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# Technician Question Pool

## July 2022 to June 2026

### The MORE Project

<http://n2re.org/m-o-r-e-project>

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# Antennas & Feed Lines

## No-Nonsense pages 50 - 53

### Antenna Types and Polarization

The half-wave dipole antenna measures close to one half wavelength from end to end. The quarter-wave vertical antenna is mounted perpendicular to the earth. Beam antennas focus power in a particular direction. Rubber duck antennas are used with HTs and use inductive loading to make them shorter. To tune an antenna, determine its resonant frequency and then make it longer or shorter.



# T9A03

Which of the following describes a simple dipole oriented parallel to Earth's surface?

- A. A ground-wave antenna
- B. A horizontally polarized antenna
- C. A travelling-wave antenna
- D. A vertically polarized antenna



AFL1 Q1 of 12

# T9A03

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- A. A ground-wave antenna
- B. A horizontally polarized antenna**
- C. A travelling-wave antenna
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# T9A10

In which direction does a half-wave dipole antenna radiate the strongest signal?

- A. Equally in all directions
- B. Off the ends of the antenna
- C. In the direction of the feed line
- D. Broadside to the antenna



AFL1 Q2 of 12

# T9A10

In which direction does a half-wave dipole antenna radiate the strongest signal?

- A. Equally in all directions
- B. Off the ends of the antenna
- C. In the direction of the feed line
- D. Broadside to the antenna**



# T9A09

What is the approximate length, in inches, of a half-wavelength 6 meter dipole antenna?

- A. 6
- B. 50
- C. 112
- D. 236



AFL1 Q3 of 12

FCC Tech 7/22 to 6/26  
Antenna Types and Polarization

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# T9A09

What is the approximate length, in inches, of a half-wavelength 6 meter dipole antenna?

- A. 6
- B. 50
- C. 112**
- D. 236





# T9A05

Which of the following increases the resonant frequency of a dipole antenna?

- A. Lengthening it
- B. Inserting coils in series with radiating wires
- C. Shortening it
- D. Adding capacitive loading to the ends of the radiating wires



AFL1 Q4 of 12

# T9A05

Which of the following increases the resonant frequency of a dipole antenna?

- A. Lengthening it
- B. Inserting coils in series with radiating wires
- C. Shortening it**
- D. Adding capacitive loading to the ends of the radiating wires



# T9A08

What is the approximate length, in inches, of a quarter-wavelength vertical antenna for 146 MHz?

- A. 112
- B. 50
- C. 19
- D. 12



AFL1 Q5 of 12

# T9A08

What is the approximate length, in inches, of a quarter-wavelength vertical antenna for 146 MHz?

- A. 112
- B. 50
- C. 19**
- D. 12



# T9A02

Which of the following describes a type of antenna loading?

- A. Electrically lengthening by inserting inductors in radiating elements
- B. Inserting a resistor in the radiating portion of the antenna to make it resonant
- C. Installing a spring in the base of a mobile vertical antenna to make it more flexible
- D. Strengthening the radiating elements of a beam antenna to better resist wind damage



AFL1 Q6 of 12

# T9A02

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- C. Installing a spring in the base of a mobile vertical antenna to make it more flexible
- D. Strengthening the radiating elements of a beam antenna to better resist wind damage



# T9A01

What is a beam antenna?

- A. An antenna built from aluminum I-beams
- B. An omnidirectional antenna invented by Clarence Beam
- C. An antenna that concentrates signals in one direction
- D. An antenna that reverses the phase of received signals



AFL1 Q7 of 12

# T9A01

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A. An antenna built from aluminum I-beams

B. An omnidirectional antenna invented by Clarence Beam

**C. An antenna that concentrates signals in one direction**

D. An antenna that reverses the phase of received signals





# T9A11

What is antenna gain?

- A. The additional power that is added to the transmitter power
- B. The additional power that is required in the antenna when transmitting on a higher frequency
- C. The increase in signal strength in a specified direction compared to a reference antenna
- D. The increase in impedance on receive or transmit compared to a reference antenna



AFL1 Q8 of 12

# T9A11

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- B. The additional power that is required in the antenna when transmitting on a higher frequency
- C. The increase in signal strength in a specified direction compared to a reference antenna**
- D. The increase in impedance on receive or transmit compared to a reference antenna



# T9A06

Which of the following types of antenna offers the greatest gain?

- A. 5/8 wave vertical
- B. Isotropic
- C. J pole
- D. Yagi



AFL1 Q9 of 12

# T9A06

Which of the following types of antenna offers the greatest gain?

- A. 5/8 wave vertical
- B. Isotropic
- C. J pole
- D. Yagi**



# T9A04

What is a disadvantage of the short, flexible antenna supplied with most handheld radio transceivers, compared to a full-sized quarter-wave antenna?

- A. It has low efficiency
- B. It transmits only circularly polarized signals
- C. It is mechanically fragile
- D. All of these choices are correct



# T9A04

What is a disadvantage of the short, flexible antenna supplied with most handheld radio transceivers, compared to a full-sized quarter-wave antenna?

- A. It has low efficiency
- B. It transmits only circularly polarized signals
- C. It is mechanically fragile
- D. All of these choices are correct



# T9A07

What is a disadvantage of using a handheld VHF transceiver with a flexible antenna inside a vehicle?

- A. Signal strength is reduced due to the shielding effect of the vehicle
- B. The bandwidth of the antenna will decrease, increasing SWR
- C. The SWR might decrease, decreasing the signal strength
- D. All of these choices are correct



AFL1 Q11 of 12

# T9A07

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- A. Signal strength is reduced due to the shielding effect of the vehicle**
- B. The bandwidth of the antenna will decrease, increasing SWR
- C. The SWR might decrease, decreasing the signal strength
- D. All of these choices are correct





# T9A12

What is an advantage of a  $5/8$  wavelength whip antenna for VHF or UHF mobile service?

- A. It has more gain than a  $1/4$ -wavelength antenna
- B. It radiates at a very high angle
- C. It eliminates distortion caused by reflected signals
- D. It has 10 times the power gain of a  $1/4$  wavelength whip



AFL1 Q12 of 12

# T9A12

What is an advantage of a  $5/8$  wavelength whip antenna for VHF or UHF mobile service?

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- B. It radiates at a very high angle
- C. It eliminates distortion caused by reflected signals
- D. It has 10 times the power gain of a  $1/4$  wavelength whip





A non-profit initiative by the IEEE and ARDC to increase the numbers of youth (12-18) and non-males in Amateur Radio. Participants earn FCC licenses and receive free 2-way radios.

For MORE information: [n2re.org/m-o-r-e-project](http://n2re.org/m-o-r-e-project)  
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