

Demo PDF file. This file includes questions: 10 from 300. Full version of file looks the same as demo, but full version includes all questions. You may download file with all questions by link on bottom of this page

FCC Element 8 - Ship Radar

1. Choose the most correct statement containing the parameters which control the size of the target echo.

- Transmitted power, antenna effective area , transmit and receive losses, RADAR cross section of the target, range to target.
- Height of antenna, power radiated, size of target, receiver gain, pulse width.
- Power radiated, antenna gain, size of target, shape of target, pulse width, receiver gain.
- Magnetron gain, antenna gain, size of target, range to target, wave-guide loss.

Note:

The strength of a target echo is determined by transmitted power, antenna effective area, transmit and receive losses, the target's radar cross section, and the range to the target.

2. Which of the following has NO effect on the maximum range capability?

- Carrier frequency.
- Recovery time .
- Pulse repetition frequency.
- Receiver sensitivity.

Note:

Recovery time only impacts the minimum range of radar; carrier frequency, pulse repetition frequency, and receiver sensitivity all influence maximum range.

3. What type of transmitter power is measured over a period of time?

- Average .
- Peak.
- Reciprocal.
- Return.

Note:

Average power is defined as the power measured over a period of time, unlike peak power which represents the maximum instantaneous power. Reciprocal and return are not standard transmitter power measurements.

4. What RADAR component controls timing throughout the system?

- Power supply.
- Indicator.
- Synchronizer .
- Receiver.

Note:

The synchronizer controls system timing by generating master timing pulses that coordinate all radar components. The transmitter and indicator are triggered by these pulses, the power supply provides power only, and the receiver processes echoes but does not control timing.

5. Which of the following components allows the use of a single antenna for both transmitting and receiving?

- Mixer.
- **Duplexer.**
- Synchronizer.
- Modulator.

Note:

A duplexer enables simultaneous transmission and reception using a single antenna by isolating the transmitter and receiver, preventing interference and protecting the receiver from high-power signals; mixers combine frequencies, synchronizers provide timing, and modulators encode information, none of which facilitate shared antenna use.

6. The sweep frequency of a RADAR indicator is determined by what parameter?

- Carrier frequency.
- Pulse width.
- Duty cycle.
- **Pulse repetition frequency.**

Note:

The radar indicator's sweep frequency is determined by the pulse repetition frequency (PRF) because each transmitted pulse initiates a sweep of the time base on the display.

7. A radio wave will travel a distance of three nautical miles in:

- 6.17 microseconds.
- 37.0 microseconds.
- 22.76 microseconds.
- **18.51 microseconds.**

Note:

Radio waves travel at the speed of light; therefore, a distance of three nautical miles takes approximately 18.51 microseconds to traverse.

8. One RADAR mile is how many microseconds?

- 6.2
- 528.0
- **12.34**
- 0.186

Note:

One RADAR mile represents the round-trip travel time of a radar pulse over one nautical mile, which is approximately 12.34 microseconds.

9. RADAR range is measured by the constant:

- **150 meters per microsecond.**
- 150 yards per microsecond.
- 300 yards per microsecond.
- 18.6 miles per microsecond.

Note:

Radar range is determined by the speed of light and accounts for the round-trip travel time, resulting in a constant of 150 meters per microsecond.

10. If a target is 5 miles away, how long does it take for the RADAR echo to be received back at the antenna?

- 51.4 microseconds.
- 123 microseconds.
- 30.75 microseconds.
- **61.7 microseconds.**

Note:

The radar echo return time is calculated by dividing the round-trip distance by the speed of light. A target 5 nautical miles away results in a total distance of 10 nautical miles for the radar pulse. This distance, divided by the speed of light, yields a return time of approximately 61.7 microseconds.
