

# Analyzing and Extending the Distance of Mobile Jammer Efficiently to Block Signals

B. Pushpa<sup>#1</sup>, R Lakshmi Devi<sup>\*2</sup>

<sup>1</sup>Master of Computer Applications, S.A. Engineering college, Chennai-77.

pushcherry55@gmail.com

<sup>2</sup>Asst. Prof., Department of Computer Applications, S.A. Engineering College, Chennai-77.

lakshmidivi@saec.ac.in

**Abstract**— Mobile phones are restricted in particular areas such as hospitals, libraries, holy places etc. To avoid such inconveniences launched a mobile jammer. It is used to avoid unwanted rings. It is used to generate a provisional 'Dead zone' for all mobile phones. It was initially urbanized for law enforcement and armed forces (to trace out criminals and terrorists).

This paper is to make analysis of the effect on 'MOBILE JAMMER' depends on many factors such as frequencies, signals, desired RF, etc. To extending the distance of mobile jammer efficiently blocked signal.

**Keywords**— Dead Zone; Radio Frequency; Blocked Signal; Bandwidth; DBM.

## 1. Introduction

Cell phone normally works by transmits communication through a base station. It can be use at GSM 900 and GSM 1800 levels. GSM JAMMER is an electronic device and it gives the result of 'NO NETWORK AVAILABLE'. The mobile jammer having the high power of cell phone transmitting signals is same & high frequencies that the two signals collide & cancel each other. There are two types of power for blocking the signals are low power & high power. The low power jammer block calls in range of 13 feet (~4m) & the higher power jammer block calls 1mile (1.6 km).

The VCO (Voltage Controlled Oscillator) plays a major role in generating the jamming frequency. It functions at GSM 800 incidence. So, the certain VCO is a wide oscillator which is extremely hard to build for the basic without good RF testing tools. The hand-held signal jammer works with common frequency such as GSM, 3G, GPS, GLONASS (Global Navigation Satellite System), CDMA, WI-FI, Bluetooth. These can be used to jam our mobile phones based on three techniques are:

- Spoofing-It is used to mobile turn off itself.
- Shielding of attacks-It requires faraday cage inside this cage any cannot transmit or receive a RF signal (example: Building).
- Denial of service-It transmits noise signal same frequency of mobile phone to decrease.

### 1.1 Noise Jammer Concept

Noise jammer depend on noise signal which is generated by noise source that signal will be limited by certain bandwidth by a filter & convert into desired frequency.

By using amplifier the signal will be transmitted by an antenna. One jammer can simultaneously jam different radar frequencies but still it has the essential problem were the widespread of the jamming signal is less jamming power available per Radar.

The result comes into view within one meter distance by rising power compactness of the jamming indication. The bandwidth of the jamming signal is set to 5Hz and so extremely slow sweep sound will affect the channel out of service based on AFH, it will decrease dispensation time and grow the jamming signal.

### 1.2 Cell Phone Accident Avoidance

Many accidents were made by cell phones usage while driving. It can be detected for uses mobile phones & low range mobile jammer.

The amplified accident risk is because of the drivers using cell phone and so it unfocused their main chore. Companies have developed & invested in new technologies to prevent a driver from using a cell phone when the driver is behind the wheel & each came up with different innovative solutions. An electronic circuit was intended for regular recognition of incoming and outgoing calls on driver's phone.



Fig. 1: Simple jammer

This is the simple jammer normally blocked signal our cell phones.

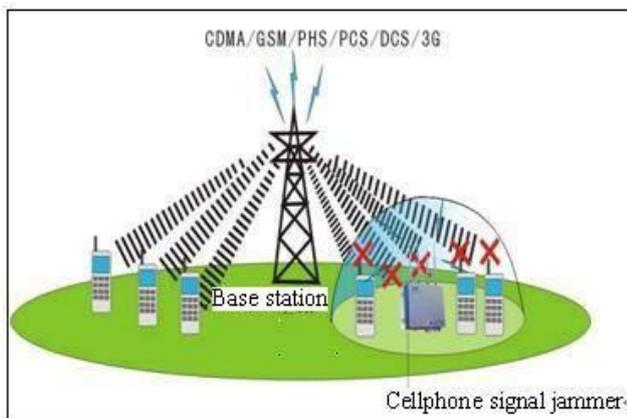


Fig. 2: Blocks mobile from base station

This diagram shows to block our cell phones from the base station(towers).

### 1.3 Incoming Call Handling Operation

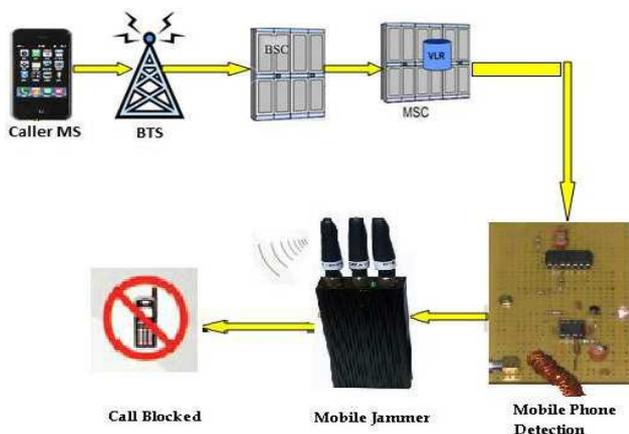


Fig. 3: Incoming call handling operation

BTS sends a request to the BSC. The BSC request is made to the MSC. MSC sends a request to the HLR to check the information about the caller like account balance. After checking all the details the HLR send acknowledgement message to the MSC that the caller is OK and to make a call or not. That message is received by MSC establishes an air link between the both parties and call gets connected.

The phone started ringing it activate a jamming device which transmits on the same RF as the cell phone, which disrupt the communication between the phone and the cell-phone base station(tower).

### 1.4 Outgoing Call Handling Operation

A subscriber or customer dials the number and press the call button the mobile device will start transmitting more voltage. This energy capturing circuit captures voltage

above the threshold value results in activation of mobile jamming device which squeeze the RF signal.



Fig.4: Outgoing call handling operation

#### A. BTS (Base Transceiver Station)

It provide the wireless facility communication between device and network.

#### B. BSC(Base Station Controller)

It controls one or more base transceiver network management.

#### C. MSC(Mobile Switching Centre)

It connects call by switching digital voice data packet from one network to another.

#### D. HLR (Home Location Register)

It is a database a mobile network in which information from all mobile subscriber is stored.

### 1.5 Security Against of LTE Mobility Network

LTE (Long Term Evaluation) cellular network provide advanced services. It should be identify the area of focus that should be considered in mobility security guarantee availability against security attacks. The DDOS (Distributed Denial Of service) campaign against an anti-spam blacklisting service resulted in substantial impact on global communication network & widespread service degradation.

It is a traditional jamming attack which is localised around the actual attacker an uplink smart jamming attacks would deny the service to all users within the target cell or sector. Based on this vulnerability, a well organised group of attackers could simultaneously activate jamming devices in order to block access to the network.



Fig.5: Jammer blocks 4G,LTE,GPS

The objective is to strengthen any complicated attack to be just as competent as fundamental jamming. LTE security system should be able to block smart jamming attacks.

### 2. Features of Mobile Jammer

- Portable, palm-sized, easy to carry.
- On/Off switch make it more user-friendly.
- It must having a more power consumption.
- Car adaptor & USB cable available to makes convenient to use.

### 3. Advantages

- It is used to avoid unauthorised use of mobile phones.
- It prevents bombings activate on the phone.
- Help to stop terrorist acts.
- 4G cell phone jammer are used to illegal activities.

### 4. Disadvantages

- It is used to chunk the cell phone indications in vital circumstances.
- It makes disturbances for installed in a public places like hospitals, etc.
- It affects the cell phone company stability.

The mobile jammers are commonly using the handled signal jammer such as GSM, GPS, GLONASS, 3G, WI-FI, Bluetooth etc. This can be blocking the signal of mobile effect on Bluetooth network. So it cannot be calculated for special scenario such as jammer power, bandwidth of jamming signal, distance & network elements.

The effected path loss for PAN by jamming signal because of Bluetooth equipment. These are the drawbacks faced by the existing papers. This paper has to be implement AFH technique to overcome the previous paper drawbacks.

## 5. AFH Technique (Adaptive Frequency Hopping)

AFH is used to reduce interference between the Bluetooth and wireless LANs. To avoid conflicts and adapt any environment, it is used to identify fixed source of interference and excluding the list of available channels. There is a minimum set of channels having the same environment AFH can be activated.

## 6. Identifying Bad Channels

Bad channels are to be recognized by a procedure that referred as “Channel Assessment”. Currently, prevailing methods are for performing channel assessment with AFH (RSSI-Received Signal Strength Indication and PER-Packet Error Rate). This method used by PER for repeatedly testing & reassessing bad channels is less accurate than RSSI, can lead to set back.

Jamming signal at 2440 MHZ sub barrage is jamming BW 10 MHZ and 5W. The power of jamming transmits 1, 2 and 5 w. All situations are evaluated with level Jamming needs (48dBm) from 36mdistance. This can be seen in the below graph.

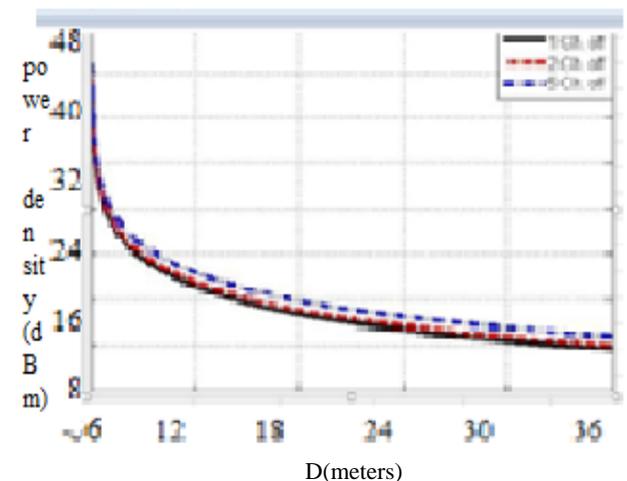


Fig.6: Extending the distance of signal with AFH

The BER (Bit Error Rate) will amplify when the channel is affected by a jamming signal and then the channel will be get rid of from the channels list. So the processing augment will be abridged with time. Therefore, the channel will be affected by the jammer. The processing is gained with AFH by using sweep jammer.

Finally, the power jammer is used to transmit 1, 2 and 5 watt. There is no dissimilarity between the power ratios in all situations when it evaluated with the level of necessity (48dbm) from 36m distance.

Items	1st scenario	2nd scenario	3rd scenario
Power output	1,2,5 watt	1,2,5 watt	1,2,5 watt
Bandwidth	40 MHZ	20 MHZ	10 MHZ
jammer-network	barrage jammer	barrage jammer	sweep jammer
distance	12 meters	12 meters	12 meters
Jamming signal ratio	>3dB	>3dB	>3dB
Power output	1,2,5 watt	1,2,5 watt	1,2,3 watt

Fig.7: Jammer specification scenario

## 7. Result

This paper has to be successfully extending the distance of mobile jammer. Using, AFH technique the jammer will be efficiently blocking the signal of all mobile phones based on such factors as radio frequency, signals, bandwidth, (PER & BER), etc.

## 8. Conclusion

The mobile jammer is the best challenger for broken the frequency hopping spread spectrum which having processing gain of jamming signals. AFH technique is having major role for extending the distance without any interfere, avoid collision and send a signal to the base

station with sweep and quickly. These jamming technique are very useful in this current field. This mobile jammer is mainly used to maintain self-disciplined based on environmental condition.

## 9. Future Enhancement

The future scope is to develop for only military and the law enforcement to cut off communications by terrorists and criminals. The vital role of mobile jammer is to block a signal to avoid a cell phone accident. This can be used to send a sms f the driver for alerting the

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**B. Pushpa** is holding a under graduation degree Bachelor of Computer Applications from S.D.N.B.Vaishnav Women College and pursuing Post graduation in Master of Computer Application from S.A.Engineering college. This paper is a part of curriculum covered under in (MC7413) Technical seminar & Report Writing.