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Cellphone Carriers Try to Control Signal Boosters



Sandy Huffaker for The New York Times

Sean Kirkland in the living room of his San Diego home with a Clearstream Microsite signal booster in the background.

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When Sean Kirkland, an executive vice president for sales and marketing for a company that plans corporate meetings and events, moved into a new house in San Diego last year, he loved everything about the place.



The zBoost YX545 SOHO, a cell phone signal booster.



The DeskTop Signal Booster, from Wilson Electronics.

Everything except the poor reception he got on his cellphone.

It was worst in his home office. When a dropped call caused him to spend several minutes talking to dead air instead of to an important client, “I wanted to bang my head against the wall,” said Mr. Kirkland, 42.

So he installed a cellular signal booster, or repeater. The devices, which cost from \$250 to \$1,000, depending on how much they increase a signal, work by first capturing cell signals through an external antenna, [ideally affixed to the roof](#) of a dwelling. A coaxial cable then transmits the signal inside the house to an amplifier and internal antenna, which strengthen and retransmit it to cellphones. Before, Mr. Kirkland said, he might have had one or two bars indicating signal strength.

“I can walk around my whole home now with full strength reception,” he said. “I couldn’t be happier.”

But will Mr. [Kirkland’s](#) solution remain legal? In March, CTIA-The Wireless Association, which represents cellular service providers, [filed a complaint](#) with the [Federal Communications Commission](#) demanding stricter regulation of signal boosters. The commission is considering whether to let Mr. Kirkland and an estimated one million other homeowners continue to use them.

Boosters have been around for about a decade, but they have not been widely used. And when they were used, it was mostly in commercial settings. But the popularity of bandwidth-hogging smartphones and poor reception in urban and rural areas have prompted homeowners to fill their homes with the electronics needed to pull in a reliable signal.

Supported by separate filings by [AT&T](#) and [Verizon](#), the CTIA claims that boosters interfere with cellular networks and disrupt service to customers. As a result, CTIA has asked the F.C.C. to require that “the use of signal boosters be coordinated with and controlled by commission licensees and the sale and marketing of such devices be limited to authorized parties.”

In other words, CTIA wants cellular service providers to control who makes boosters, who sells them and to whom. Not surprisingly, the leading manufacturers of cell signal boosters like [Wilson Electronics](#) of St. George, Utah, and [Wireless Extenders](#) of Norcross, Ga., do not like this idea.

They grumble that the wireless carriers want to shut them out of a market that is rapidly expanding as more people forgo landlines to rely on their cellphones, which may not work so well inside their homes. Common construction materials like concrete and foil-lined insulation can make good reception difficult without a booster.

“You used to run inside to take a call, but now you run outside to take a call,” said Joe Baños, chief operating officer for Wilson Electronics.

Mr. Baños does not dispute that poorly made boosters can sometimes cause network disruptions, but he said the solution was for the F.C.C. to tighten up manufacturing specifications.

“As it stands, the F.C.C. criteria is useless,” he said, because it does not require boosters to have automatic shut-off features if they detect interference.

Wilson’s \$250 DeskTop Signal Booster, which transmits a signal up to 2,000 square feet, and Wi-Ex’s \$399 zBoost SOHO YX545, which increases an indoor signal over 3,000 square feet, are popular models that can support multiple phones. The devices are available from electronics stores and online retailers like [Amazon](#).

Both Wilson and Wireless Extenders say their products are designed to prevent interference and do not affect cellular networks. Mr. Kirkland’s booster, a \$375 Clearstream Microsite, was made by [Antennas Direct](#), a new entrant to the market. While the company said the device was still in a public testing phase, it also had built-in safeguards against interference.

But Christopher Guttman-McCabe, CTIA’s vice president for regulatory affairs, said that with the proliferation of tablet computers, smartphones and personal mobile hot spots, “The wireless environment is always changing and represents a complicated interaction of

signals.” Adding boosters to the mix without carrier coordination and approval, he said, “can cause overload and serious confusion in the network.”

Moreover, Mr. Guttman-McCabe said boosters sometimes interfered with the closed wireless networks that public safety officials use to communicate. Indeed, the Association of Public-Safety Communications Professionals International supports CTIA’s efforts to restrict who can operate boosters.

And yet, Wilson and Wireless Extenders combined have provided hundreds of boosters to federal, state and local government offices nationwide including police, fire and public transportation departments. Examples include [New York City Transit](#) and several offices of the [Department of Homeland Security](#).

CTIA’s objection to boosters comes at a time when cellular service providers have begun offering their own products to cope with weak or intermittent reception. Called femtocells, these devices essentially push wireless signals onto the Internet to transmit voice and data. The signal travels via a customer’s broadband connection into and out of the house rather than on radio waves, which might get weakened traveling through say, trees or thick walls.

Robert Plamondon, 51, a technical writer who lives on a rural farm in Blodgett, Ore., bought a femtocell last year — the Verizon Wireless 3G Network Extender. “Before I got it, I had to go out to the mailbox to take a call,” he said. “That wouldn’t be so bad except it rains a lot here.”

The femtocell looks like a wireless router and plugs into his broadband connection to provide cell coverage throughout his house. “The only thing that takes some getting used to is the delay when you’re talking,” he said, referring to the lag time he experiences between when he speaks and when he is heard by the person on the other end of the call and vice versa.

Verizon’s femtocell costs \$250, whereas AT&T’s competing product, the 3G Microcell, costs \$150. Sprint’s femtocell, known as the Airave Access Point 3G, is free on a case-by-case basis to customers who have proven signal problems.

T-Mobile takes a different approach by offering calling via any wireless hot spot at no additional charge to customers who buy phones that have so-called Wi-Fi calling. Unlike AT&T and Verizon, Sprint and T-Mobile have not told the F.C.C. of any concerns about boosters.

Paul Kolodzy, a wireless consultant in Centreville, Va., said the booster debate obscured a more fundamental problem, which was that the number of cellphone users had outgrown network capacity. “Cell service providers either have to build more towers to handle the load or drive cell traffic onto the Internet.”

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