

We get a lot of requests for how to provide a local area wireless internet coverage, for example how to provide Wi-Fi coverage for a local HOA swimming pool. another example is I have a studio or shop and we need Wi-Fi coverage out there from my house where my Base station. It doesn't quite reach now, so what do I need?

1. An access point.

We will need an AC base station that has been modified so that you can attach a external antenna or amplifier.

2. External Antennas.

These allow you to broadcast the Wi-Fi signal to where you want it to be. There are two types of antennas- directional and omni directional.



directional antenna

A *directional antenna* sends a stronger signal, but only in one direction.

An *omni directional antenna* isn't as powerful, but goes in all directions.

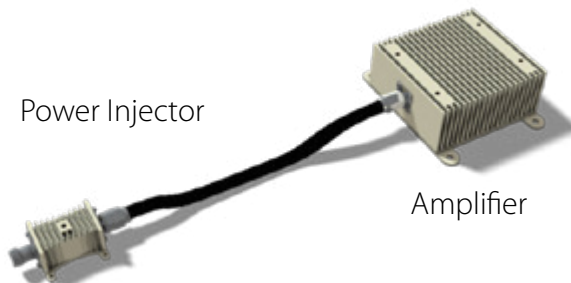
You might be able to get away with just a directional or omni directional antenna connected to this external antenna port. This antenna might need to be mounted outside and aimed the area to be covered.



omni-directional antenna

3. Power Injector and Amplifier

These are only one part because the power injector provided the power to the amplifier. The Amplifier increases the range of the antennas.

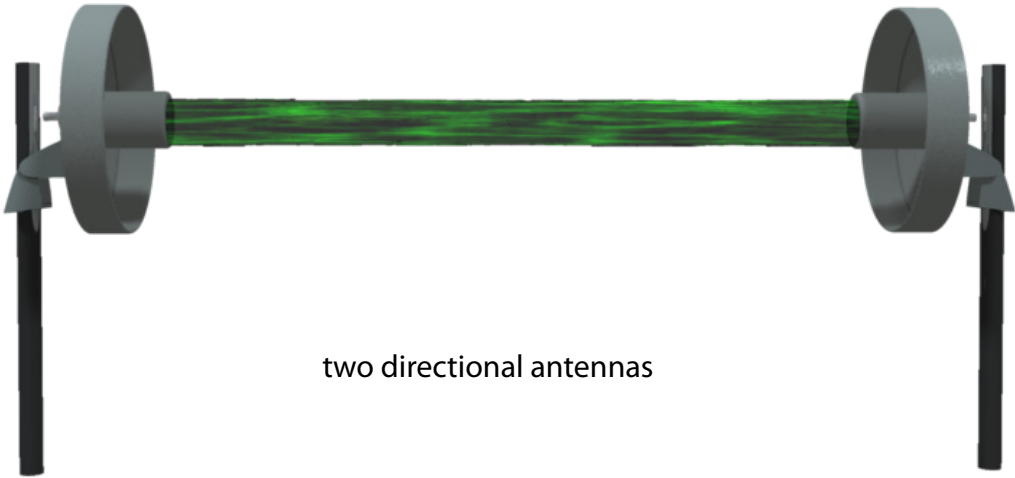


Power Injector

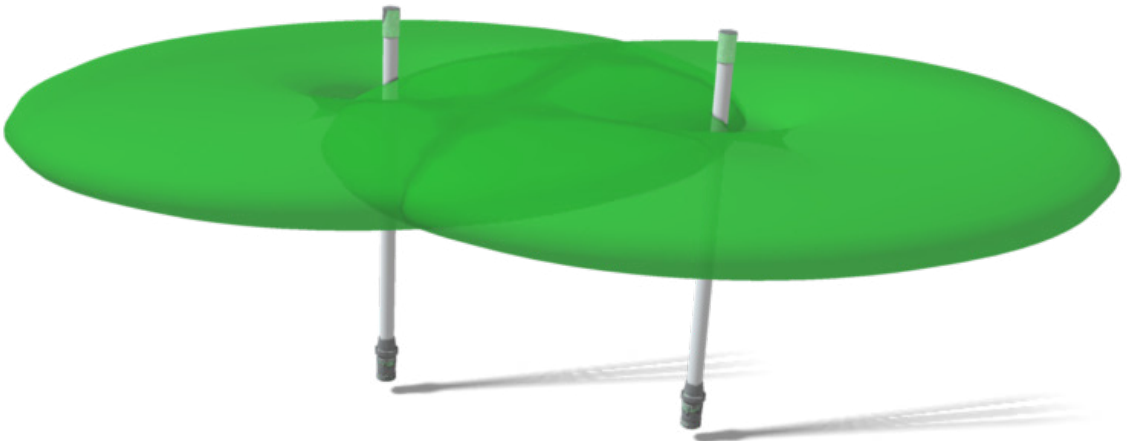
Amplifier

2

Usually Point to Point systems, which are used to extend the range to a certain area, like a pool house or workshop, use two directional antennas that are mounted outside and are aimed at each other, while point to multi point systems, which extend over a large area, like an RV Park, use all omni directional antennas.



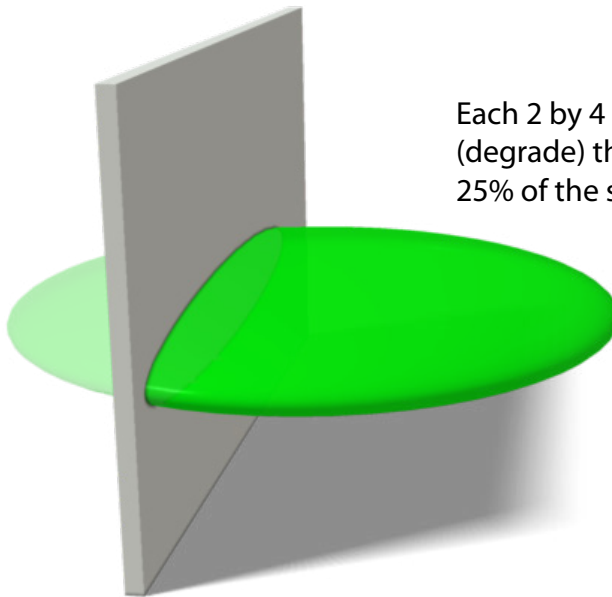
two directional antennas



two omni-directional antennas

4

If you are trying to get to another building walk toward the building with your Mac and see what happens to the internet service. If you can get internet next to the outside wall of the building then try inside the building. If it works in the building where you want to use the computer, you are all set.



Each 2 by 4 wall will attenuate (degrade) the signal by about 25% of the signal that is hitting it.

If you can't a signal in the area or building you want to receive it, you are going to have to add another base station to act as a repeater. The repeater (or outdoor antenna) will have to be mounted where you have tested and found the Wi-Fi signal. You may need another modified BaseStation Extreme or Express to attach a new antenna too.



Apple has included in the Airport set up the instructions how to extend the Base Station's range by using another base station. It's worth mentioning here that you can't generally use other third party wireless access points to extend Apple BaseStations because Apple does not provide the compatibility. Also, with either of these systems coaxial and adaptor cables will be need to go from the base stations to the remote antennas or amplifiers. Generally you want the cable runs to be as short as possible to reduce signal loss. Try to keep the coaxial cables under 10 feet unless there are amplifiers used.

Point to Point WiFi outdoor system

