Lab 7.1.4 Antenna Setup

Estimated Time: 15 Minutes

Number of Team Members: Students will work in teams of two.

Objective

This lab will introduce the user to the Cisco Aironet AP antenna configuration.

Scenario

An antenna is used to radiate transmitted signals and/or capture received signals. Different antenna components have different ranges and capability in the area of signal they radiate. Placement of the antenna can have different effects on the range or the ability of the AP to transmit and receive the radio wave signals.

Cisco antennas use a Reverse Polarity Threaded Navy Connector (RP-TNC). This connector looks like a TNC, but the center contacts have been reversed. This prohibits a standard off-the-shelf antenna from being attached to a Cisco RF product. The U.S Federal Communication Commission (FCC) requires vendors to use non-standard connectors to prevent accidental connections to wireless equipment.

Preparation

Prior to the lab, the student should have a Cisco Aironet AP configured as a root unit and performing properly. The student will also need a laptop computer with a Cisco Aironet client adapter and the utilities installed and performing properly.

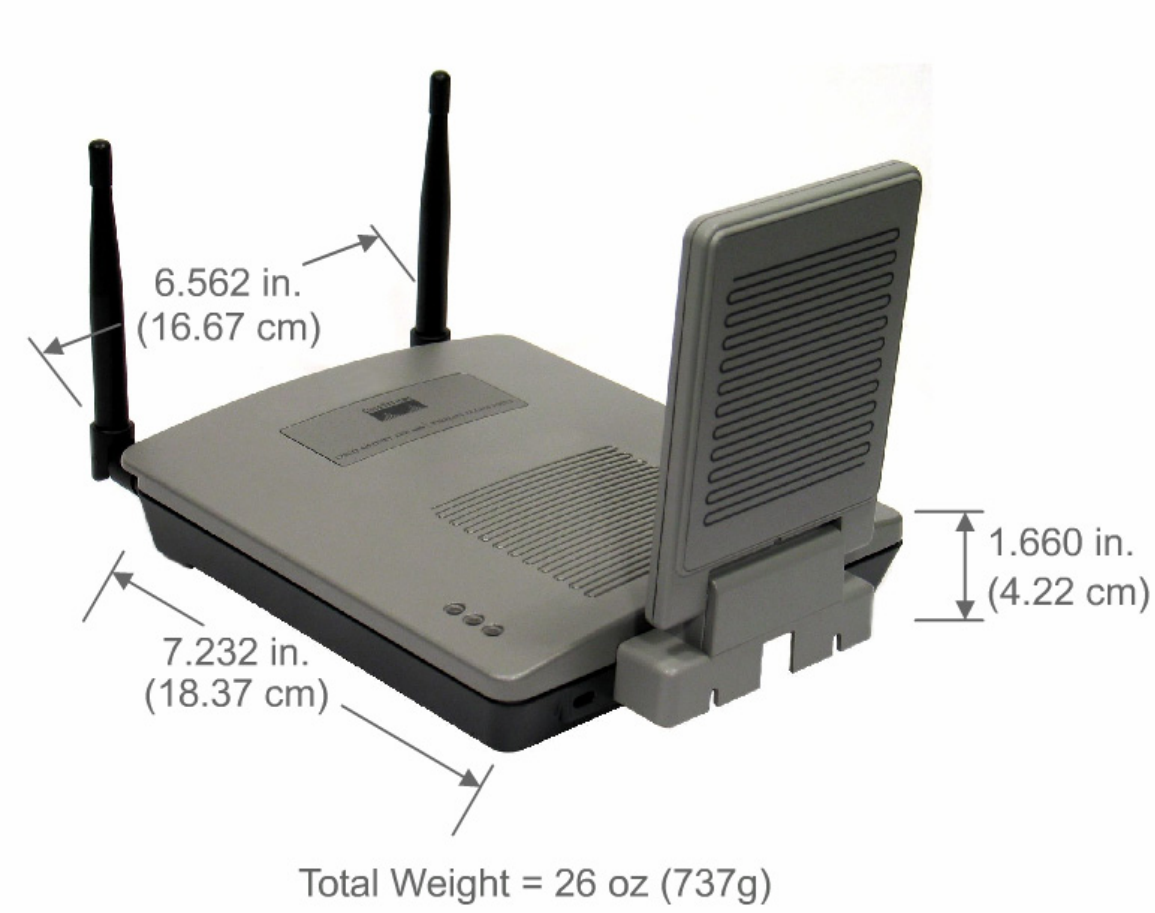
The students will perform some online Internet research and will require a computer with Internet access.

Tools and Resources

Each team will require the following:

- Cisco Aironet AP with two standard antennas
- Laptop Personal Computer with a client adapter and client utility properly installed
- Cisco Aironet Antenna components to be tested

Step 1 Antenna orientation of the AP



a. In order to set up the Cisco Aironet antenna, complete the following steps:

b. Note the image of the Aironet AP1200 series AP.

c. Note the Dual RP-TNC connectors on the AP. The right antenna coupling is the coupling on the right when looking at the AP back panel.

1. What does RP-TNC stand for?

_____

2. What is Vertical Polarization?

_____

_____

3. Define antenna beam width.

_____

_____

4. Define antenna bandwidth.

_____

_____

Step 2 Aironet AP1200 AP with dipole antennas

a. Note the image of the Aironet AP1200 Access Point with the standard dipole antennas.

b. The orientation of the antenna will be important if the standard dipole antennas are not used. When in diversity mode, the AP uses either the left or right antenna, but not both. Which antena it uses depends on the signal strength. When an optional antenna is used, the antenna receive and transmit setting will have to be changed to one side, which is either the left or right.

c. The Cisco part number for the pictured antenna is CISCO AIR-ANT4941. Do some online research and obtain the following information on this part:

   http://www.cisco.com/en/US/products/hw/wireless/ps469/products_data_sheet09186a008009228 5.html

   An additional reference can be found at the following link:
   http://www.cisco.com/univercd/cc/td/doc/product/wireless/acessory/4941.pdf

   1. Gain (in dBi)

      _____

   2. Frequency range

      _____

   3. What is the part number for the Cisco lightning arrestor?

      _____

   4. What does the Cisco lightning arrestor do?

      _____

   5. What is the gain of Cisco part number CISCO AIR-ANT1949?

      _____