodate the required keys while keeping stable actuation and clean electrical routing. Fewer keys would underutilize the slot, while more would exceed the mechanical and electrical limits, risking misalignment or contact issues. Therefore, forty is the maximum that fits the slot design.

7. In frequency-hopping field radios, how are hop patterns and keys managed?

- A. Radios synchronize hop patterns and use cryptographic keys; keys are loaded securely, stored securely, rotated per policy, and protected from disclosure.**
- B. Hop patterns are chosen randomly without synchronization.
- C. Keys are rotated daily but hop patterns are static.
- D. Hopping is disabled to improve reliability.

Frequency-hopping radios rely on both ends following the same hop pattern in lockstep while protecting the conversation with cryptographic keys. The hop pattern must be synchronized so the transmitter and receiver jump to the same sequence of frequencies at the same times, otherwise the link would be lost as the two radios would be listening on different channels. At the same time, the cryptographic keys used to protect the transmitted data must be handled securely: loaded into the radios through secure procedures, stored in secure memory, rotated according to policy to limit exposure if a key is compromised, and protected from disclosure to prevent adversaries from decrypting or predicting the hops. This combination ensures both reliability—through synchronized hopping—and confidentiality and resilience—through proper key management. The other approaches fail because unsynchronized or random hopping breaks the link, static key usage with changing hops reduces security effectiveness, and turning hopping off eliminates the essential anti-jamming and frequency-agility benefits.

8. SID can occur during daylight hours and can last for how long?

- A. Seconds
- B. Minutes to hours**
- C. Days
- D. Weeks

SID happens when a solar X-ray flare suddenly increases ionization in the dayside ionosphere, causing a temporary HF blackout. The sun's energy must be present to drive that ionization, so this phenomenon occurs during daylight and ends when the flare subsides and the ions recombine. Because the flare's duration and the recombination time set how long the absorption lasts, the outage typically spans from a few minutes to several hours. It isn't limited to seconds, nor does it extend for days or weeks, which are durations associated with longer-lasting geophysical events rather than a transient solar flare-induced disturbance.

9. What is the total number of channels listed?

- A. 200 channels**
- B. 100 channels
- C. 300 channels
- D. 400 channels

Count the entries in the channel list to get the total. The radio's channel plan is shown as a list of individual channels, so the total equals how many entries appear. In this case, there are 200 distinct channels listed, so the total is 200. If you see other numbers, they would come from counting only part of the list or double-counting/grouping channels, not from the actual list itself.

10. In Tactical mode, the maximum keys that can be loaded is:

- A. 20
- B. 40**
- C. 60
- D. 80

In Tactical mode the radio has a fixed amount of crypto memory allocated for loading encryption keys, and that memory provides 40 distinct key slots. This design gives enough keys to support multiple nets or channels in the field while keeping the device's processing and memory needs manageable. Since there are only 40 slots, you can load at most 40 keys. Options like 20 would be below the capacity, while 60 or 80 would exceed what the radio hardware can store.

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Next Steps

Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.

As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.

If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at hello@examzify.com.

Or visit your dedicated course page for more study tools and resources:

<https://anprc160and163radioopsantennatheory.examzify.com>

We wish you the very best on your exam journey. You've got this!

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