Introduction to Wireless and Mobile Networking: HW1 Report

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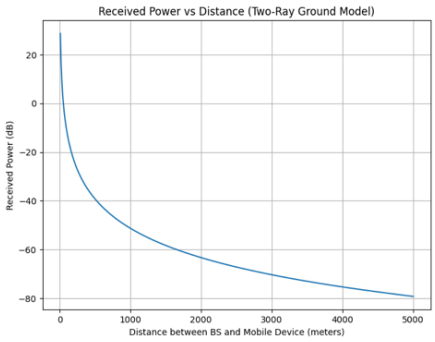
A. path loss only radio propagation (without shadowing and fading).

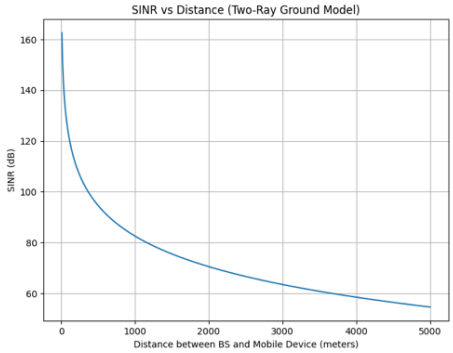
with formula $P_{Receive} = P_t \cdot G_R \cdot G_t \cdot (h_{device} \cdot h_{base})^2 / d^4$

we'll get P_t is inversely proportional to d^4

While $N = k \cdot T_N \cdot Bandwidth$, $SINR = P_{receive}/(Interfere + N)$

N is independent to d. Thus, there's only difference between x- axis of the two plots.





B. Consider both the path loss and shadowing (without fading). Apply log-normal shadowing tomodel the shadowing effect.

By log-normal shadowing, x is Gaussian variable with mean = 0, standard deviation $\sigma = 6$, $P_{Receive} = \alpha^2 \cdot 10^{\frac{x}{10}} \cdot g(d) \cdot P_t \cdot G_t \cdot G_R$