



MOBILE JAMMING: A REVIEW

ANUBHA NAURIYAL, ANKITA JAIN AND SUNIL K KHATRI3

Amity Institute of Information and Technology

Abstract:

Cell phone is a device that transmit signal with same frequency at which the GSM works, the jamming is achievement when the mobile in the area where jamming is placed is not working. The jamming circuit is planned with minimum cost and high competence. In this paper we are describing how signals are jammed and we defined the SK-6 Ultra Thin Cell Phone Jammer with its use and specification. The mobile jammer devices or cell phone jammer software are a civilian products rather than electronic explosive devices, since with the increasing number of the mobile phone users the need to disable mobile phones in particular places where the ringing of cell phone would be disturbing has increased. These places comprise holy places, class rooms, libraries, performance halls, meeting rooms, and other places where silence is required.

INTRODUCTION

Mobile phones are generally designed to function across numerous bands. In most situations, a jammer would also need to operate over the same bands to successfully jam mobile phones within scope. The geographical scope of a mobile phone jammer depends on its power level, its operating frequencies, the physical condition of the jammer, the mobile phone/s it wants to block, and the local surroundings. Mobile phone jammers differ in quality and functionality, ranging from the basic to the complicated.

The Mobile Phone Jammer ban describes a 'prohibited device' as:

A device designed to work within the frequency bands 870-960 MHz or 825-845 MHz and to obstruct with radio communications or disturb radio communications.

Communication jamming devices were initial developed and accessed by military. Where tactical commanders use RF communications to have control of their forces, an enemy has concern in those communications. This interest comes from the elementary area of denying the successful transfer of the information from the sender to the receiver.

MOBILE JAMMING

The Cell Phone Jammers operates on the same frequency band of the cell phones work 'Cell phone has a property of frequency changing. When there is any trouble on operating frequency will move into the next frequency. This operation keeps the cell phone connection free from any disturbance and co-channel disturbance. The GSM band frequency is 925MHz-960MHz. The CDMA band frequency is 825MHz-860MHz.

Title: MOBILE JAMMING: A REVIEW

Source: Review of Research [2249-894X] ANUBHA NAURIYAL, ANKITA JAIN AND SUNIL K KHATRI3 yr:2013 vol:2 iss:9

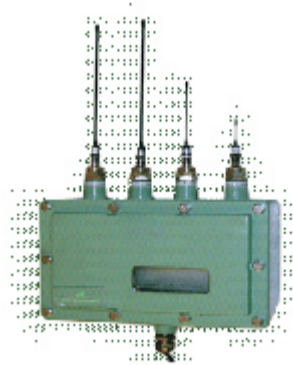


Figure 1. Jamming Device [1]

In Cellular Communication system there are 124 channels offered for any cell user. That means when any appeal is made the cell phone has to locate which channel is free. In this procedure the cell has to search for available channels. During this process the cell phone uses 40 μ sec for searching among adjacent cells. The bandwidth between each channel is 200 kHz.

The GSM Jammer is a device that broadcast signal on the same frequency at which the GSM system works, the jamming is achieved when the mobile phones are in the area where the jammer is located i.e. couldn't make or receive call.

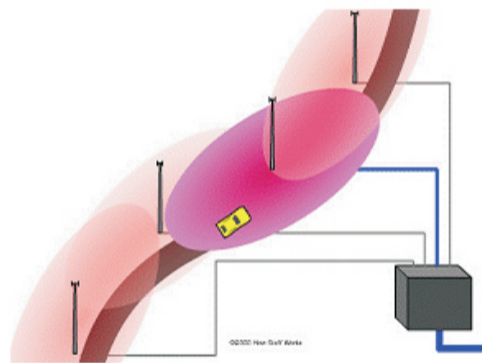


Figure 2. Without jamming device [7]

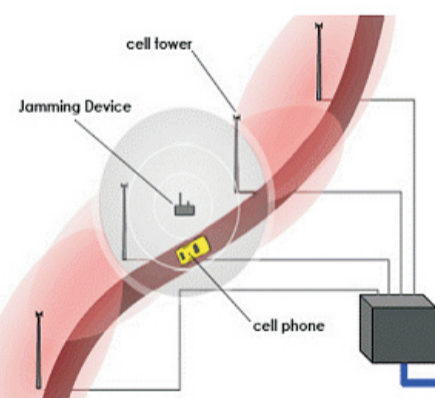


Figure 3. With jamming device[7]

A jamming device transmit signal at matching frequency as cell phone and disturbing the communication between cell phone and base station. We call it, denial-of-service attack.

The jammer denies working of the radio spectrum to the cell-phone users within scope of the jamming device.

Older jammers at times were limited to operational on phones using only analog or older digital mobile phone models.

Newer model like the double and triple band jammers can block all broadly used systems (AMPS, iDEN, GSM, etc) and are even very effective in opposition to newer phones which jump to different frequencies and systems.

The power of the jammer's outcome can differ usually based on factors such as closeness to towers, indoor and outdoor settings, existence of buildings and landscape, yet temperature and humidity play a role. There are things like that crudely planned jammers may disturb the working of medical devices such as pacemakers.

Jamming devices overpower the cell phone by transmitting a signal on the same frequency and at a high enough power that the two signals collide and cancel .Cellular phones work to add power if they experience low-level disturbance, the jammer look for it and match the power increase from the phone.

Cell phones are full-duplex devices that are the use two different frequencies, one for talking and one for listening concurrently. A few jammers block only one of the frequencies used by cell phones, which results in blocking both. The phone is fooled into thinking there is no service since it can receive only one of the frequencies.

Simple devices block only one group of frequencies, while difficult jammers can block several types of networks at once to head off dual-mode or tri-mode phones that automatically switch among different network types to find an open signal. Some of the high-end devices block all frequencies at once, and others can be tuned to specific frequencies [2].

JAMMER CONSISTS OF:

1.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.

2.Circuitry

The main electronic components of a jammer are:

- (a).Voltage-controlled oscillator - Generates the radio signal that will interfere with the cell phone signal
- (b).Tuning circuit - Controls the frequency at which the jammer broadcasts its signal by sending a particular voltage to the oscillator
- (c).Noise generator - Produces random electronic output in a specified frequency range to jam the cell-phone network signal (part of the tuning circuit)
- (d).RF amplification (gain stage) - Boosts the power of the radio frequency output to high enough levels to jam a signal

3.Power supply

Smaller jamming devices are battery operated. Some look like cell phone and use cell-phone batteries. Stronger devices can be plugged into a standard outlet or wired into a vehicle's electrical system.

MODEL SK-6 ULTRA THIN- CELL PHONE JAMMER

A.INTRODUCTION

SK-6 cell phone jammer is very popular to jam signals in examination rooms, test conducting rooms, libraries and so on. The cell phone jammer is the excellent device that helps examiners to prevent students cheating from their mobile phones during exam. SK-6 cell phone jammer is the most recent electronic product which transmits low power radio signals to obstruct the phone call signals of bandwidths in GSM, CDMA, PHS, DCS, IDEN, UMTS, GPS, Wi-Fi, Bluetooth, etc



Figure 4. SK-6 cell phone jammer [6]

A. FEATURES

Shows the power on the covering with green lights
 Stops cheating by using cellular phone during exam time.
 Keeps you away from the disturbance of sudden cellular phone calls during classes or meetings.
 Small size, standard power cell phone jammer
 Light weight and good texture and colour
 To block wireless phone connection within an effective region.
 No sending or receiving of signals of cellular phone call in that area.
 All specific frequency bands will be blocked at the same time.

C. SPECIFICATION

Range of jamming signals: 0.5-25 meters

Working Temperature:	-40~+55 deg C
Dimension:	29*15*11
Colour:	black
Port:	Shenzhen
Weight:	1.2Kg
Output Power:	AC160V240V, DC5V
Frequency:	850-2170MHz

D. USE OF SK-6

Illegal repair or assemble of this device will void all the warranties.
 Place Antennas vertical to the ground, to work more efficiently.
 Please do not take off antennas when the device is on. Otherwise, it should cause heavy damage to the device.
 Antennas should be installed before you switch on the device; otherwise it will cause heavy damage the jammer.
 People who have Pacemaker implanted are not allowed to use this device.
 Avoid water; over-wet, over-hot, high-voltage and high magnetism.
 Do not keep this device in hot areas.
 Avoid damage of this device by dropping it [4].

MOBILE PHONE JAMMER APPLICATION

To keep silence in Libraries and Lecture rooms.
 To avoid cheating during examination.
 To avoid interruption in class rooms.
 Security in business conference, board of directors rooms, seminars, etc.
 For providing quiet environment in Hospitals.
 In places like Church/ Mosques /Cathedral/Temple/Religious places.
 To keep serious mode in religious ceremony by restricting unwanted noise of mobile phones.
 To avoid ringing mobile phones during the movies.

To keep silence while studying.
Avoid trouble and noise in Government Buildings.
To keep silence in Recording Studios.
Mobile Phone Free Zone and banned Areas.
Prevent industrial intelligence where mobile units are used as bugging devices.
Counter terrorism threats such as distantly detonated bombs in high risk areas [1].

LEGAL ISSUES

In the United States, United Kingdom, Australia and other countries, blocking cell- phone services (as well as any other electronic transmissions) is not in favour of the law. In the United States, cell-phone jamming is enclosed under the Communications Act of 1934, which prohibits public from "willfully or unkindly interfering with the radio communications of any station licensed or authorized" to work. In fact, the "manufacture, importation, sale or offer for sale, including advertising, of devices planned to block or jam wireless transmissions is prohibited" as well.

Jamming is seen as property theft, because a personal company has purchased the rights to the radio spectrum, and jamming the spectrum is similar to stealing the property the company has obtained. It also represents a safety hazard because jamming blocks all calls in the area, not just the irritating ones. Jamming a signal could block the call of someone trying to call for an ambulance.

In most countries, it is against the law for people to jam cell-phone transmission, but some countries are allowing businesses and government organizations to install jammers in areas where cell-phone use is seen as nuisance [3].

ALTERNATIVES

While the law clearly forbids using a device to keenly disrupt a cell-phone signal, there are no set of laws against passive cell-phone blocking. That conveys using things like wallpaper or building materials fixed with metal fragments to avoid cell-phone signals from getting inside or outside the room. Some buildings have framework that block radio signals by mistake due to thick solid walls or a steel framework.

Companies are working on models that control a cell phone but do not "jam the signal." One device forward incoming calls to voicemail and blocks outgoing calls. The dispute is that the phone still works, so it is exactly not being jammed.

Cell-phone alerts are available that signify the existence of a cell-phone signal. Jammers used in hospitals where cell-phone signals could obstruct with sensitive medical equipment. When a signal is sensed, users are asked to turn off their cellular phones.

For a less technical solution, Coudal Partners, a design firm in Chicago, has launched the SHHH, the Society for HandHeld Hushing. At its Web site, you can download a note to hand to people carry out annoying cell-phone conversations, expressing not interest in what they're talking about.

CONCLUSION

The Cell Phone Jammers operates on the same frequency band of the cell phones work 'Cell phone has a property of frequency changing. When there is any trouble on operating frequency will move into the next frequency. This operation keeps the cell phone connection free from any disturbance and co-channel disturbance. The GSM band frequency is 925MHz-960MHz. The CDMA band frequency is 825MHz-860MHz.

On examining the output of the frequency spectrum, the VCO output changes from 890MHz to 960MHz. This output is given to MMG3001 and it is observed that the mobile jammer blocks the mobile signal in 8-meter effective area. All the circuit output are build and examined using the Electronic work bench. The simulation result and practical result are found to be approbatory the same. The put on of the project is that we are able to block communication coming into and going out from a GSM phone operating on the 890MHz to 960MHz frequency band. We have reached 8-meter effective blocking coverage area and keep the cost less. At last we can say every device has a good impact as well as bad impact. In many places cell phone jammer is useful but at many places it is creates problem.

But its overall performance is very good and supportive in our life.

REFERENCES

- [1]www.HowStuffWork.com
- [2] Multitopic conference, 2008.INMIC
2008.IEEE International
- [3]Mobile & Personal Communications Committee of the Radio Advisory Board of Canada, "Use of jammer and disabler Devices for blocking PCS, Cellular & Related Services,Jan 2001.
- [4]G. K. H. Lui and R. D. Murch, Compact dual frequency PIFA designs using LCresonators, IEEE Trans Antennas Propagat., vol. 49, pp. 10161019, July 2001.
- [5]M. T. Huynh and W. L. Stutzman, Ground plane effects on PIFA antennas, USNC/URSI Radio Science.Meeting Digest, p. 223, 2000.
- [6]www.actionindia.net/uploade/1285741380-3143
-HIGH%2520POWER%2520MOBILE%2520JAMMER.jpg&imgrefurl=http://www.actionindia.net/index.php%3Fpage%3Dproduct%26bid%3D84&usg=__sxD_fF7Sgq2O4bup5SwKn-YPEYA=&h=427&w=412&sz=27&hl=en&start=2&sig2=ZcO_M5FXq1Zq0fcO3iKiJQ&zoom=1&tbnid=erAIF5ep13xzcM:&tbnh=126&tbnw=122&ei=Lq6QUZfiMsTirAfYroDIDw&itbs=1&sa=X&ved=0CC4QrQMwAQ
- [7]http://www.seminaronly.com/computer% 20science/GSM-900-Mobile-Jammer.php