About Cellular Jammers

WHAT IS A CELLULAR JAMMER

A Cellular Telephone **Jammer** is a device that transmits on the same frequency as the cellular telephone system or network your cell phone is part of. The jamming device succeeds when the mobile phones in the area where the jammer is located are disabled. Jamming is successful when the jamming signal denies the usability of the network provider's transmission.

Mobile Jamming and Disablers Techniques

There are different approaches to prevent mobile phones from ringing in specific area, the five main approaches used or being developed are described in RABC Mobile & Personal Communications Committee's (M&PCC) meeting of June 22, 1999, these techniques are summarized in this section :

1-Type "A" Device

In this device we overpower cell phone's signal with a stronger signal, This type of device comes equipped with several independent oscillators transmitting 'jamming signals' capable of blocking frequencies used by paging devices as well as those used by cellular/PCS systems' control channels for call establishment.

When active in a designated area, such devices will (by means of RF interference) prevent all pagers and mobile phones located in that area from receiving and transmitting calls. This type of device transmits only a jamming signal and has very poor frequency selectivity, which leads to interference with a larger amount of communication spectrum than it was originally intended to target.

Technologist Jim Mahan said, "There are two types. One is called brute force jamming, which just locks everything. The problem is, it's like power-washing the airwaves and it bleeds over into the public broadcast area. The other puts out a small amount of interference, and you could potentially confine it within a single cell block. You could use lots of little pockets of small jamming to keep a facility under control."

2-Type "B" Device

This device also called "Intelligent Cellular Disablers", does not transmit an interfering signal on the control channels. The device basically works as a detector, and it capable to communicate with the cellular base station. When the device detects the presence of a mobile phone in the "silent" room; a prevention of authorization of call establishment is done by the software at the base station.

The device signals the base station that the target user is in a ‘quiet’ room; therefore, do not establish the communication. Messages can be routed to the user’s voice- mail box, if the user subscribes to a voice- mail service. This process of detection and interruption of call establishment is done during the interval normally reserved for signaling and handshaking.

This intelligent device as its name implies can recognize emergency calls and also can allow specific pre-registered users to use their mobile phones for a specified duration. Although this device sounds like the best solution for disabling mobile phone, a provision is needed by the cellular/PCS service providers or provision by a third-party working cooperatively with full support of the cellular/PCS service providers, allowing the detector device to be integral part of the cellular/PCS systems.

3-Type "C" Device

This device also called "Intelligent Beacon Disablers ", as in the type "B" device it does not transmit an interfering signal on the control channels. The device, when located in a specific "silent" room, functions as a ‘beacon’ and any compatible terminal is ordered to disable its ringer or disable its operation. In the coverage area of the beacon only terminals which have a compatible receiver would respond and this should be built on a separate technology from cellular/PCS, for example Bluetooth technology. Also the handset must re-enable its normal function as it leaves the coverage area of the beacon.

The need for intelligent handsets with a separate receiver for the beacon receiver from the cellular/PCS receiver, make effective deployment for the type "C" device will be problematic for many years.

4-Type "D" Device

This jammer is similar to type "A" , but with a receiver, so that jammer is predominantly in receive mode and when the device detects the presence of a mobile phone in the "silent" area; it will intelligently choose to interact and block the cell phone by transmitting a jamming signal. This jamming signal would only stay on as long as the mobile continues to make a link with the base station; otherwise there would be no jamming transmission.

Thus this device much less electromagnetic pollution in terms of raw power transmitted and frequency spectrum from the type "A" Jammer, and therefore much less disruptive to passing traffic. This technique could be implemented without cooperation from PCS/cellular providers. Also this technique has an added advantage over Type B in that no added overhead time or effort is spent negotiating with the cellular network.

5-Type "E" Device

This method uses EMI suppression techniques to make a room into what is called a Faraday cage. Although labor intensive to construct, the Faraday cage essentially blocks, or greatly attenuates, virtually all electromagnetic radiation from entering or leaving the cage or in this case a target room. With current advances in EMI shielding techniques and commercially available products one could conceivably implement this into the architecture of newly designed buildings for so-called “quiet-conference” rooms. Emergency calls would be blocked unless there was a way to receive and decode the Emergency Call transmissions, pass by coax outside the room and re-transmitted.

This passive configuration is currently legal in most worlds' countries for any commercial or residential location; however some building may not allow this type of construction. Table 1 shows a comparison between the different Jammer/Disablers techniques.

Type	Emergency call	Efficiency	Regularity Approval	Implementation
"A"	Blocked	Low	Not allowed	Very simple
"B"	Allowed	Medium	Required	Complex (Required third party Cellular/PCS Services)
"C"	Allowed	High	Required	Complex (Required Intelligent Handset)
"D"	Allowed	Medium	Required	Simple
"E"	Blocked	High(No signal transmitted)	Allowed	Simple

Table 1: Comparison between Jammer/Disabler Techniques