CELL PHONE JAMMER

Sick of cell phones? Then jam them!

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WHAT IS A “CELL PHONE JAMMER”?

- Cell phone jammers are devices that create a temporary "dead zone" to all cell phone traffic in their immediate proximity.

- A cell phone jammer is an instrument used to prevent cellular phones from receiving and transmitting the mobile signals to a base station. When used, the jammer effectively disables cellular phones in the area.

- Other types of jammers include radar jammer and radio jammer.
A phone jammer transmits low power radio signals to cut off communications between cell phones and cell base stations. It does not interfere with any communications other than cellular phones within the defined regulated zone.

Upon activating a phone jammer, all idle phones will indicate "NO NETWORK." Incoming calls are blocked as if the cellular hand phone were off.

When the phone jammer is turned off, all cell hand phones will automatically re-establish communications and provide full service.
WHY ARE JAMMERS USED?

- A phone jammer provides the ultimate solution in any area where cellular communications frequently cause nuisance either by loud incoming call rings or resulting loud telephone conversations.

- Cell phone jamming devices were originally developed for law enforcement and the military to interrupt communications by criminals and terrorists. Examples include: security zones, public transport, classrooms, temples, TV & radio stations, jails, government buildings, military bases, industries etc.
During a hostage situation, police can control when and where a captor can make a phone call. Police can block phone calls during a drug raid so suspects can't communicate outside the area.

Corporations use jammers to stop corporate espionage by blocking voice transmissions and photo transmissions from camera phones.
JAMMING BASICS

Disrupting a cell phone is the same as jamming any other type of radio communication. A cell phone works by communicating with its service network through a cell tower or base station. Cell towers divide a city into small areas, or cells. As a cell-phone user drives down the street, the signal is handed from tower to tower.

A jamming device transmits on the same radio frequencies as the cell phone, disrupting the communication between the phone and the cell-phone base station in the tower. It's called a denial-of-service attack. The jammer denies service of the radio spectrum to the cell phone users within range of the jammer.
JAMMING BASICS
HOW JAMMERS WORK

- Jammers block cell phone use by sending out radio waves along the same frequencies that cellular phones use at a high enough power that the two signals collide and cancel each other out.

- This causes interference with the communication of cell phones and the towers to render the phone unusable. On most phones, the network would appear out of range.

- So Jammers work by either disrupting phone to tower frequencies or tower to phone frequencies.
Cell phones are full-duplex devices, which means they use two separate frequencies, one for talking and one for listening simultaneously. Some jammers block only one of the frequencies used by cell phones, which has the effect of blocking both. The phone is tricked into thinking there is no service because it can receive only one of the frequencies.

Less complex devices block only one group of frequencies, while sophisticated jammers can block several types of networks at once. Some of the high-end devices block all frequencies at once, and others can be tuned to specific frequencies.
To jam a cell phone, all you need is a device that broadcasts on the correct frequencies. Although different cellular systems process signals differently, all cell-phone networks use radio signals that can be interrupted. GSM, used in digital cellular and PCS-based systems, operates in the 900-MHz and 1800-MHz bands in Europe and Asia and in the 1900-MHz (sometimes referred to as 1.9-GHz) band in the United States. Jammers can broadcast on any frequency and are effective against AMPS, CDMA, TDMA, GSM and Nextel systems.
INSIDE A JAMMER

ANTENNA:

Every jamming device has an antenna to send the signal. Some are contained within an electrical cabinet. On stronger devices, antennas are external to provide longer range and may be tuned for individual frequencies.
CONT..

- **Power supply**
  Smaller jamming devices are battery operated. Some look like cell phone and use cell-phone batteries. Stronger devices are plugged into a standard outlet or wired into a vehicle's electrical system.
Circuitry
The main electronic components of a jammer are:

- **Voltage-controlled oscillator** - Generates the radio signal that will interfere with the cell phone signal

- **Tuning circuit** - Controls the frequency at which the jammer broadcasts its signal by sending a particular voltage to the oscillator
RANGE OF A JAMMER

- The actual range of the jammer depends on its power and the local environment, which may include hills or walls of a building that block the jamming signal. The power depends on proximity to towers, indoor and outdoor settings, even temperature and humidity play a role. Most cell phone jammers come in 2 versions, one for Europe, North Africa and the Gulf states GSM networks (900 & 1800) and one for the Americas & Canada (800 & 1900 mhz) networks.

- Most jammers only have a range of about 50 to 80 feet and will only effectively jam your immediate surroundings. Low-powered jammers block calls in a range of about 30 feet (9 m).
Higher-powered units create a cell-free zone as large as a football field. Units used by law enforcement can shut down services within one mile (1.6 km) from the device. They are available to cover large structures like office buildings, theaters and churches. They look like a miscellaneous box with wires sticking out & are usually mounted on walls or ceilings.
SIZE OF A JAMMER

- Some cell-phone jammers are made to look like actual phones. Others are briefcase-sized or larger. The biggest jammers used by police and the military can be mounted in vehicles for convoy security.

Digital, portable cell phone jammer designed for military and police use
CONT.. A big jammer  A portable jammer
GOOD OR BAD
Along with its advantages jammers can be equally used for the bad.

- They can in theory interfere with emergency communications between police and rescue personnel
- It also represents a safety hazard because jamming blocks all calls in the area, not just the annoying ones.
- Jammers can be used by criminals who break into houses.
- There are concerns that crudely designed jammers may disrupt the functioning of medical devices such as pacemakers.
ALTERNATIVES

- While the law clearly prohibits using a device to actively disrupt a cell-phone signal, there are no rules against passive cell-phone blocking.
- Companies are working on devices that **control a cell phone** but do not "jam the signal." One device sends incoming calls to voicemail and blocks outgoing calls. The argument is that the phone still works, so it is technically not being jammed.
- **Cell-phone alerters** are available that indicate the presence of a cell-phone signal. These have been used in hospitals where cell-phone signals could interfere with sensitive medical equipment. When a signal is detected, users are asked to turn off their phones.
LEGAL ISSUES

- With the exception of Asian countries blocking cell-phone services by the general public is against the law in most countries like The United States, United Kingdom, Australia.

- The FCC (Federal Communications Commission) in the United States fines for a first offense ranging very high for each violation or imprisonment and the device used may also be seized and forfeited to the government.

- Governments are trying to make the best possible use of jammers and planning to relax their restrictions on using them in standard places like churches, movie theaters and courthouses.
CONCLUSION

- Every technology has good aspect as well as bad aspect. The important thing is how we are using it.

- Maybe someday governments will relax their restrictions on jammers and they will become standard in places like churches, movie theaters and courthouses. Until then, only government personnel and outlaw jammers will be able to enjoy some peace and quiet at the movie theater or the ride via public transportation to work.
REFERENCES


Thank You