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Block That Ring Tone!

Many are the ways to silence an offending cellphone. Some may even be legal.

By SAM LUBELL

IT could happen on a train, in a restaurant or during an awe-inspiring aria at a performance of "Carmen": a neighbor's cellphone starts bleating the theme song from "Friends," disrupting the mood and setting nerves on edge. Wouldn't it be great, you think to yourself, if this couldn't happen?

Others are thinking likewise, including companies and researchers developing or already selling devices that render cellphones inoperable in certain locations. Methods include jammers that interfere with cellphone frequencies, routing systems that mute phones' ringers in specific places, sensors that detect active cellphones and building materials that block cellphone waves.

Proponents say that such measures are more effective than "no cellphone" signs, "quiet cars" on trains or even legal restrictions (like a law prohibiting cellphone use during performances, enacted by the New York City Council last year).

The concerns go beyond mere annoyance; casinos are seeking to stop phone-based cheating; prison authorities want to guard against phone use by inmates for drug deals or other forms of wrongdoing. With the rise of camera cellphones have come privacy concerns that have made locker rooms and other areas no-phone zones.

"At some point the American public will become so frustrated with the abuse of cellphones that it will rise up and yell that something must be done," said Dave Derosier, chief executive of Cell Block Technologies, based in Fairfax, Va., which is developing a transmitter the size of a smoke detector that relays signals of "no service" to cellphone frequencies, prompting them to send calls to voice mail.

Cell Block's products are slightly more sophisticated versions of what is probably the most widespread method of stopping cellphone use, called jamming, which renders phones inoperable by disrupting the connection between cellphone towers and cellphones. Jamming devices overpower phones' frequencies with especially strong signals and often with loud noise. Such devices can be found on eBay and at Web sites like globalgadgetuk.com.

That site says it has sold thousands of devices to theaters, businesses, military users and individuals. The jammers range from \$200 for a rudimentary hand-held model to nearly \$10,000 for suitcase-sized gear sold to governments and the military, with the price usually based on the signal range and the likelihood of disrupting cellular activity.

Other means are also in development, from devices that merely detect cellphone use (and prompt users to desist) to construction methods that render cellphones inoperable.

But not everyone finds this trend encouraging. Cellphone industry experts and federal regulators deride jammers in particular as unlawful, unethical and even dangerous.

"You're not allowed to barricade the street in front of your house because you don't like hearing an ambulance," said Travis Larson, a spokesman for the Cellular Telephone Industry Association, who asserts that blocking systems inhibit customers' rights and can block emergency calls. "Just like roads, the airwaves are public property."

The Federal Communications Commission points specifically to the Federal Communications Act of 1934, which says that "no person shall willfully or maliciously interfere with or cause interference to any radio communications" licensed by the government.

"It is the F.C.C.'s authority and obligation to determine which transmissions are lawful," said Lauren Patrich, a spokeswoman for the commission's wireless bureau. "If the F.C.C. doesn't have that authority, then what's its

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point?" Fines for violations can reach \$11,000 for a single offense.

Mr. Derosier said that devices like Cell Block's are "questionably legal" in the United States, but he added that with proper disclosure and provisions made for emergencies, there is no reason that they should not be used. The devices are legal in Japan, France and Eastern Europe, and in most of South Asia, Africa and the Middle East, he said.

Mr. Derosier said that prospective buyers in those areas included prisons, mosques, banks and embassies. Globalgadgetuk's owner, Michael Menage, said he believes that "people should be able to do whatever they want in their own spaces." He said his largest group of customers comes from the United States, which he said is evidence that there is a need for such technology here.

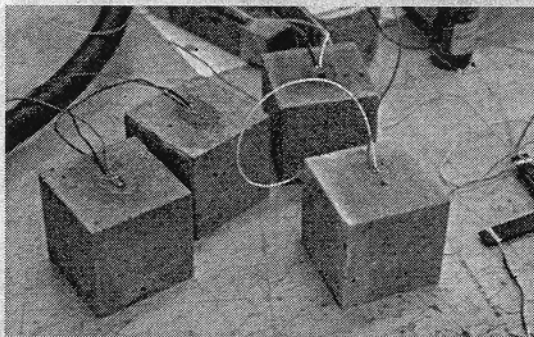
Meanwhile, others have begun devising cellphone ring-restriction technology that is legal, at least until further notice. (The F.C.C. maintains no regulations against cellphone-blocking techniques other than jamming, but does not rule out the possibility that such techniques could be scrutinized in the future.)

Bluelinx, based in Charlotte, N.C., is developing a system called Q-Zone (the Q standing for quiet) that uses Bluetooth wireless technology — in transmitters and imbedded into cellphones — to put phones equipped with Q-Zone software into silent or vibrate mode when they are taken into a specified zone.

Jeff Griffin, Bluelinx's president, said he was trying to sign up wireless providers and establishments like cafes and theaters. He said he hopes to start using the equipment in the



Photographs by Kevin Rivoli for The New York Times



INVENTIVE Dr.

Deborah Chung of the State University at Buffalo, above, with smart concrete. The concrete, being tested, left, blocks radio waves. Right, a phone silenced with a system from Bluelinx.

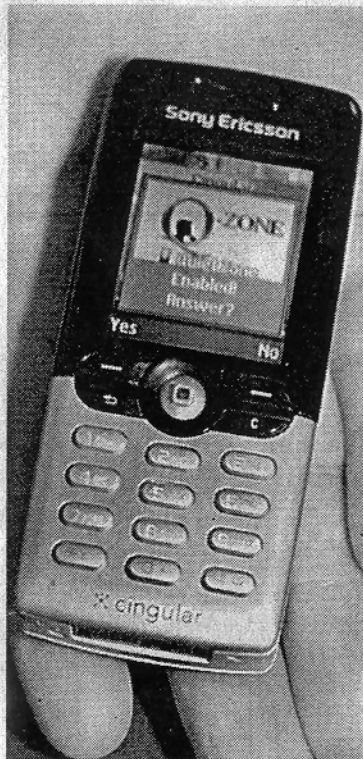
next few years. Unlike jammers, he said, his call-blocking system would be optional for cellphone users, who could turn it on or off.

"I was at church some time ago and a lady's cellphone went off and the entire church froze," Mr. Griffin said. "Meanwhile, she couldn't find her phone and was so embarrassed. It's that kind of circumstance we're trying to fix."

A similar system is being developed by Stefan Marti and Chris Schmandt, researchers at the Massachusetts Institute of Technology's

Media Lab. Their project, called Autonomous Interactive Intermediaries, uses technology like speech recognition to screen calls to determine when a phone should ring, and even subtle, silent visual cues to replace cellphone rings or vibrations — say, an animatronic rabbit or parrot turning toward you in a room to signal that you have a call.

Mr. Marti pointed out that the technology can always be overriden by users. "People will get nervous if the cellphone starts to make decisions by itself," he said. "It will take



Nell Redmond for The New York Times

an alert when a cellphone is present. Zetron, a company in Redmond, Wash., makes the Cellphone Detector Plus, a \$449 receiver that sounds an audio alert when it detects certain cellphone frequencies. The model, about the size of a thermostat, flashes a red light, beeps and plays a recording that urges people to turn their phones off. The devices are useful for hospitals, said Vaughn Entwistle, who edits Zetron's company newsletter.

An Israeli company, Netline, makes a detector called the Cellular Activity Analyzer, a hand-held device that is used to monitor and detect cellular communication activity

Ring-free cellphone zones, utopian to some, are unethical and dangerous to others.

in a given area. (It is offered at www.netline.co.il or www.spyshops.ca for \$2,500.) Other smaller detector models include the RF Signal Detector from Suresafe Technology, about the size of a beeper, which costs less than \$100. As with jammers, the larger the detector, the greater its range.

A different approach — by design or happenstance, but altogether legal — is to block cellphone signals through construction techniques. (An F.C.C. spokeswoman said the commission had no regulations dealing with building materials.) Like most cellphone-blocking methods, many of these ideas were developed long ago for military and espionage purposes, said Bill Sewell, senior vice president of DMJM Technology, who has spent

years designing radio-secure areas for the United States government.

Mr. Sewell said the methods used by his firm are simple: metal mesh screens tuned to the frequencies of radio waves are mounted inside the wall. They are also inexpensive, at about \$15 a square foot, he said.

Like Mr. Sewell, Deborah Chung, the Niagara Mohawk professor of materials research at the State University at Buffalo, has developed construction materials that block radio waves. Dr. Chung's "smart concrete" contains electrically conductive mixtures, like metal or carbon particles, that provide electromagnetic interference.

Her structures are designed for the military and hospitals, she said, but they could be used in other structures to keep cellphone users away. "It certainly would work," she said. "On the other hand, they might not be able to watch TV inside."

Some buildings have the blessing or curse of being cellphone-proof by accident, thanks to heavy walls. An example is the Frederick P. Rose Hall, the new home of Jazz at Lincoln Center, which is scheduled to open in October at Columbus Circle in Manhattan. The building is designed as a box within a box, with two sets of walls — the auditorium wall and a separate lobby wall — to prevent sound from seeping in. This double-thick construction, said Walter Thinnies, the vice president of Rose Hall, prevents cellphones from working in the auditorium.

"This is an unplanned helping hand," Mr. Thinnies said.

Without such help, there is a last resort: personal responsibility. "There are always going to be rude people," Mr. Larson said. "We just hope they will learn to turn their cellphones off at the right time."

some time for people to trust the technology," which could become available within four years, he said.

Mr. Larson of the cellular industry group said that while the industry objected to controls imposed on cellphone ringing, it did not oppose measures left to the customers' discretion. "They are certainly less odious than jammers," he said.

Another means of guarding against cellphone disturbance is the use of detectors, sold legally in the United States and abroad, that sound