

EXPERIMENT 1

Aim-To study signal to interference ratio for average and worst case in mobile communication.

Software used-Octave

Theory-

If the Mobile Station(MS) present in the cell X is receiving a signal from Base Station(Bs)having strength of the Signal P_x . If I denote the power of the co-channel interference at the output of receiver demodulator.

Let K be the number of co-channels interfering cells

$$\frac{S}{I} = \frac{P_x}{P_{interference}}$$

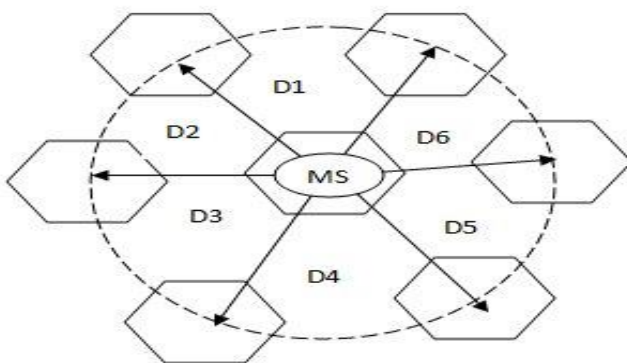
For Average Case, S/I ratio in hexagonal cluster of cells is given by

$$\frac{S}{I} = \frac{1}{\sum_{i=1}^k Q_i^{-n}}$$

where n is path loss component

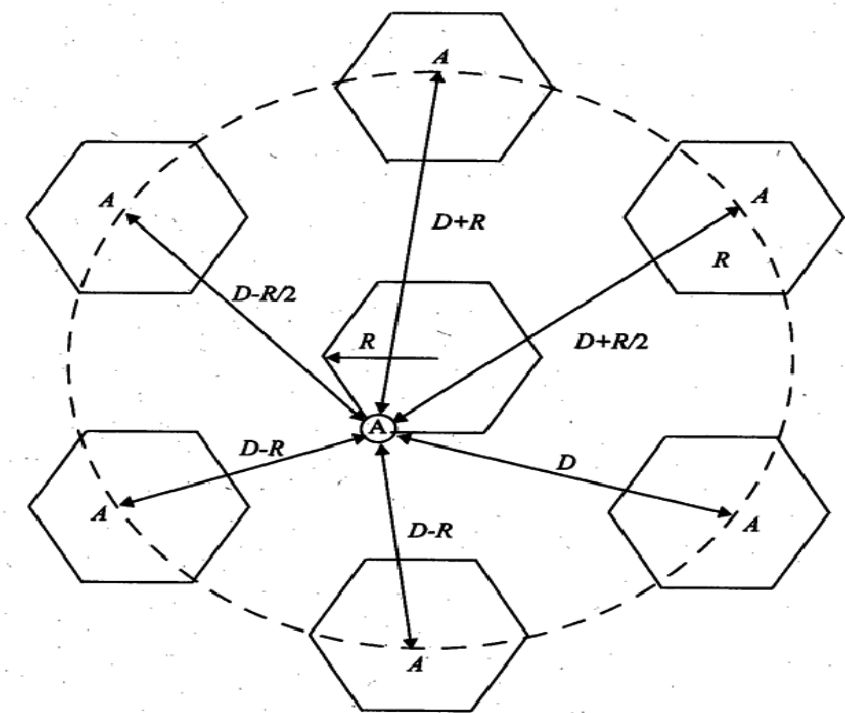
& Q is frequency reuse ratio

For Average case considering K=6



$$\frac{S}{I} = \frac{1}{6(Q)^{-n}}$$

For worst case the user might move to the corner of the cell,in that case S/I



$$S/I=\frac{1}{2(Q)^{-n}+2(Q+1)^{-n}+2(Q-1)^{-n}}$$

Calculation tables

i	j	N	Q
1	1		
1	2		
2	2		
1	3		

For average case

Q	n= 2	n= 3	n= 4

For worst case

Q	n= 2	n= 3	n= 4

Conclusion:-