

Community WiFi Coverage – Installation Guidelines

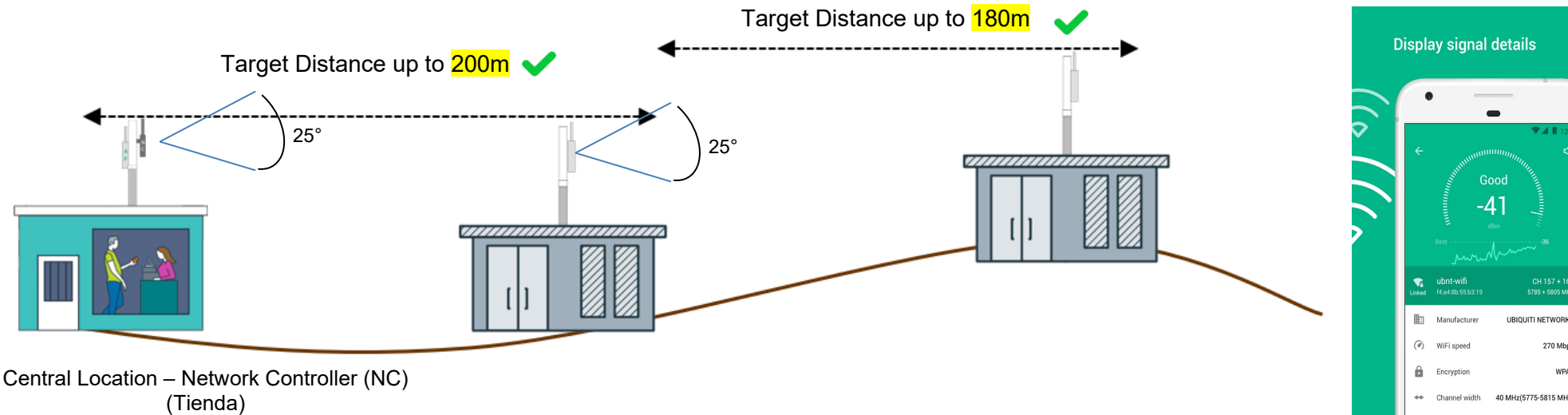
Scope: This documentation provides guidance on selecting locations for WiFi Access Point installations to extend the WiFi signal across the community and provide a continuous, community-wide network. For requirements on installing the access points themselves, refer to the installation documentation.

1 Distance and Height Between Access Points (APs)

The distance between the NC and APs must be **less than 200 meters** and the distance between AP to AP must be **less than 180 meters** to maintain a consistent coverage between devices.

There is a **25° limit** to the WiFi signal from the NC and AP (12.5° up and 12.5° down). This means that the difference in height between APs must be no greater than the horizontal distance between APs multiplied by 0.2.

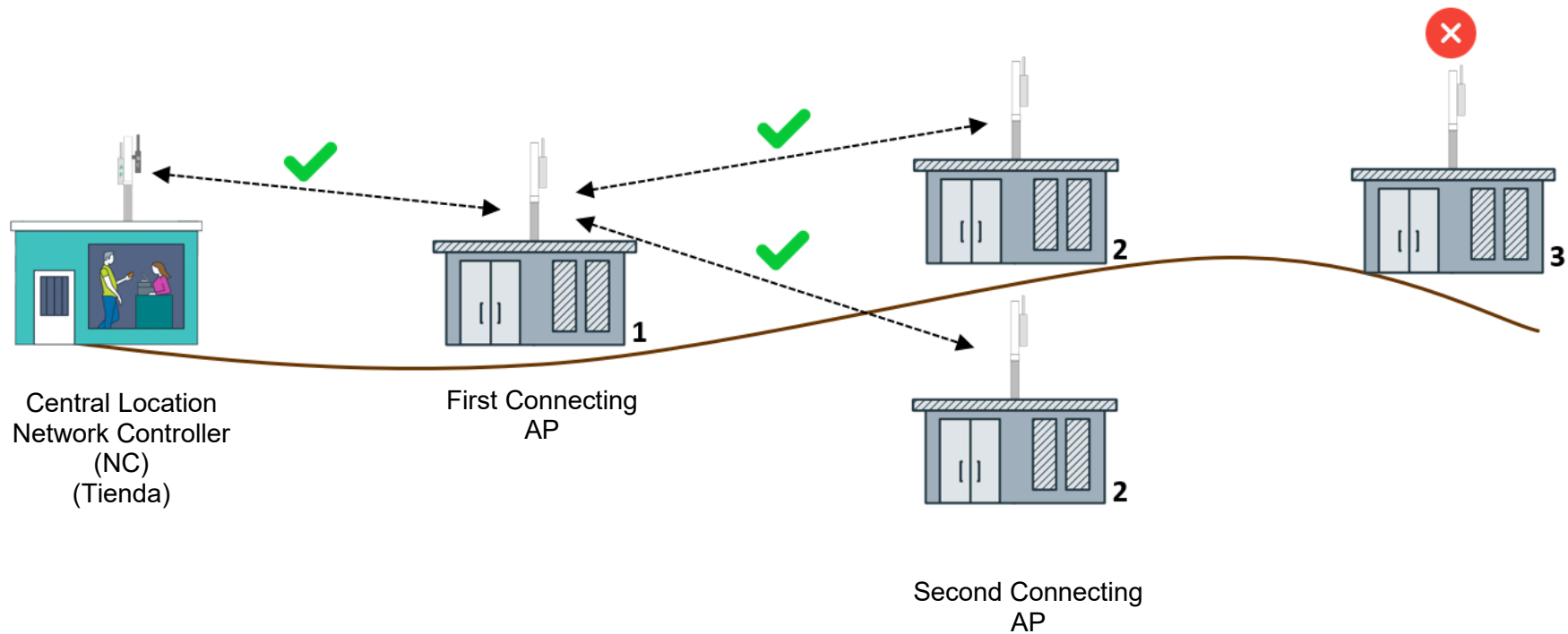
TIP: After the host site is activated and installed, check the signal strength at the coverage point install location using a WiFi Analyzer app, if it is **-75 dBm or lower** (for example, -41 dBm) then the AP will function at this location.



2 Number of APs in a Row

The network design will support APs connected directly to the Central Network Controller [AP 1 connects direct to the Network Controller] and APs connected via one “hop” (or link) to reach the Central Network Controller [AP 2 connects via AP1 to the Network Controller]

But it is not possible for an AP at to connect across two hops to reach the central AP [House 3 cannot reach the Network Controller via House 2 and House 3].

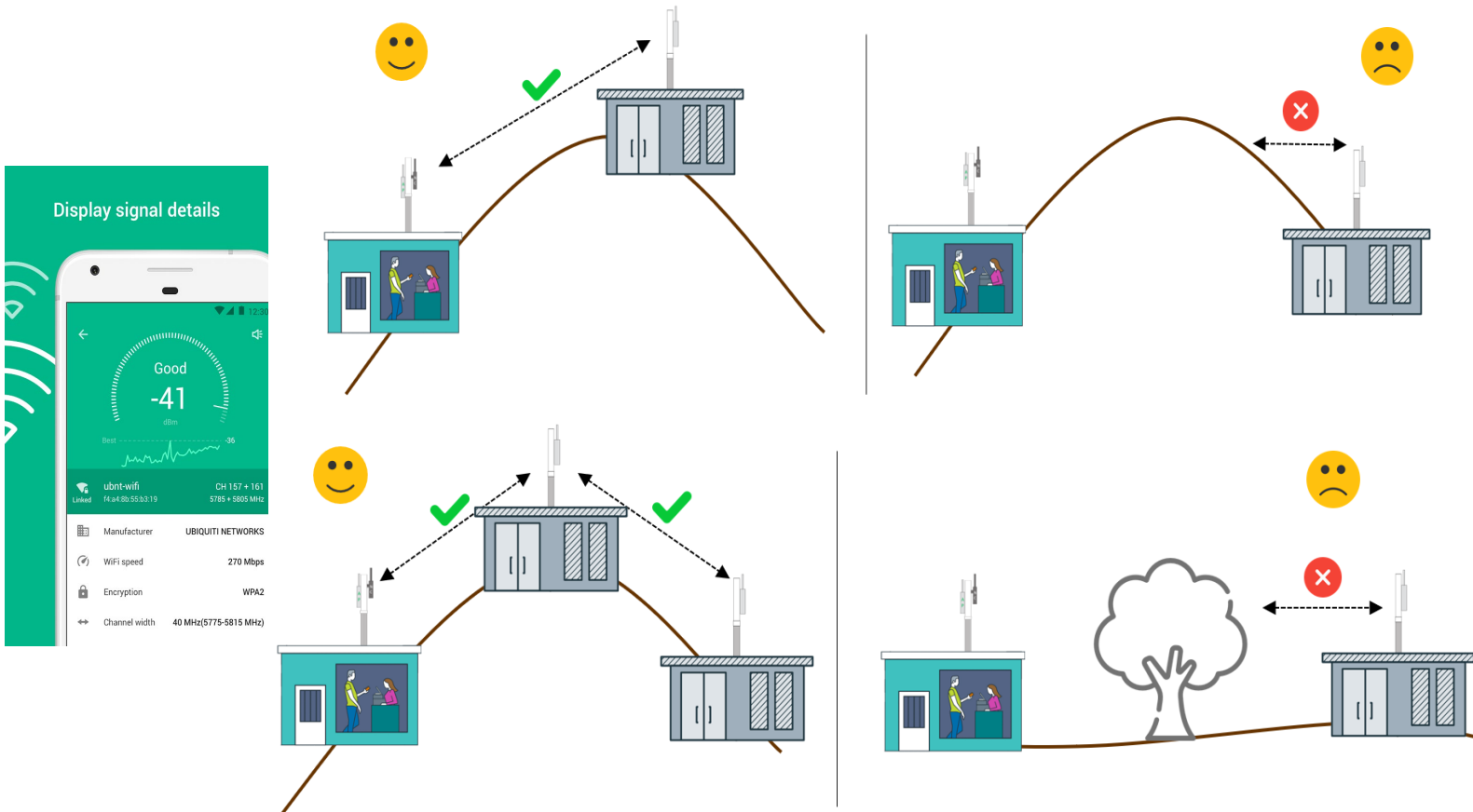


3 Line of Site Between Access Points

There must be line of site between APs and either the Central Network Controller or another AP which can has line of site to the Central Network Controller.

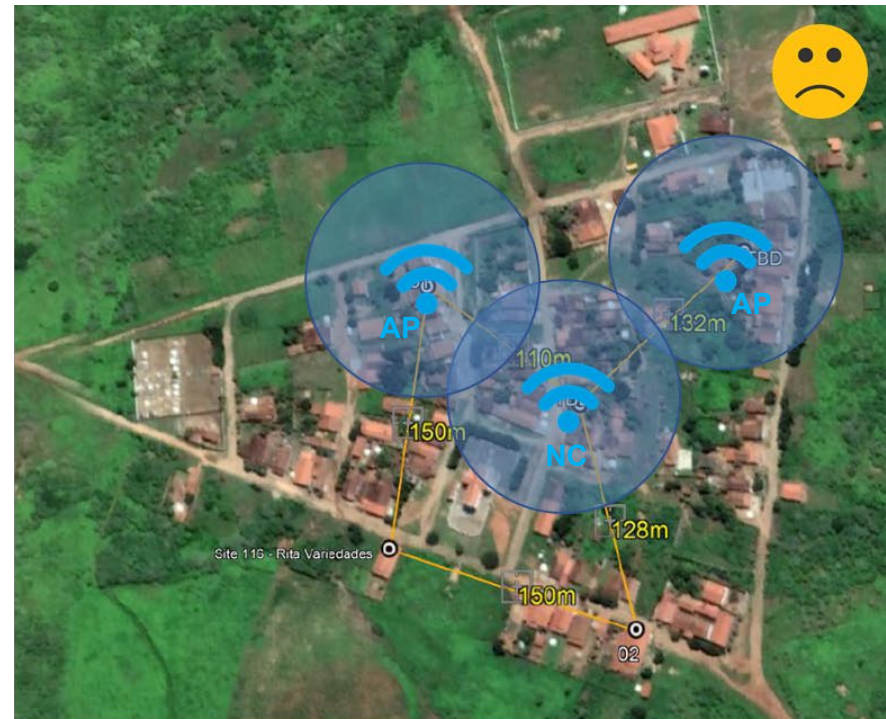
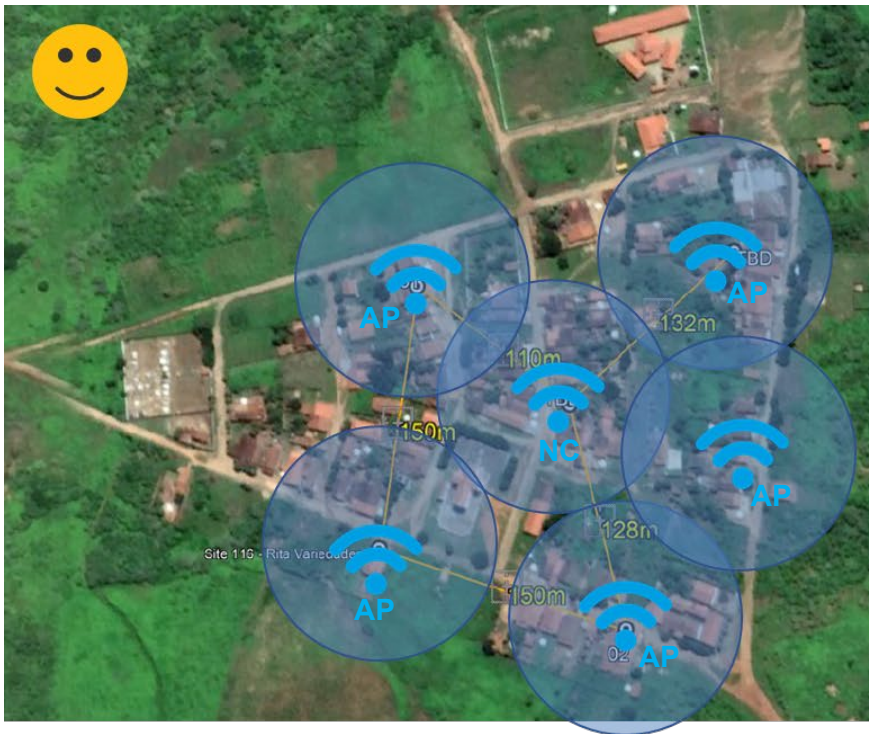
Avoid obstructions such as trees or other structures could interfere with the line of site.

TIP: After the host site is activated and installed, check the signal strength at the coverage point install location using a WiFi Analyzer app, if it is **-75 dBm or lower** (for example, -41 dBm) then the AP will function at this location.



4 Coverage Area

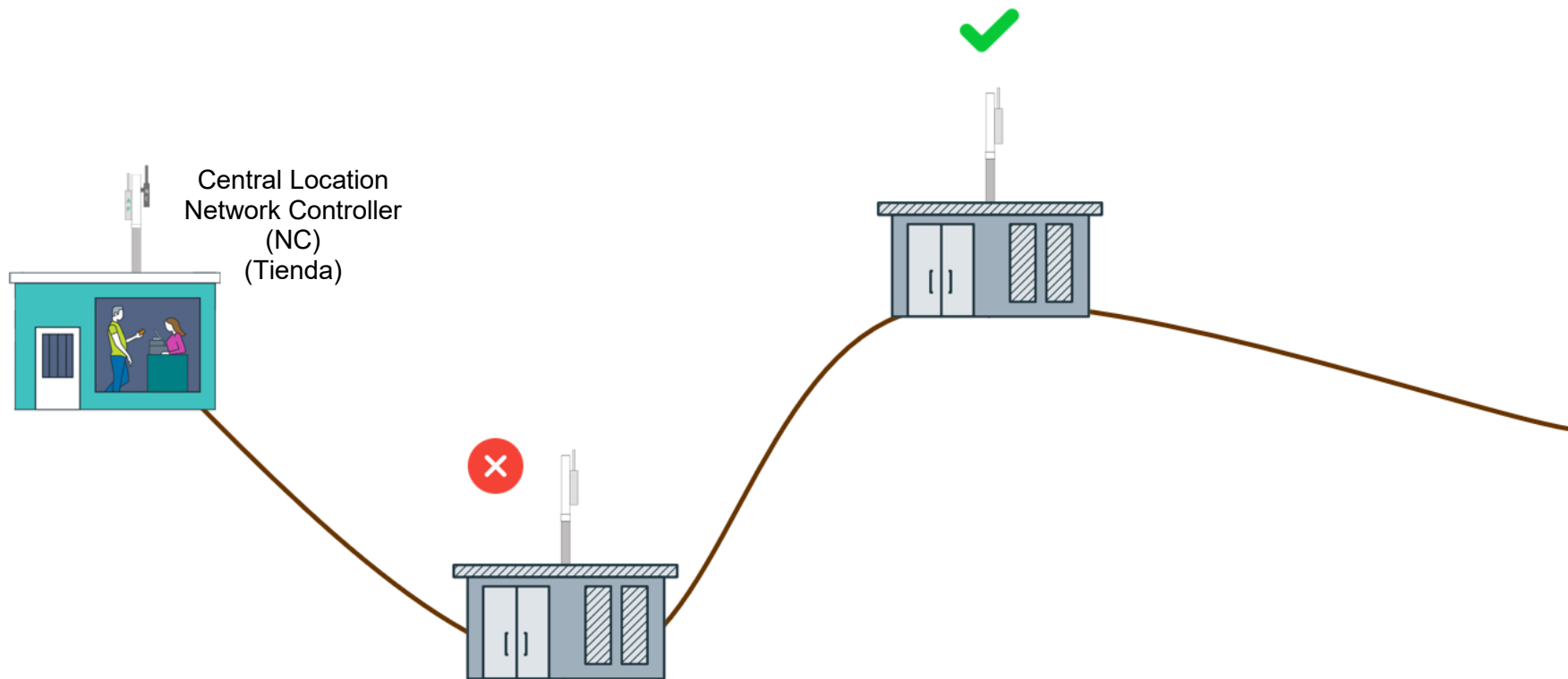
Ensure that at least 90% of the community is covered within the WiFi signal area.
 The WiFi signal for customers reaches approximately 100-200 m from the Access Point, depending on local factors (interference, terrain, weather).



5 Aim for High-Points in the Community, Not Low Points

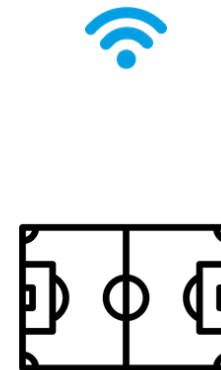
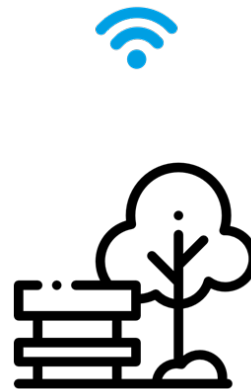
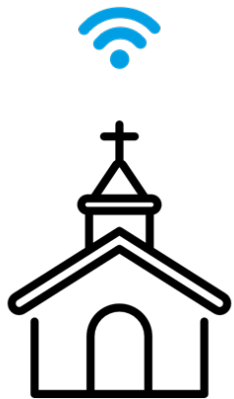
The WiFi signal will reach more customers if the APs are placed at high points in the community. Install at locations such as buildings on hills, on towers, or on tall buildings.

It is optimal to identify a high point for the Network Controller to provide a central, visible location where the additional APs can easily connect – but in communities where this is not an option it is okay to install at a low point so long as there is line of sight.



6 Provide Coverage at Popular Gathering Areas

Place Access Points such that they provide coverage in common gathering areas such as – churches, school, town squares, sports field.



7 Select Reliable Locations where Power can Always be Provided

Select other businesses and/or community members who will keep the Access Point powered on consistently, in exchange for a monthly free internet access. The Access Point only consumes about as much electricity as a light bulb.

Make sure to check with a multimeter that the voltage at the location meets local standards before verifying it as a candidate for Coverage.

