

AN/PRC-160 and AN/PRC-163 Radio Operations and Antenna Theory Practice Test (Sample)

Study Guide



Everything you need from our exam experts!

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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. SAASM stands for?
 - A. Selective Availability Anti-Spoofing Module
 - B. Standard Authentication and Security Mechanism
 - C. Selective Access and Secure Module
 - D. Security Anticipation and Spoofing Mechanism

2. 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

3. Lowest Usable Frequency (LUF) is the lowest frequency that will overcome interference for successful communications. What is a consequence if LUF is greater than MUF?
 - A. Sky wave is always possible
 - B. Sky wave transmission is not possible
 - C. Propagation distance decreases
 - D. Signal-to-noise ratio always improves

4. The antenna gain depends on its design. In transmitting antennas, the goal is high efficiency in radiating energy, while in receiving antennas it is high efficiency in what?
 - A. Absorbing energy
 - B. Gaining energy
 - C. Reflecting energy
 - D. Releasing energy

5. What is the length in feet of a 1-wavelength antenna at 21.0 MHz?
 - A. 44.6 ft
 - B. 22.3 ft
 - C. 89.1 ft
 - D. 55.0 ft

6. TPI stands for which term?
- A. Two Person Integrity
 - B. Three Person Integrity
 - C. Trusted Personal Interface
 - D. Two Phase Integrity
7. What is the total number of channels listed?
- A. 200 channels
 - B. 100 channels
 - C. 300 channels
 - D. 400 channels
8. What frequency produces a 1-wavelength length of 10 ft?
- A. 93.6 MHz
 - B. 94.0 MHz
 - C. 9.36 MHz
 - D. 23.4 MHz
9. ETD 10023 is used for which two keys?
- A. VINSON and KG-84
 - B. VINSON and KG-58
 - C. ANDVT BD and KY-58
 - D. KG-84 and KY-58
10. Which power settings are available for HF operation?
- A. 1, 5, 20 watts and USER
 - B. 1, 5, 10 watts and DEFAULT
 - C. 2, 4, 8 watts and USER
 - D. 5, 10, 25 watts and USER

Answers

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

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Explanations

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1. SAASM stands for?

- A. Selective Availability Anti-Spoofing Module
- B. Standard Authentication and Security Mechanism
- C. Selective Access and Secure Module
- D. Security Anticipation and Spoofing Mechanism

SAASM is a cryptographic module used in military GPS receivers to provide secure access to encrypted GPS signals and to guard against spoofing. It stores and processes cryptographic keys, authenticates the user and satellites, and enables access to the encrypted P(Y) code so that only authorized units can obtain precise navigation information. This capability helps ensure GPS reliability in contested environments where spoofing could be attempted. The other phrases do not reflect the established name for this security module.

2. 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.

3. Lowest Usable Frequency (LUF) is the lowest frequency that will overcome interference for successful communications. What is a consequence if LUF is greater than MUF?

- A. Sky wave is always possible
- B. Sky wave transmission is not possible
- C. Propagation distance decreases
- D. Signal-to-noise ratio always improves

Understanding how LUF and MUF govern HF skywave helps explain why, when the lowest usable frequency is higher than the maximum usable frequency, reliable ionospheric propagation isn't possible for that path. MUF is the highest frequency that will be reflected back by the ionosphere for a given path and time, while LUF is the lowest frequency that can be used without being overwhelmed by interference and noise. If LUF exceeds MUF, there's no frequency that fits between the two limits to produce a usable reflection. In other words, the ionosphere won't support a sky-wave path for that distance at that moment, so long-range communication via skywave isn't possible and you'd be limited to ground-wave or line-of-sight methods for communication.

4. The antenna gain depends on its design. In transmitting antennas, the goal is high efficiency in radiating energy, while in receiving antennas it is high efficiency in what?

- A. Absorbing energy
- B. Gaining energy
- C. Reflecting energy
- D. Releasing energy

In reception, the key is how efficiently the antenna converts the incoming RF energy into electrical power for the receiver. A higher-gain antenna has a larger effective aperture, meaning it collects more of the incident signal and delivers more power to the load. So the aim is high efficiency in gaining energy from the incoming wave, which is why this option best describes the receiving case. The other ideas—absorbing energy as a loss, reflecting energy, or releasing energy—don't capture the idea of efficiently converting and delivering the captured energy to the receiver.

5. What is the length in feet of a 1-wavelength antenna at 21.0 MHz?

- A. 44.6 ft
- B. 22.3 ft
- C. 89.1 ft
- D. 55.0 ft

A 1-wavelength antenna length equals the wave's wavelength in the medium. So use $\lambda = c / f$. With c about 3.00×10^8 m/s and $f = 21.0$ MHz (21×10^6 Hz), $\lambda \approx 3.00 \times 10^8 / 21 \times 10^6 \approx 14.29$ meters. Converting to feet: $14.29 \text{ m} \times 3.28084 \approx 46.9$ feet. Among the choices, 44.6 feet is the closest value, so it's the best match given the rounding or approximation in the options. The other numbers correspond to noticeably shorter or longer wavelengths and don't represent a single full wavelength at this frequency.

6. TPI stands for which term?

- A. Two Person Integrity
- B. Three Person Integrity
- C. Trusted Personal Interface
- D. Two Phase Integrity

Two-Person Integrity is a security practice that requires two authorized individuals to access or manipulate cryptographic material or secure equipment. In the AN/PRC-160 and AN/PRC-163, this means crypto keys or other sensitive crypto material must be handled with the involvement of two people, preventing a single operator from loading keys or compromising the crypto without another person's oversight. In practice, one person might operate the device while the other provides authorization or custody of the keys, and both must be present to complete any action involving secure material. The other terms don't reflect standard DoD crypto security policy—three-person integrity isn't the recognized rule for this context, a trusted personal interface isn't the correct term, and two-phase integrity isn't used here.

7. 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.

8. What frequency produces a 1-wavelength length of 10 ft?

- A. 93.6 MHz
- B. 94.0 MHz
- C. 9.36 MHz
- D. 23.4 MHz

The main idea is that wavelength and frequency are inversely related in free space: $\lambda = c / f$. A wavelength of 10 ft is about 3.048 meters. Using $c \approx 3.00 \times 10^8$ m/s, the frequency comes out to $f \approx 3.00 \times 10^8 / 3.048 \approx 9.8 \times 10^7$ Hz, or about 98.4 MHz. Among the given options, 93.6 MHz is the closest match to that computed value, while the other two lower frequencies correspond to much longer wavelengths (9.36 MHz gives ~32 m, and 23.4 MHz gives ~12.8 m). Small differences due to rounding or air vs vacuum speed show up here, so 93.6 MHz is the best fit for producing a 1-wavelength length near 10 ft.

9. ETD 10023 is used for which two keys?

- A. VINSON and KG-84
- B. VINSON and KG-58
- C. ANDVT BD and KY-58
- D. KG-84 and KY-58

ETD 10023 is a key-loading device designed to handle crypto material for specific Type 1 devices that share the same loading interface. The two keys it loads are the ones used by the VINSON family and by the KG-84 family. VINSON is the modern high-security encryption module, and KG-84 is an older key-management/crypto loading system. Because they use the same key-loading format and procedures, ETD 10023 is the appropriate tool for loading keys into both of them. Other devices (such as ANDVT BD or KY-58) use different loading methods or formats, so ETD 10023 isn't used for those.

10. Which power settings are available for HF operation?

- A. 1, 5, 20 watts and USER
- B. 1, 5, 10 watts and DEFAULT
- C. 2, 4, 8 watts and USER
- D. 5, 10, 25 watts and USER

In HF mode these radios offer a small, practical set of output options to balance range and battery life. The available fixed power levels are 1 watt, 5 watts, and 20 watts, plus a USER option that lets you program a custom power level within the radio's permitted range. Having these choices lets you quickly adapt to conditions: use the lowest power that gets the link through, step up for more range, or choose a tailored setting when a nonstandard level better fits the mission. The other lists don't match the actual options and omit the USER programmable setting, which is why they aren't correct.

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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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