

Picocell Technology to Enable Faster and More Accurate Diagnoses

With demand of high-speed wireless data increasing at astronomical rates, wireless carriers are challenged to find a long-term solution to this escalating issue.

According to distinguished members of [IEEE](#) [1], the world's largest professional organization for the advancement of technology, increased utilization of picocell base stations has the potential to handle the increasing wireless demand.

"Picocells and the still smaller femtocells can minimize the shared bandwidth requirement for high-speed services, boost service in smaller geographic areas and add network capacity in areas with dense wireless usage," said Stephen Weinstein, IEEE Life Fellow and consultant. "These small cellular base stations, especially suitable indoors and along highways, offer a readily available, economic solution that can be easily incorporated into the current infrastructure to help handle the world's evolving high-speed wireless needs."

With improved high-speed wireless service, picocell base stations can deliver the connectivity needed to drive innovation in critical industries including mHealth and intelligent transportation.

Although wireless sensor technology is currently being used to monitor people's vital signs, demands for wireless in mHealth continue to grow. "Continued innovation in wireless technology will play an integral role in enhancing healthcare analysis and patient care," said Yadin David, IEEE Senior Member and founder of Biomedical Engineering Consultants LLC. "Improved data streaming speeds from picocells can facilitate crisper imaging technologies and real-time monitoring, enabling healthcare professionals to make immediate diagnoses. For example, doctors will immediately know the severity of an athlete's injury right from the field, so the proper treatment can be administered as quickly as possible."

Picocells can also support intelligent transport systems in cars to help monitor behavior of nearby vehicles on busy highways and streets. "Advancements in wireless are facilitating the ability for vehicles to monitor traffic patterns, reroute cars to their destinations, and even minimize the potential of accidents," said Edward Delp, IEEE Fellow and Professor at Purdue School of Electrical and Computer Engineering. "As wireless connectivity improves on our roads, driving will not only be a more pleasant experience, but also a safer one."

With CTIA, the International Association for the Wireless Communications Industry, anticipating that there will be more than 15 billion network devices worldwide – almost two devices per person – by 2015, it's not surprising that 4G wireless network investments could reach up to \$53 billion between 2012 and 2016. "This landscape provides an opportune time to realize the potential of picocell base stations," said Weinstein, a 45-year communications engineer veteran.

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"For more than a century, IEEE has been helping technologists drive innovation in communications," said Gordon Day, IEEE President and CEO. "We publish some of the most important periodicals in the field and have led the creation of industry-changing standards. Let us tell you more at our booth at International CTIA Wireless 2012®."

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