

MOBILE AND WIRELESS COMMUNICATION LAB (CSE 458)

Your task is to develop a simulator for a network engineer for cell organization. Design a user interface where a user should be able to provide following input factors maintaining the constraints and get the desired outputs.

Input:

Area size to cover

Cell type: Macrocell, Microcell

Radius of each cell

Frequency reuse factor, $N = I^2 + J^2 + (I * J)$; where $I, J = 0, 1, 2, 3...$

Output:

Number of cells required

Number of channels per cell

Total channel capacity

Total number of possible concurrent call

Use the Okumara/Hata model to predict the path loss.

Input:

f_c = carrier frequency in MHz from 150 to 1500 MHz

h_t = height of transmitting antenna (base station) in m, from 30 to 300 m

h_r = height of receiving antenna (mobile unit) in m, from 1 to 10 m

d = propagation distance between antennas in km, from 1 to 20 km

City size = Small/Medium, Large

Area type: Urban/Suburban, Open area

Output:

Predicted path loss in dB.

Programming environment: **Your choice**