Serving Small Cells More Effectively In The Metro With Copper

Many operators believe that the majority of small cells will require somewhere in the neighborhood of 20 – 60 Mbps when installed, and understandably they want future scalability as well. This kind of bandwidth is easily available to the majority of outdoor small cell / micro cell locations with EFM over Copper from Actelis today.

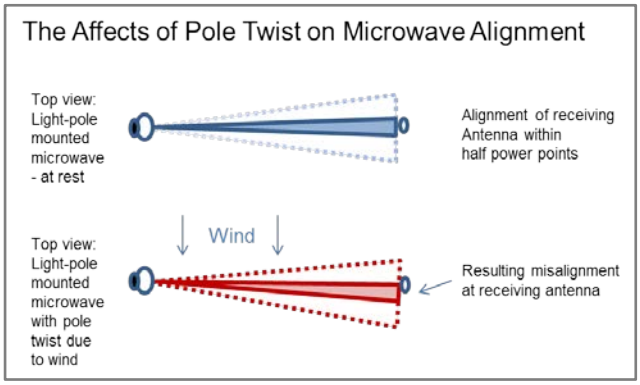
But beyond bandwidth, one of the most complex issues associated with small cell deployment, an issue that is more difficult to solve, is getting that bandwidth where it is needed. Small cells must be placed precisely at the exact locations where they are needed if the network is to be fully optimized. No one wants to design their network based on placing small cells where cost effective backhaul is available.

Service operators realize that fiber cannot be run to the majority of small cell locations cost effectively, and as a result they have turned to alternative technologies such as line of site microwave and copper. Interestingly enough, although in theory wireless technologies might provide the greatest flexibility in terms of where it can be utilized, in practice this is not always the case.

In a dense downtown area, getting line of sight at the street level is no small task. Maintaining that line of sight at street level is even more difficult. In addition, although service providers would understandably like to leverage existing infrastructure such as light poles for mounts wherever possible, much of this infrastructure is not always suitable due to its design.

For low cost of manufacture, reduced transport cost to location, and easier installation, many of the light poles in recent years have been of lightweight design using aluminum alloys. Engineers designed modern light poles to survive the load presented by wind, conditions in which the poles as designed are expected to experience some flex and twist.

It takes only a very minor twist in terms of degrees to throw off alignment of point-to-point line of site microwave, particularly for short shots in the high bands within the metro. Twist can degrade performance if the cone of radiation striking the receiving dish is no longer aligned within the half-power points, the usable part of the signal.



Copper is ubiquitous in the metro, and typically the technology that offers the most flexible placement close to where small cells are needed. It also is friendly toward deployment on almost any pole, as it is not affected by shaking or twisting of the pole during windy conditions.