



Sinhgad Technical Educational Society's  
SINHGAD COLLEGE OF ENGINEERING  
VADAGAON, PUNE-41

Department of Electronics and Telecommunications

Experiment No. - 06

Subject: - Mobile Computing

Name of the Student: \_

Date

Marks & Signature: -

Subject Teacher

Aim: To understand the handover mechanism.

Objectives:

To study the effect of handover threshold and margin on SINR and call drop probability and handover probability

Prerequisite:

Operating System: Windows 7

Java Version: 6 only

Mozilla Firefox: version: 47.0.1

Link to download software:

<https://drive.google.com/uc?id=0B9mNeu43jUidckFYVTlnenpJRGs&export=download>



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## Fading Channels and Mobile Communications Virtual Lab

### Instructions for simulator use

- Prerequisites**
- Your PC/Laptop loaded with Java and JRE 6 or 7 only
  - If not there kindly install from ORACLE site
  - Add the JAVA path to Environment Variables
    - Java runtime environment is needed (may get from [java.com](http://java.com))
    - Install downloaded Java and JRE
    - Right click on My Computer/This PC
    - Select Properties
    - Select Advanced System Settings
    - Select Advanced tab
    - Select Environment Variables
    - Select Path under System Variables
    - Click on Edit button
    - In Variable value editor paste this at the start of the line
    - C:\Program Files\Java\ "jdk\_version" \bin;
    - Click Ok then Ok again
  - Go through the steps below to perform the experiment with simulator.

Prerequisites

Steps

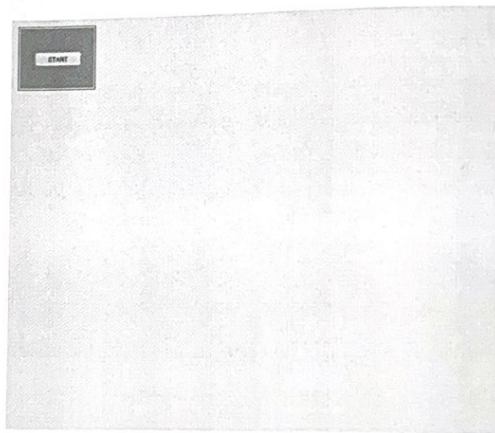
Students conducting the experiment is expected to study the impact of these on  $h/0$ . He/She is encouraged to respect the experiment for several sets of values of these parameters these data conclusion.

### Instruction

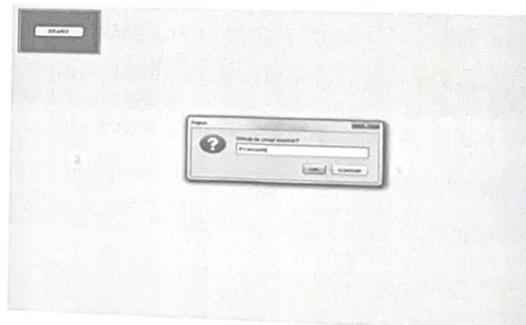
Follow the instructions given below to perform the experiments.

#### 1.1 Starting the Experiments: -

- Step1: Click on START button to start experiment.

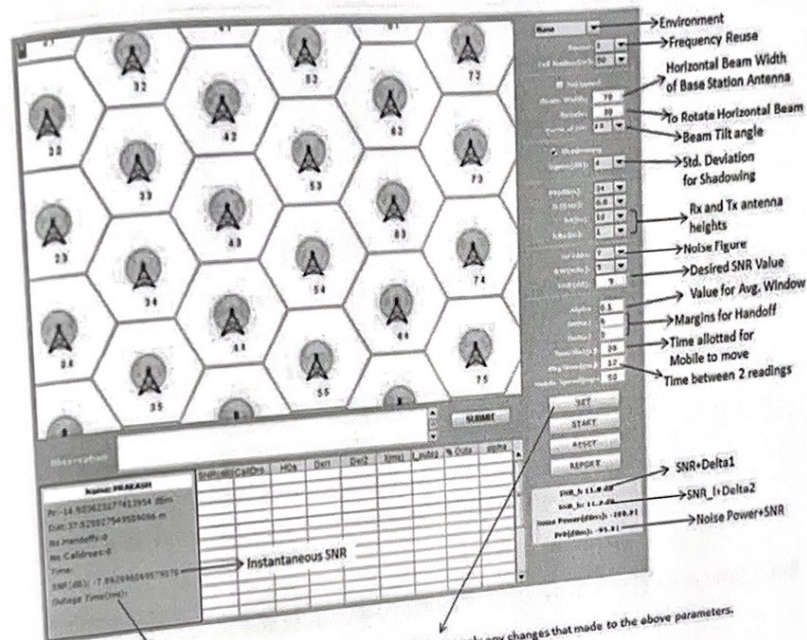


- Step2: Enter your name then click OK button.





Step3: Select the parameters (e.g.: Reuse, Environment, Beamwidth, Carrier frequency etc.)

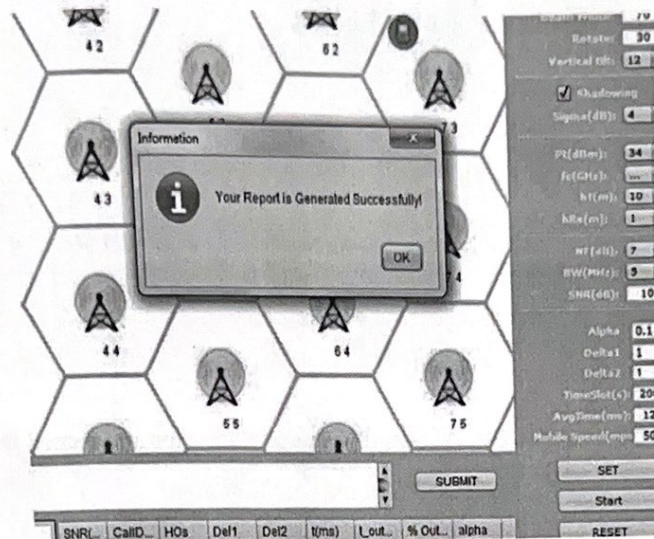


- 
- Click on START
- Hexagonal grid showing signal strength indicators (A) and numerical values (e.g., 21, 22, 23, 24, 25).
- Buttons: SUBMIT, SET, Start, RESET, REPORT
- Results Table:
- | SNR | Chd  | HOs  | Det1 | Det2 | R/m/s  | L_Out | % Out | alpha |
|-----|------|------|------|------|--------|-------|-------|-------|
| 1   | 8.0  | 8.0  | 3    | 3    | 20016  | 11232 | 56.12 | 0.1   |
| 5   | 6.0  | 5.0  | 3    | 3    | 20016  | 10944 | 54.68 | 0.1   |
| 10  | 2.0  | 2.0  | 2    | 1    | 20016  | 18704 | 83.45 | 0.1   |
| 10  | 29.0 | 27.0 | 1    | 1    | 200016 | 15816 | 78.4  | 0.1   |
- Summary Data:
- SNR: 11.9 dB
  - SNR: 12.9 dB
  - Non Power (dBm): -106.81
  - Power (dBm): -94.81

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- Step7: After PDF report generation you will get following message.





- Step8: PDF report will appear like this.

**Fading Channels & Mobile Communications**  
IIT Kharagpur  
Date: 22 Feb 09/13

**Exp 8: Handoff**  
Name: PRAKASH

Input Parameters									
Reuse: 1 Model: Rane					PR(dBm): 34				
$f_c$ (GHz): 0.8					Beam Width(deg): 70				
Rotate(deg): 30					Cell Radius(m): 50				
$h_f$ (m): 10					$h_R$ (m): 1				
Signal(dB): 4					Vertical Tilt(deg): 12				
SNR(dB): 10					Band Width(MHz): 5				
Noise Figure(dB): 7					Noise Power(dBm): -100.01				
PR(dBm): -60.01					Time Slot(s): 200				

Exp. Results								
SNR	No. Calls ups	No. Hand offs	Delta1	Delta2	Reading Time(ms)	Outage Time(ms)	% Outage	Alpha
5.0	6.0	6.0	3.0	3.0	20016.0	11232.0	56.12	0.1
5.0	6.0	5.0	3.0	3.0	20016.0	10944.0	54.68	0.1
10.0	3.0	2.0	2.0	1.0	20016.0	10704.0	53.45	0.1
10.0	25.0	27.0	1.0	1.0	200016.0	150216.0	75.1	0.1

**Observation**  
Observation not entered

(Signature of PRAKASH)  
(Signature of Faculty)

- Step9: To redo experiment click on RESET button.

Observation Table:

Reuse	No of Hand Off	Mobile Speed	Outage	Outage Percentage
1	1	50	16.4640	8.71
3	1	50	0.00	0.0

Keep reuse ratio 3 and set mobile speed to 50 mps and 100 mps and record the below data. What do we observe after increasing the speed of the mobile station?

Reuse	Mobile Speed	No of Hand off	Outage	Outage Percentage
3	50	30	0.0	0.0
3	100	100	392.0	1.94

FAQ:

1. What is handoff?
2. What is the condition for handoff?
3. Explain Handoff and its types.