LightRadio breakthroughs

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The world of mobile communications moves fast. With new mobile devices, new applications and ever-growing and changing consumer demands the wireless networks in use today have to evolve. Rather than take an incremental approach to meet these challenges, Bell Labs took a leap and developed a radically new approach to wireless technology.

In order to do this, Tod Sizer, head of Bell Labs Wireless Research, challenged his team to think not just "outside the box," but to think "inside the cube." In six short months, the team developed a cube-shaped antenna that would fit in the palm of a hand - and was ready to test it with customers.

"There are many different types and sizes of base stations, from very small to very large, depending on where they are located, such as in an urban or rural area," explained Sizer. "I realized that we needed to design a new and flexible type of antenna array for different environments - including one designed to the smallest possible size – 'invisible antennas' - in order to be flexible enough to meet the growing needs of all of our wireless service provider customers."

A radio antenna element is a component of an antenna system that transmits signals from the wireless base station to a wireless end-user using a mobile phone, smart device or laptop. By reducing the size of the element itself, an antenna array can be scaled to fit any wireless need simply by adding more of these elements to the array.

Bell Labs wireless researchers weren't daunted by the challenge of

building something that was roughly ten percent of its current size. Several wireless research teams in Stuttgart and Ireland focused on different aspects of the problem, combining their unique areas of expertise to quickly resolve a myriad of technical challenges to reduce the antenna element's size, improve energy efficiency and lower manufacturing expenses. The clever architecture of this new antenna is but one of the innovations critical to realizing Alcatel-Lucent's unique lightRadio portfolio.

"We believe this unique antenna - as part of the lightRadio solution - will have a significant impact in the wireless space," concluded Sizer.

Source: Alcatel-Lucent

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