Indian Institute of Information Technology, Allahabad

ELECTRONICS AND COMMUNICATION ENGINEERING DEPARTMENT

Course Name: Wireless Communication

EXPERIMENT NO: 7

Objective: Study the effect of voice activity factor on the number of channels and call blocking probability in a CDMA (Code Division Multiple Access) network.

Materials/ Component Required :

Network Simulator (NetSim)

Procedure-1:

1. New → Cellular Network → CDMA
2. Select and place a Base Station (BS) and a Mobile Switching Center (MSC) from the object menu and place it in the workspace.
3. Deploy around 60 Mobile Stations (MSs) within the coverage area of the BS.
4. Use wired link from the link menu to interconnect the BS with the MSC.
5. Make 30 different application for 30 pairs of MSs.
6. Use default settings for the applications.
7. In the properties of the BS under Interface1 CDMA set voice activity factor as1.
8. Run the simulation and save the file for 500 seconds (Please don't select the animation option while running to reduce the time consumed in running the simulation).

Observation: Under Cellular Metrics check for the Number of channels under the channel count statistics and under MS metrics check and note the call blocking probability.
Other Scenarios: Duplicate the above scenario and make scenarios for the voice activity factors with 0.9, 0.8, 0.7, 0.4, 0.1. Note down the observations as done in Scenario 1.

Compare the above scenarios and find out the relation between the voice activity factor and the number of channel count. Plot the result of channel count vs voice activity factor. Also plot the call blocking probability vs voice activity factor plots.

Result: By using NetSim, we have studied the effect of voice activity factor on the number of channels and call blocking probability in a CDMA network.