

Indian Institute of Information Technology, Allahabad

ELECTRONICS AND COMMUNICATION ENGINEERING DEPARTMENT

Course Name: Wireless Communication

EXPERIMENT NO: 8

Objective: Study how the throughput of LTE (Long Term Evolution) network varies as the distance between the ENB (e node B) and UE (User Equipment) is increased.

Materials/ Component Required :

Network Simulator (NetSim)

Procedure:

1. New → Select LTE Networks → LTE/LTE-A
2. Click on Environment Setting present in the ribbon and set grid length as 10000.
3. Place 1 Wired Node, 1 Router, 1 MME (Mobile Management Entity), 1 ENB and 1 UE into the workspace.
4. For all the wired nodes disable the TCP protocol option.
5. Set the router and MME properties as default.
6. Place the ENB at (0,0) and UE at (50,50).
7. Define the application type as custom, where the source is the wired node and UE being the destination.
8. Packet size and inter arrival time distribution is taken to be constant. Set the mean packet size to be 1460 and the mean inter arrival time 165.
9. Set the wireless link properties to be path loss only and Log normal with the path loss exponent to be 4.
10. Run the simulation without selecting animation option and save the file.
11. Note the throughput value.
12. Run the above scenario for the cases with locations as (100,100), (150,150), (200,200), (250,250), & (400,400).

Plot the throughput behavior with the distances between ENB and UE for all the cases.

Result: By using NetSim, we have studied and analyzed the throughput in LTE with respect to distance between the ENB & UE.