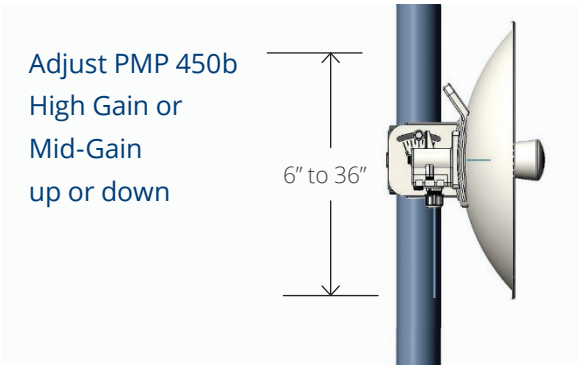
Application Note for 450b High Gain

There have been several concerns raised surrounding the deployment and performance of the PMP 450b High Gain product. This application note will hopefully clarify the expected performance, and address some potential pitfalls that Cambium Networks has uncovered during investigations of customer support issues.

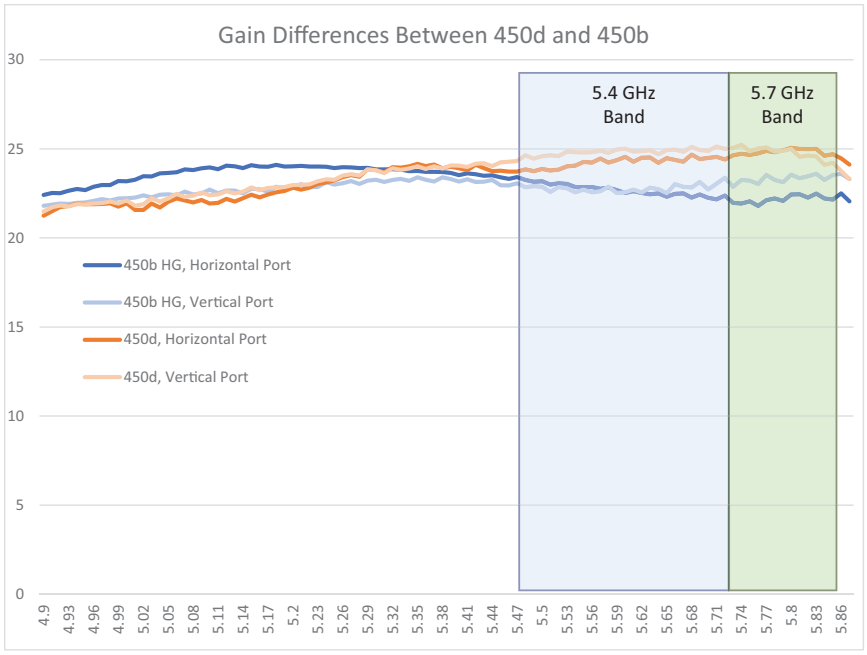
If you are installing 450b High Gain radios, and the receive signal levels do not match expectations (or are not matching what LINKPlanner is advising), this may help optimize the signal.

We have determined through both internal testing and customer site visits that there may be an opportunity to improve the receive power signal on the 450b, both 450b High Gain and 450b Mid-Gain, by adjusting the installed height of the radio during the aiming process. Typically, installers will mount the radio in a fixed height position, then align by moving the device on a fixed axis. However, raising or lowering the 450b device may increase power levels by up to 4-6 dB at a range of 6 to 36 inches of movement. An installer can mount the device and peak the signal at that point, then move the device up and down to further peak the signal level. Once the optimum height is determined the installer may fine tune the aim to reacquire the peak signal level.

NOTE: the level of improvement available will vary depending upon the terrain in the area around the site. A 4-6 dB increase in downlink receive power may not be typical, and is typically less noticeable when using Mid-gain vs. High Gain.



Gain Differences between 450d and 450b High Gain:



As noted in the graph, the 450b ranges between 1 and 3 dBi lower in gain throughout both the 5.4 and 5.7 GHz frequency bands. The peak gain for the 450b High Gain dish is accurately specified at 24 dBi, while the 450d was also accurately specified at 25 dBi.

If you are comparing the Receive Power at the AP between a 450 SM with a reflector dish attached and the 450b High Gain module, you need to ensure that you have the correct "External Gain" set for the 450 SM, or you may be exceeding the EIRP limits in bands that are limited (eg. 5.4 GHz in FCC).

Hopefully, this application note will aid in ensuring that proper deployment of the 450b results in the product performance you expect. Please provide additional feedback to us on the community forum: https://community.cambiumnetworks.com/