

Which Pharos Product Is Right for Me?

This guide is intended to help you choose the most suitable products for your specific wireless broadband networking applications.

1 Pharos Wireless Broadband Solution Overview

Pharos Series devices, including CPEs, wireless base stations, and antennas, are designed to provide effective solutions for fixed outdoor wireless communication. All Pharos devices feature 2X2 MIMO, which supports wireless speeds of up to 300Mbps and ensures optimal performance.



Figure 1 Pharos Overview

There are two frequency options, 5GHz and 2.4GHz. The 5GHz frequency bands are generally characterized by lower levels of noise and interference. They offer their best performance when deployed in environments that allow a clear line of sight between devices. In contrast, the 2.4GHz band may be subject to more noise and interference, but features significantly better propagation characteristics, meaning that they may perform better when the line of sight between devices is obstructed. These differences mean that choosing the correct frequency for your application is very important.

Frequency	Base Station	Antenna		Customer Premise Equipment (CPE)
		Dish	Sector	
5GHz	WBS510	TL-ANT5830MD	TL-ANT5819MS	CPE520, CPE510
2.4GHz	WBS210	TL-ANT2424MD	TL-ANT2415MS	CPE220, CPE210

2 Recommended Devices for Various Application Scenarios

There are two primary methods used for distributing wireless network access, as shown below:

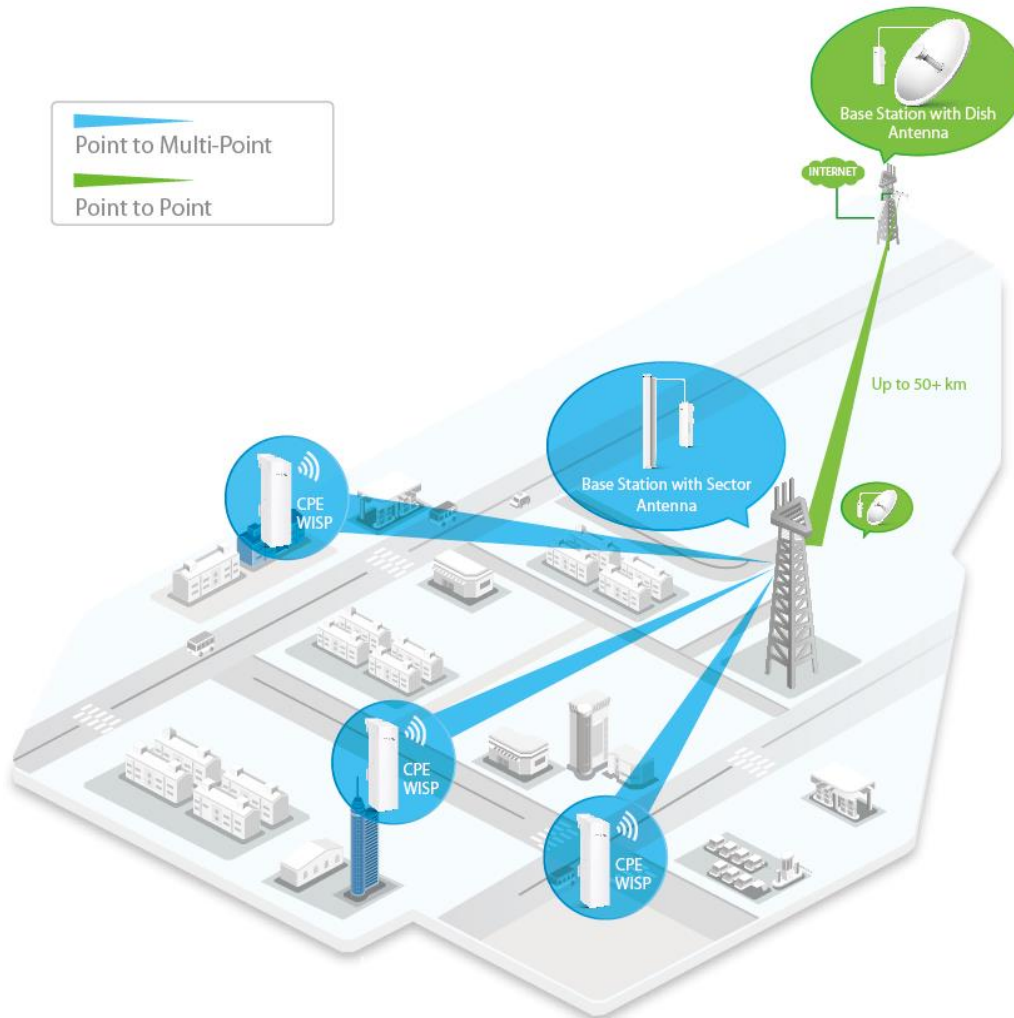


Figure 2 Pharos PtP and PtMP Network

2.1 Point-to-Point (PtP)

PtP links act as an Ethernet bridge, connecting two distant locations. These links can cover distances ranging from several kilometers to dozens of kilometers, depending on the application scenario and environment. You can use TP-LINK CPEs or Wireless Base Stations (WBS) matched with dish antennas, to establish a reliable WISP backhaul link or individual Ethernet bridge.

Recommended products are sorted according to transmission distance. The specifications provided are for reference only. Transmission distance and performance depend on environmental factors, antenna properties, line of sight obstructions, EIRP limits, and other factors.



Figure 2.1 Range recommendations for each device in PtP connection

Note:

- TP-LINK CPEs feature a compact design and are popular for short and mid-range applications. They provide excellent reliability and high performance at a reasonable price.
- 5GHz devices are recommended over 2.4GHz devices whenever possible due to their superior performance.
- High performance devices can produce better results when used for short-range applications. For example, a CPE520 will likely outperform a CPE510 at a shorter range.

2.2 Point-to-Multipoint (PtMP)

To establish the PtMP link, use a Wireless Base Station (WBS), with a sector antenna, and connect it to multiple CPE devices. This method allows you to provide access at two or more locations.

Excellent PtMP performance requires strong hardware on both sides of the link, so choosing the right APs and client devices is important. A sector antenna can cover wider zone, but may be more susceptible to interference, which results in decreased range or diminished performance at greater ranges. Additionally, as the number of client devices increases, interference also increases and may have an effect on performance that you should take into consideration. We strongly recommend the use of high performance hardware, even for short distance PtMP applications that involve a large number of client devices.

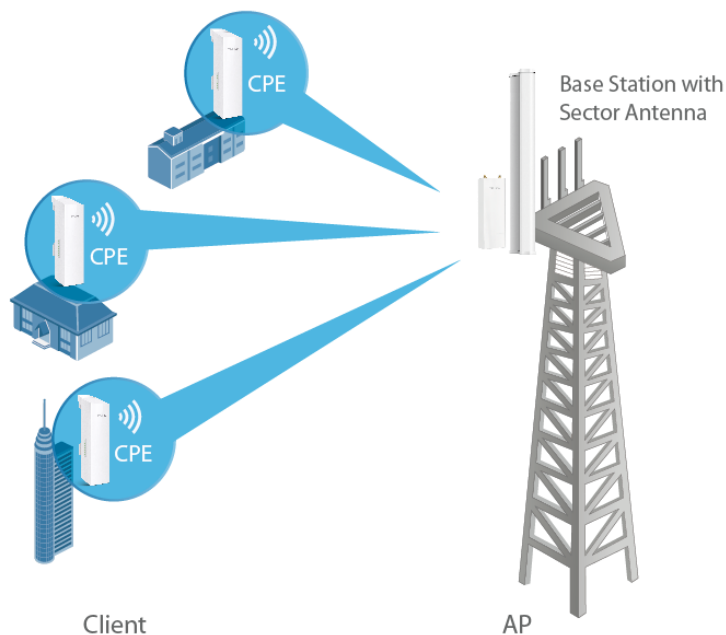


Figure 2.2 Pharos PtMP link

Recommended products are listed in the table below. The specifications provided are for reference only. Transmission distance and performance depend on environmental factors, antenna properties, line of sight obstructions, EIRP limits, and other factors.

Frequency	Distance	Coverage Degree	AP	Client
2.4GHz	3km	90° (3dB) 120° (6dB)	WBS210 + TL-ANT2415MS	CPE210
	5km			CPE220
5GHz	10km		WBS510 + TL-ANT5819MS	CPE510
	15km			CPE520

Note:

- For APs, we recommend a WBS paired with a sector antenna. CPEs can be used as APs, but performance may be diminished and the resulting coverage zone may be smaller.
- 5GHz devices are recommended over 2.4GHz devices whenever possible, due to their superior performance.
- Creating a larger coverage area requires more WBSs and antennas. For example, by combining three or four WBSs, matched with appropriate antennas, you may achieve full 360° coverage.
- If you would like to establish a hotspot for mobile device, such as smartphones and tablets, please explore the [Auranet product](#) for more information regarding professional solutions.

3 Further Reference

Visit our official [Pharos Product](#) web page for more information.

Related antennas and accessories can be found [here](#).

You are also welcome to visit our [official forum](#) for additional information and support.

Setup tutorials can also be found [here](#).