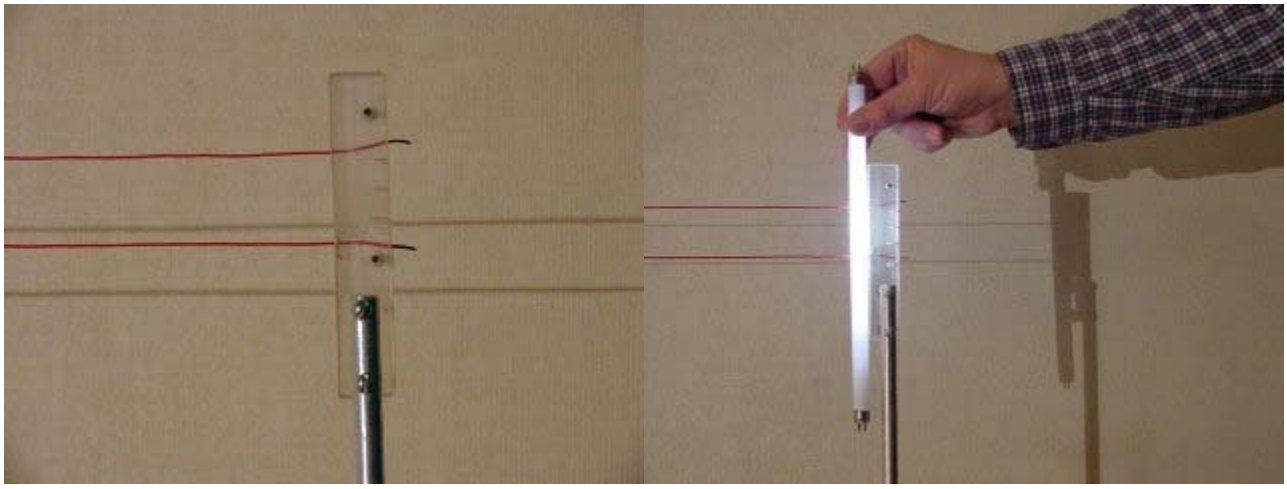
Answer #253

The answer to Part 1 is (a): the fluorescent tube will glow brightly when positioned at the far end of the antenna, as seen in the photograph at the right below.



Now that you know that the tube is bright at the far end of the antenna, which of the two remaining answers to the second question do you like? Select either answer b or answer c.

Click here for explanation of standing waves in this antenna.

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For questions and comments regarding the *Question of the Week* contact
Dr. Richard E. Berg by e-mail or using phone number or regular mail address
given on the Lecture-Demonstration Home Page.

This answer is incorrect. Please return to the previous page.

This answer is correct, as seen in an mpeg video by clicking your mouse on the photograph below.

However, before you click on the photograph, use the data provided in Question #253 to determine *how many times* the intensity of the fluorescent lamp goes down and back up. THEN click on the photograph.

Click here for explanation.

In this demonstration the radio waves create standing waves along the antenna, with the distance between two successive nodes or two successive antinodes equal to one half wavelength, the "loop length."

Given that the frequency of the radio waves is 82.3 MHz and the wave speed in the antenna is 2.72×10^8 m/s, the wavelength of the radio waves in the antenna will be approximately 3.3 m, so one loop is 1.65 m, the distance between two nodes or two antinodes in the video.

Therefore the antenna will contain exactly three loops, or 1.5 wavelengths, as seen in the video.

What would happen if the length of the antenna were half of the one shown? Would that change if the end of the antenna wires were connected? You will have to go to Question #254 to find out.